

The ‘bewitched’ world of everyday things: Engels and Marx on dialectically determined reality and the dire consequences for Nature of our failure to recognize it¹.

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Everything that has a fixed form, such as a product, etc., appears as merely a moment, a vanishing moment, in this movement. The direct production process itself here appears only as a moment. The conditions and objectifications of the process are themselves equally moments of it, (Marx, Grundrisse, 712).

Abstract: *We want to propose that the essential root of our global environmental crises is our continual propensity to misinterpret the essential workings of the organic ecosystems of Nature. According to Marx and Engels, the ontology of concrete reality (including Nature) is determined by dialectical laws. On the surface, this ‘reality’ appears to be made up of thing-like objects with their ‘heterogeneous and independent forms’. However, concrete reality is in fact determined by an endless maze of underlying relations and interconnections, in which nothing remains static, everything is in a state of flux’. (Engels, 1986, 29). Therefore, the ‘surface’ reality, is a mystification, where the process of thingification holds sway and this apparent condition of existence gives rise to a misinterpretation of the workings of both social and material realities. Critically, our inherent inability to grasp this ‘bewitched’ reality by its surface appearance, comes to fore in the seemingly mysterious emergence of remote consequences. Significantly, it is when these remote consequences, determined by our economic activities appear in the ecosystems of the earth, they tend in general to be detrimental to the organic processes of the earth. In order to reverse this non-sustainable relationship to Nature, we need firstly a paradigm shift in how we interpret the organic world, by adopting a dialectical ontology where reality is determined by interconnecting processes rather than thing-like objects. Accordingly, it is necessary to flip the current capitalist relationship on its head where the commodity form dominates the organic forms of the earth’s ecosystems into a scenario where the social form and content of the use-value product is determined by their sustainability to the diverse ecosystems of the earth. Planning in this dialectical context, has to involve coordinating a vast and diverse range of interconnections of an organic totality, in order to sustain the organic ecosystems of the planet. This requires a complete overhaul of the institutions and practices of civil society (including the economy), by substituting the criterion of profitability for eco-sustainability as the essential form of assessment for all of the conditions of existence in modern society. In short, replacing the commodity form for an organic form of sustainability within a dialectically determined reality. To achieve this life saving task the global eco-movements have to adopt strategies that are informed by the dialectical understanding of natural reality in order to be effective in saving our planet.*

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1. Introduction:

One of the assuring aspects of living on our planet is how we surround ourselves with an incredible diversity of objects that we have made. In doing so we demonstrate in these everyday things our creative ability to transform our immediate environment. Accordingly, human made things celebrate our apparent dominance over Nature and the other inhabitants that we share this earth with. So, things are an essential part of being human, but such objects are deceptive ‘things’ in that their very appearance, especially the inanimate ones, exude a sense of permanence, a near eternal quality to their existence. Yet they all come from substances extracted from the earth and will all end up back there as waste. Therefore, including the immediacy of society using them, they are in a lifecycle process, where they become things or commodities by being formed from the substances extracted from the bowels of the earth. When they lose their usefulness, they are abandoned to become rubbish, inevitably finding themselves back in the same earth that they originated from. Accordingly, these objects of everyday life although they appear as rigid and permanent thing-like entities, are in fact passing moments of this dynamic process. It is this contradiction which we are going to explore in this paper. We will investigate not only the relationship between fluid process and thingified objects but also that these things of everyday life and their underlying processes of determination are actually ecological entities determined by organic processes.

Marx and Engels have already travelled this investigative path, and we attempt to follow in their footsteps, although it is a difficult trail to follow. However, this journey has been somewhat shortened by the recent work of John Bellamy Foster (2020, 2022) where his exhaustive and intensive research² has revealed the extent that Marx and Engels incorporated the ecological aspects of reality into their analysis of capitalism. This ecological incorporation is not just mere adjunct to the economic system but in actual fact it is an intrinsic and essential aspect in the reproduction of modern capitalist society. Our fore coming exposition of the dialectic within the work of Marx and Engels supports this critical finding.

Marx and Engels were revolutionaries to the very core of their being – challenging the status quo on all its fronts – intellectually, politically, and practically. With regard to their intellectual endeavours, their most famous recognized revolutionary work undermined the accepted dicta of political economy and in doing so they raised the necessity of a proletarian revolution. However, within their vast array of subversive activities, we also have to include their attempt to lay bare a truly radical and fundamental reassessment of how we understand reality. This incredible project of theirs, although rarely highlighted, to change the ontology and epistemology of how we interpret reality and subsequently engage with the world has the potential to put all of their other revolutionary efforts into the shade. This is especially so with regard to the contemporary environmental crisis in which the world finds itself.

² John Bellamy Foster, 2020, *The Return of Nature: Socialism and Ecology*, Monthly Review Press, New York and *Capitalism in the Anthropocene: Ecological Ruin or Ecological Revolution*. 2022, Monthly Review Press, New York.

In what follows, we want to propose that this paradigm-changing work of theirs in understanding the essential workings of our concrete reality, and particularly the natural realm of this reality is now increasingly becoming the necessary conceptual means which will enable us to reengage with our planet by living sustainably on it. Most of the contemporary theoretical work done on the dialectics of Marx and Engels has tended to concentrate on their use of the epistemology of dialectical analysis rather than the ontology of a dialectical determined world. In this piece, we will be focusing in on the latter and in doing so we hope to emphasize the significance of their work on the ontology of dialectically determined reality and how that insight is critical in sustaining life on earth.

The initial and crucial step that we need to take on our journey of discovery is one that is concerned with how we interpret concrete reality, or more precisely how we have failed a to grasp adequately the determinants of that reality. Specifically, this involves our failure to account for the remote consequences of our intended actions. This is especially so with regard to those actions that occur within the sphere of the economy and how subsequently those intended economic actions impact on the ecological workings of the earth. The failure to predict remote consequences comes about because we constantly fail to recognize that we are dealing with a reality which is determined by dialectical laws, where everything is interconnected and constantly moving. It is these two essential aspects of a concrete dialectically determined reality – its fluidity and its organic connectedness that causes remote consequences to occur beyond the immediate consequence of an intended social action. That initial action, which may be but not necessary be socially determined, sets off, not only an immediate reaction (consequence), but also a series of other reactions which permeates throughout the entire interconnected (organic) totality, giving rise to a possible range of remote consequences.

However, in contrast to the dialectically determined reality as proposed by Marx and Engels, the bourgeois conceived world is one that is presumed to be made up of fixed and detached entities, - independently existing from all that merely surround them - and even Nature itself is seen to be ruled by “a rigid system of an immutably fixed organic nature” (Engels 1986, 29). The supposed essential structure of ‘thingification’ within concrete reality and its subsequent reification in the real-in-thought (Althusser) process, produces faulty one-sided accounts³ of reality that fail to grasp the essential and fundamental determinants of the actual real world.

Therefore, thingification is a level of determination of reality which was identified in the works of Marx and Engels, but it rarely reveals itself fully and when it does it is generally appears as insightful vignettes interspersed among their economic conceptualizations. Although this understanding of reality is rarely explicitly exposed, it has enormous implications on how we comprehend and subsequently engage with concrete reality and especially the ecological base of all life on this planet. It is our task to explicate these diverse

³ Engels provides more detail on this condition of one-sidedness:

If, however, we adhere one-sidedly to a single standpoint as the absolute one in contrast to the other... we shall remain entangled in the one-sidedness of metaphysical (the science of things) thinking; the inter-connection escapes us and we become involved in one contradiction after another (Engels 1986, 167).

insights and commentaries of Marx and Engels on this thingification process and present them and their implications for modernity, in a coherent exposition.

2. The underlying processes of dialectical reality.

Paul Lafargue, Marx's son-in-law stated that Marx with regard to understanding reality 'did not see a thing singly, in itself and for itself, separate from its surroundings; he saw a highly complicated world in continual motion' (Ollman, 1976: 280). This ontological view of the concrete world is reiterated by Marx's own words from 1842 in which he refers to 'the contents of the world' as an 'unorganised mass of the whole' with a 'fluid essence of the content' (Marx, *MECW*, vol.1, 233). The same ontological perspective can also be attributed to Engels and his understanding of the natural world. Natural matter is, according to Engels is not a 'dead' thing-like object but a pulsating moving dynamic entity.⁴ And this essential movement does not just occur within particular objects of matter but also between all of those objects, both organic and inorganic, that are within Nature:

'When we reflect on Nature....the first picture presented to us is an endless maze of relations and interactions, in which nothing remains what, where and as it was, but everything moves, changes, and comes into being and passes out of existence, everything is in *flux*'. (Engels, 1986, .26-29).

This maze of interconnections and their movement is not obvious on the surface plane of concrete reality where its contents appear to be made up of a vast array of separate and independent entities, where they 'lie side by side in mutual indifference' (Marx, 1993, 310) and whose apparent relationship with each is that they merely inhabit the same earth. However, this is a topsy-turvy world, in which the real determination of objective mundane reality is the opposite of its reified appearance in that everything is connected and is in a constant state of motion. Dialectically, all concrete entities are in reality moments within underlying processes, even non-organic phenomenon, which appear to be static on observation but are in reality fluid processes, as Engels proposes:

Continual change is also found in so-called inorganic nature. Geology is its history. On the surface, mechanical changes (denudation, frost), chemical changes (weathering); internally (water, acids, binding substances); on a large scale – upheavals, earthquakes, etc. The slate of today is fundamentally different from the ooze from which it is formed, the chalk from the loose microscopic shells that compose it, even more so limestone, which indeed according to some is of purely organic origin, and sandstone from the loose sea sand, which again is derived from disintegrated granite, etc., not to speak of coal (Engels. 1986, 215).

So, we have here in this example a vast range of changes, occurring over millions of years. It appears that change in non-organic phenomena does happen as it does in the organic world of

⁴ Engels stated this in the following: 'The first and most important qualities of *matter* is *motion*, not *mechanical* or *mathematical* movement, but still more *impulse*, vital life spirit, tension, ...the throes of matter' (Engels, 1986.46).

plants and animals. Ilyenkov confirms this interpretation of Engel's ontological perspective where every individual entity, both organic and non-organic are essentially moments within processes:

That means that any individual object, thing, phenomenon, or fact is given a certain concrete form of its existence by the concrete process in the movement of which it happens to be involved; any individual object owes any concrete form of existence to the concrete historically established system of things within which it emerged and of which it forms a part, rather than to itself, its own self-contained individual nature (Ilyenkov, 1982, 118).

Therefore, the implication of this dialectical understanding of the concrete world is that reality is an ensemble of diverse and interdependent, emergent processes and that in order to interpret this reality we need to uncover these determining processes. As Engels stated 'the whole of nature lies spread out before us as a system of inter-connections and processes (Engels, 1986: 198)⁵ and even the most unlikely of things are connected such as 'e.g., a meteorite and a man':

But an infinite series of other natural objects and natural processes can be put between the two things, permitting us to complete the series from meteorite to man and to allocate to each its place in the inter-connection of nature and thus to *know* them ...' (Engels 1986, 232/3).

Thus, to 'know' concrete reality, we have to realize that it is not a static and unchanging solid entity, nor is Nature within such reality— "a rigid system of an immutably fixed organic nature" (Engels 1986, 29). Consequently, the essence of reality is that it is a dialectical reality, which consists of interconnections between concrete phenomena and reciprocal action between them are "the true *causa finalis of things*" (Engels 1986, 231; italics in the original).

Another critical implication of concrete reality being determined by dialectical laws is that in this reality, although chance may appear to occur on the surface, no event is accidental, being in fact determined by 'inner laws'. These laws reveal the essential interconnectedness of dialectical reality, and under these determining circumstances independent and detached chance occurrences cannot exist, as Engels suggests:

Historical events thus appear on the whole to be likewise governed by chance. But wherever on the surface chance holds sway, it is always governed by inner laws and these laws only have to be discovered. (Engels, 1886. *Ludwig Feuerbach and the end of Classical Philosophy*, 387).

Therefore, historical occurrences and events appear to randomly manifest themselves as 'immediate form of appearances' as thing-like phenomena or as discrete events on the surface of society, but critically beyond their surface appearance they are determined by abstract

⁵ Engels gives more detail in the following:

The whole of nature accessible to us forms a system, an interconnected totality of bodies, and by bodies we understand here all material existences extending from stars to atoms, indeed right to either particles, in so far as one grants the existence of the last named. In the fact that these bodies are interconnected is already included that they react on one another, and it is precisely this mutual reaction that constitutes motion. (Engels, 1986, 70).

(hidden) and inner laws, which they are in fact moments⁶ of complex metabolising processes⁷ as Engels suggests in the following:

The great basic thought that the world is not comprehended as a complex of ready-made things, but as a complex of processes, in which the apparently stable things, no less than their mental images in their heads, the concepts, go through uninterrupted change of coming into being and passing away, in which, for all apparent accidentality and despite all temporary retrogression a progressive development asserts itself in the end (Engels, 1886, *Ludwig Feuerbach and the end of Classical Philosophy*, 384) (emphasis added).

This apparent surface ‘reality’ of ready-made and stable things, which are not only contrasted but also determined by the presence of underlying processes. These processes are to be seen as neither being underneath nor as a base in contrast to a superstructure of the surface, but as a matrix of interconnecting relationships that encompass both the hidden interconnections of dialectical processes and the surface things as essential determining moments of an organic totality. Best conceptualized as underlying processes of an organic totality.

A further complication has to be added to this ever-increasing dialectical complexity, is that these essential interconnecting processes of concrete reality, and particularly the organic processes of the natural world are increasingly being penetrated by societal forces in which society acts upon nature. However, before we discuss the dialectics of this interaction between nature and society, it is important to highlight that Nature on its own without human interference, according to Engels, is neither consciously determined nor do accidental events occur:

In nature – in so far as we ignore man’s reverse action upon nature – there are only blind, unconscious agencies acting upon one another, out of whose interplay the general law comes into operation. Of all that happens – whether in the innumerable apparent accidents observable upon the surface, or in the ultimate results which confirm the regularity inherent in these accidents – nothing happens as a consciously desired aim. (Engels, 1886, *Ludwig Feuerbach and the end of Classical Philosophy*, 387). (emphasis added).

Therefore, these ‘accidents observable upon the surface’ are either the result of the interplay of the organic laws of Nature or remote consequences which are the result of human activity but are not recognized as such. And even more critically, Engels locates the presence of a

⁶ Nicolaus points out the significance of the concept of moments within Marx and Engel’s dialectics:

Because movement is the only constant, Marx, like Hegel, uses the term ‘moment’ to refer to what in a system at rest would be called ‘element’ or ‘factor’. In Marx the term carries the sense both of ‘period of time’ and of ‘force of a moving mass’. (Martin Nicolaus, 1993, Foreword, 1993, 29).

⁷ The key point to emphasize is that these accidental events and chance occurrences are in fact remote consequences.

dual form⁸ of reality, in which its surface appearances and its underlying innate laws of determination needs not only to be recognized but only analysing one side of this interconnected concrete reality (organic totality) will only provide a one-sided and faulty interpretation of that reality.

The conclusion of our investigation into Engels and Marx's ontological understanding of reality is that we have to learn to reassess that the 'real concrete' as a dialectical real concrete. Accordingly, Althusser's uncovering of the real-concrete – concrete reality within Marx's analysis – has to be expanded upon to include its dialectical forces of determination, so that concrete reality becomes a dialectically determined concrete reality. Therefore, not only is the world turned upside down as the idealism of Hegel is flipped on its head and is replaced by practical materialism but also that overturned world has now to be understood as a material world that works dialectically! One critical consequence of a dialectically determined reality is that any theory of it has to be evaluated on its ability or inability to conceptual grasp the complexity of a dialectical organic totality. Those, that are unable or unwilling, to recognize the dialectical workings of concrete reality will by implication be hindered in their capability to adequately conceptualize that reality.

The key point to grasp is that reality and especially Nature is determined by conditions in conformity with 'objective' dialectics as Engels proposes:

Dialectics, the so-called *objective* dialectics, prevails throughout nature... (which is characterized by) the motion through opposites which asserts itself everywhere in nature, and which by the continual conflict of the opposites and their final passage into one another, or into higher forms, determines the life of nature. (Engels, 1983, 211) (Brackets added).

However, the dialectical workings of reality manifests themselves not in dynamic interconnecting processes but as thing-like phenomena.

3, 'Pure semblance' (Marx) of surface things.

In a brief observation Marx comments on how capital has a dual existence of being a thing and a process: 'Money...as capital has lost its rigidity and from a tangible thing has become a process' (263, 1) and consequently 'Capital is not a simple relation, but a *process*, in whose various moments is always capital (258)'. This contradictory relationship between an entity being simultaneously a thing and a moment in a process

This complex form of duality that the process of thingification⁹ embeds in concrete reality creates a whole series of intricate problems that gives us the opportunity to explore these issues, but critically the material/physical basis of modern society. To do this we especially want to explore that part of the material conditions of production whose elements are used in

⁸ The recognition of double form of an entity within concrete reality is an essential conceptual tool of dialectical analysis, where an entity is conceived as having two competing and contrasting forms embedded within its particular structure. Thus, movement is observed in an apparent thing-like phenomenon.

⁹ Marx did not himself use this concept, we adopted it from Tairako (2018).

production which are sourced from Nature and consequently provide the substances of the use-value products¹⁰. But a question immediately arises how those socially appropriated substances from the earth apparently lose their explicit ecological aspects (origins) in thing-form of the use-value product. Accordingly, it is our task to investigate how this thingification process impacts on these ecological attributes within the use-value product and subsequently how these commodity thing-like entities form the essential ecological base of capitalist society.

According to Tairako, these blinding and mystifying tendencies of the thingification process come to the fore in Marx's discussion of the 'economic trinity' (Tairako, 2018, 5) and how they become concrete social forms of surplus value - land-rent, labour-wage and capital-profit - by emerging from the abstract process of valorization and manifesting themselves as separate and independent forms on the surface of society, as Marx suggests in the following:

It is clear that, as soon as surplus-value [is split up] into different, *separate parts*, related to various production elements, such as nature, products, labour, - which only differ *physically*, that is, as soon as in general surplus-value *acquires special form, separate from one another, independent of one another and regulated by different laws*, the common unit – surplus-value – and consequently the nature of *this common unit*, becomes more and more unrecognisable and does not manifest itself in the *appearances* but has to be discovered as a *hidden mystery*. The assumption of independent forms by the various parts – and their confrontation as independent forms – is completed as a result of each of these parts being related to a particular element as its measure and special source; in other words, each part of surplus-value is conceived as the effect of a special cause, as *an adjunct of a particular substance*. Thus, *profit is related to capital, rent to land, wages to labour*. (Marx, TSV, part 3, 484) (emphasis highlights aspects of the process of thingification).

Therefore, a crucial part of our task is to investigate not only the 'hidden mystery' of the thing form of the natural materials that are embedded in use-value product but also how those materials are in fact ecological materials appropriated by society. In pursuing this line of inquiry, we hope this endeavour will provide us with the key to explicating the ecological determinants of modern capitalist society.

Marx continues by tracing out the implications of these apparent 'independent forms' of revenue sources derived from the three factors of production and especially with regard to how they hide on the surface their inner connections which actually exist between these apparent things. This act of concealment is especially exploited by those theoreticians who support the status quo of Capitalism as they emphasize this seemingly heterogeneous nature of reality with its independent and isolated thing-like forms, as Marx suggests:

This, moreover, renders a substantial service to apologetics. For [in the formula] land-rent, capital-interest, labour-wages, for example, the different forms of surplus-value and configurations of capitalist production do not confront one another as alienated forms, but as heterogeneous and independent forms, merely different from one another but *not antagonistic*. The different revenues are derived from quite different sources, one from land, the second from capital and the third from labour. Thus, they

¹⁰ As Marx stated:

Labour is *not* source of all wealth, *Nature* is just as much the source of use values (and it is surely of such that material wealth consists) as labour ... (Critique of the Gotha Programme).

do not stand in any hostile connection to one another because they have no inner connection whatsoever. (Marx, TSV part 3, 503) (emphasis added).

However, accepting the validity of these assertions, we want to propose that this obscuring of the real interconnections between surface things does not just include the social aspect of production but also it has a vital ecological dimension to it, where the physical use-value forms of these identified parts of surplus value have material elements that are physical substances extracted from Nature. Consequently, both the social and organic forms of these surface things remain a ‘hidden mystery’ because these aspects of their origins and their forms of existing being are unrecognizable in their thing-like forms on the surfaces of the bourgeois world – either social or organic. These apparent thing-like entities of surface reality and how their appearance hides their essential social and natural forms, it is this process of thingification.

It is not the actual physical appearance of reality that is problematic it is how we understand and interpret how those surface appearances come about and how they continue to reproduce themselves. So, this problematic we are exploring revolves around how reality is determined, how we interpret it, and how we subsequently engage with that reality. On the surface of this concrete reality appears to be a thingified reality, where its apparent physicality is one determined by the presence of thing-like entities, ‘separate from one another, independent of one another and regulated by (their own) different laws’ (Marx, TSV, part 3, 485) (brackets added). This world of isolated and fixed things which give the impression of being natural condition of existence for the activities of ordinary everyday life, are not immediately recognizable as the result of man’s social activity (Kosik, 1976, 2). Marx extends this point by suggesting that ‘they exist in forms which, not only conceal, but which disavow their real origin (Marx, TSV, part 3, 512). Accordingly, the thingified objects of surface reality deny their social origins by how their overwhelming presence in everyday life impacts on the consciousness of ordinary people¹¹ as Kosik proposes:

The collection of phenomena that crowd the everyday environment and the routine atmosphere of human life, and which penetrate the consciousness of acting individuals with a regularity, immediacy, and self-evidence that lend them a semblance of autonomy and naturalness constitutes the world of ...[things] (Kosik, 1976, 2) (brackets included).

Consequently, this crowded collection of thingified objects condition the ‘consciousness of acting individuals’ to accept these objects as a natural part of everyday life. The physical components of the thing-like use-value of a commodity are not just sourced from nature but also these natural components as physical substances form the essential material substrate of

¹¹ Sean Sayer actually suggests that this aspect of the thingification process can be identified within the Enlightenment thinkers:

As William James says, “Ordinary empiricism . . . has always shown a tendency to do away with the connections of things” (James 1912, 42–43). Locke puts the point succinctly. “Relation,” he writes, is “not contained in the real existence of things, but [is] something extraneous and superinduced” (Locke 1924, II.25.8). Things have their nature purely in themselves on this view, quite independently of their relations to other things. The effect of such views is to see things, as Hume (1894, para. 58) puts it, as “loose and separate . . . conjoined but never connected.” (Sayers, 2022, 4).

the use-value product, while the form, which is physically manifested in its thing-like form, is provided by the labour of society as Marx continues in the following:

The use-values coat, linen etc., - in brief, the commodity-bodies – are connections of two elements, natural matter and labour. If one subtracts the total sum of all different instances of useful labour which lurk inside the coat, linen etc., there are always remains a material substrate left over which is present naturally without the interference of man. Man, can only proceed in his producing like nature does herself; i.e. only change the forms of material. And what is more, in this labour formation itself he is constantly supported by natural forces (Marx on the commodity, Capital, vol.1) (emphasis added).

The ‘change [in] the forms of material’ occurs within the use-value product between the point of extraction of the natural matter in the form of raw material from the earth and how it moves through its production processes and out into the world of circulation and consumption, and finally becoming waste to end up back in the physical confines of the earth. This movement of the social and physical forms of ‘natural’ material of the use-value product is presented in the following:

The unfolding phases of the thing-forms within the life cycle of a commoditized use-value product.

Earth constituents (extracted) → raw material → use-value product → commodity good → consumable → waste matter → earth constituents (re-integrated).

This presentation¹² locates the position that the concrete forms of the use-value product unfold themselves within the life cycle of the commodity product. From the reservoirs of the earth, the natural matter is extracted from and subsequently they are formed into raw material to be used in the production processes. Finally, these use-value products move through the processes of circulation and individual consumption to become waste and then to reach their final destination when those discarded substances are re-integrated back into the subterranean realm of the earth. This movement within the life cycle of the use value product is not exclusively a social/spatial process of transportation of matter but also involves a movement through a diverse range of form metamorphoses, in which some of these are material and others are social¹³. Several of these forms are concrete forms – thing-like forms that are convenient for society to (1) appropriate the organic substances from the earth, which Marx has identified as natural matter, (2) to work them up as raw material in production processes (3) and to be physically stored and transported as their last social thing-like form in the social process of consumption and finally (4) to integrate their waste form back into the ‘bowels of the earth’.

¹² This presentation attempts to reflect the logic that Marx presented in Grundrisse in the section entitled – The General relation of production to distribution, exchange, consumption (Marx, 1993, 88).

¹³ The social here refers to how Marx identified how labour provides a social form to the material contents of the product.

Significantly, this life cycle of the organic elements within the changing physical forms of the use-value product is the fundamental dynamic of the ecological reproduction of modern capitalist society. Recognizing this material life cycle of the use-value product and its necessary ecological contents within its thingified forms, is the critical first step necessary to uncover not only the reality of our ecological dependence on Nature, but also it is necessary for us to realize how we continually damage that relationship we have with the natural forces of the earth.

Therefore, these concretized forces of nature that are appropriated by society are not just in general thwarted by the thingification of its processes but with regard to capitalism the specific nature of this thwarting is determined by how use-value production is geared towards providing consumable goods and as many of those goods that can be consumed. In short, it is the valorization process that reigns over the thingification process of capitalist society. However, on the other hand this value form of the thing-commodity is itself dependent on the material substructure of the use-value product and its inherent ecological base, which in turn are determined by the organic forces of natures. On the surface of everyday life, they appear to remain in a near dormant state of inactivity¹⁴, to be reactivated in their natural form when their use-value form is no longer needed by society and the rest of their life cycles is characterized by a state of idleness. The abandonment of the use-value product in its life cycle, provide the opportunity for the organic forces of nature to regain their control over the social and thingified forms of commodity products when the product begins to decay and perish. In general, the thing-form is the essential way any society appropriates the ‘fruits’ of nature for its own survival – it is the necessary social and physical form that we as humans mediate our relationship with Nature.

The essential mechanism of the obliteration of the social aspects of capitalist production is achieved through the thingification process. Thingification is both a physical and simultaneously an ideological process, in that it is a physical form of a surface appearance, in which the immediate environment, appears on the level of immediate scrutiny (without scientific insight), to consist of artificial thing-like objects.

In not exposing its underlying processes of determination the thingification process mystifies how the immediate observer can interpret this ‘obvious’ thing-like formation of concrete reality. In short, the diversity and the amount of apparent surface things within concrete reality and how they have ‘assumed an independent and rigid existence’ (Marx, TSV, part 2, 48), eclipse the presence of their abstract determining processes and how those processes interconnect those surface things¹⁵. Therefore, the ‘pure semblance’ (Marx, Grundrisse, 312) of the concrete things of surface reality, creates material conditions for the observers of reality to ideologically misinterpret that reality. Things don’t look or appear natural – as consisting of natural materials sourced from the earth. For example, it is hard to perceive or imagine the natural substance of oil in plastic utensils. The surface artificiality of

¹⁴ However, in our domestic activities of housekeeping (long-run consumption) we preserve the thing-like forms of our household inanimate consumer goods by maintaining their appearance and the physical integrity through cleaning, washing and dusting them.

¹⁵ It could be argued that that those thing forms are simultaneously both determined by underlying processes but also they function themselves as essential moments of those processes. In short, they are mediated and mediate.

a use-value product is manifested in the accompanying ‘artificial’ characteristics of the design shape, aesthetic and use ability which ‘eclipse’ the inherent and ever-present ‘earthy’ matter that provide the physical substances for the production of our glittering consumer products of contemporary society. This branding of the commodity can manifest itself on the physical use-value product in diverse ways – ‘the shaping of the body of the commodity, the particular elaboration of its ‘skin’, its representation on the package, its decoration in display...’ (Haug, 2006:). Consequently, this particular aesthetic form of the thingification further intensifies the mystification of the physical, including the organic) and social origins of the use-value product¹⁶. Marx summarises this tendency in the following:

The different relations and aspects not only become independent and assume a heterogeneous mode of existence, apparently independent of one another, but they seem to be the direct properties of things, they assume a material shape. (Marx, TSV, part 3, 514).

The ‘material shape’ of the thing-object reveals itself by its external outer shell or skin-like countenance this physically shaped frame encloses its particular contents¹⁷. Both the inner contents and the external shaped form are made up of material substances that, although altered in the ‘fermentation’ of the labour processes, are sourced from Nature, from the earth’s resources. It is only when the thing-product has ended its life cycle as a use-value form, after it has been completely consumed and subsequently discarded by society as a waste object that it explicitly exposes on its surface its ecological constituents. The disintegration of the thing-form and the emergence of its up-till-now hidden organic inners occurs when finally, the thing-object falls prey to the forces of decay. Nicolaus in the following grasps the significance of not only when a thing decays but also highlighting the constant movement involved in the life cycle of surface things:

In short, for Marx, as for Hegel, the problem of grasping a thing is firstly the problem of grasping it is in motion. This logic is rendered more difficult by the fact that in the ordinary course of events it is by no means obvious that this is so. Only when things suddenly crack and break apart does it become obvious that there was a dynamic within them all the time; but ordinarily, things present an appearance of rest. (Hegel, Logic 1, werke v, 123). (Martin Nicolaus, 1993, Foreword, 1993, 30).

The more organic components within the thing-product, as in food, in contrast to inorganic components such as in inanimate products will dissolve their thing-form quicker than inorganic items, but all things will decay in time. However, the forces of decay and decomposition as they appear on and within the thing-object are the surface evidence of not only the ecological origins of the use-value product but also of how the underlying ecological processes are regaining their dominance over the temporary existing thing forms of bourgeois society. But as the thing-form retains its conditions of existence it will continue to dominate

¹⁶ The aesthetic branding of a product is essentially about embedding shapes and signs (both written and symbolic) onto its surface form that emanate a mental image which attempts to insert the commodity product into a lifestyle narrative – attaching ‘extraneous meanings to basically functional objects’ (Slater, 2002, 136). In short, the physical surface of the use-value product becomes a mode of representation of an aesthetic moment in an idealized cultural process that ‘exists’ beyond the immediacy of its existence as a medium of representation. The front lawn is a good example of this (Slater, 2013).

¹⁷ The surface appearance of apparent ‘restfulness’ and lifelessness have to be considered as critical defining characteristics of the thing-like form.

the contents of its organic substances and they being moments of underlying ecological processes.

Consequently, the thingification process becomes itself a process of mystification of the concrete reality within the commodity world of modern capitalism. For example, in Marx's discussion of the retail trade, the commodity product, when it is purchased, evades the exploitative relationship between the capitalist millionaires and their workers because they both appear on the surface society as simple buyers of commodities:

In so-called retail trade, in the daily traffic of bourgeois life as it proceeds directly between producers and consumers, in petty commerce, where the aim on one side is to exchange the commodity for money and on the other side is to exchange money for commodity, for the satisfaction of individual needs – in this movement, which proceeds on the surface of the bourgeois world, there and there alone does the motion of exchange values, their circulation proceed in its pure form. A worker who buys a loaf of bread and a millionaire who does the same appear in this act only as simple buyers, just as, in respect to them, the grocer appears to them only as seller. All other aspects are here extinguished. The *content* of these purchases, like their *extent*, here appears as completely irrelevant compared with the formal aspect. (Marx, 1993, 251) (emphasis added).

Included among these extinguished aspects have to be its ecological elements of the commodity thing and like its social aspects, these ecological aspects also 'appears as completely irrelevant compared with the formal aspect' of being a thing-like product. The 'pure semblance' of things on the surfaces of reality inherently mystifies that reality and this includes the reality of our dependence on the ecological conditions of the earth's ecosystems, in order to produce such thing-like products for our survival.

The 'unearthing' of the thingification process on the surface of bourgeois society and its specific form of 'concrete' reality which has emerged under its sway, allows us to begin to perceive the presence of a level of determination that operates between the surface appearance of things and the underlying fluid processes that determine the totality of that reality. This constant tussle between thing and process is a determining feature of concrete reality as Nicolaus in his Foreword to Marx's *Grundrisse* succinctly locates:

This surface of calm over unceasing restlessness. Hegel called *Daesin*, or presence; and when the senses are brought into the relationship, it becomes the appearance of things. Hegel wittily defined this presence as 'having the form of the one-sided, immediate unity' of the opposites beneath its surface (Hegel, *Logic 1*, *werke v*, 123). (Martin Nicolaus, 1973, Foreword, 1993, 30).

The 'immediate unity of the opposites' between the thing and the process is especially significant within the use-value product of the commodity form. Within the social usefulness of the product, there is a constant struggle between the thing form of its surface and its underlying fluid processes¹⁸ that mediate not only its internal content but also its external

¹⁸ Sayer expressed the same contradiction in the following way:

This is not to deny that things can also be fixed and stationary. But such states are relative and temporary. Nothing concrete remains the same forever. Change and motion are inherent in all things. (Sayers, 2022, 5).

form. The one essential process mediated is the ecological process that exists within the material structures of commodities.

It is critical to highlight that within this contradictory relationship between the surface thing and its underlying determining processes is the ecological relationship that society has with Nature under capitalism, where the thing-like form of the commodity, especially with regard to inanimate objects, eclipse the presence of underlying ecological processes that determine the materiality of society's products. This condition of existence that the thingification process has imposed on the surface appearance of everyday reality has, according to Marx, created a 'bewitched world:

Thus the participants in capitalist production live in a bewitched world and their own relationships appear to them as properties of things, as properties of the material elements of production. (Marx, TSV, part 3, 514).

One of the aspects of this bewitchment of reality, is bourgeois society inability to understand the emergence of remote consequences (unintended effects).

4. The apparent 'mystery' of remote consequences.

In his unfinished work, *Dialectics of Nature*, Engels raises the issue of how we control our destiny with regard to the evolution of society and its relationship to Nature. In comparison to the animals and their historical development, human control of natural history is determined by conscious awareness of Nature's structure (Engels, 1986, 34). In our attempt to control our destiny, especially in times of crisis and even more so when that crisis is global, conscious planning becomes a necessity for our survival. And the success of this planning depends on our ability to predict and master the 'unforeseen effects and forces' of historical evolution, as Engels suggests in the following:

..., the more they make their history consciously, the less becomes the influence of unforeseen effects and forces on this history, and the more accurately does the historical result correspond to the aim laid down in advance (Engels, 1986, 34).

However, even in 'the most developed peoples of the present', unforeseen effects still dominate our ability to control our destiny, according to Engels:

We find that there is a colossal disproportion between the proposed aims and the results arrived at, that unforeseen effects predominate, and that the uncontrolled forces are far more powerful than those set-in motion according to plan.' (Engels, 1986, 35).

The 'unforeseen effects' determined by 'uncontrolled forces' are conceptually grasped by Engels in the concept of remote consequences. Remote consequences and our understanding of them becomes a pivotal point in our attempt to control our destiny within concrete reality. There are a number of explicit examples of remote consequences within the works of Marx and Engels, but especially Engels, where they discuss their presence in historical development.

In another of his unfinished works on the *History of Ireland* Engels provides a good example of remote consequences. In his analysis of Ireland's ecological conditions (Slater, 2018 and 2022), he discusses the occurrence of mountain blanket bog. In the mountainous

regions of Ireland, the economically determined deforestation led to the leaching out of essential nutrients from the soil and consequently allowed blanket bog (cold wet swamp) to emerge in place of the original woodland¹⁹ as Engels suggests in the following:

Besides these low-lying peat bogs, there are 1,254,000 acres of mountain moor. These are the result of deforestation in a damp climate and are one of the peculiar beauties of the British Isles. Wherever flat or almost flat summits were deforested – this occurred extensively in the 17th century, and the first half of the 18th century to provide the iron works with charcoal – a layer of peat formed under the influence of rain and mist and gradually spread down the slopes where the conditions were favourable (Engels 1986, 183).

As Engels states the immediate consequence of cutting down the mountain forests was to obtain charcoal for iron smelting, but the remote consequence of this economically orchestrated activity was the emergence of bog on these deforested mountains. Although all the bogs of Ireland have the same concrete phenomenal forms with regard to their vegetative form and contents, the blanket bogs of the mountaintops are different from the midland bogs in that they were formed under differing ‘interconnecting’ conditions – as a result of the immediate economic intention of money accumulation through forest harvesting. The following on remote consequence of this economic activity was the ecological emergence of blanket bog. While the low-lying bogs of the midlands of Ireland are exclusively organically determined in that society played no part in their formation, but this is not so with regard to the mountain blanket bog, where their emergence is due to the metabolizing and thus interconnecting processes of nature and society. Specifically, with regard to this Irish society, the colonial landlords cut down the mountain forests and subsequently these deforested mountains were covered with blanket bog ‘formed under the influence of rain and mist’ (Engels 1986, 183).

Unintended effects (remote consequences) are especially prone to occur when we engage with Nature. This engagement with Nature is not out of choice but out of necessity for us to produce our ‘requirements of life’. We are therefore forced to engage in social production, which in turn ‘forms the material foundation of all our other activities, namely the production of our requirements of life’ (Engels, 1986, 35) and as Engels continues:

‘in our day social production is above all subject to the interplay of unintended effects from uncontrolled forces and achieves its desire end only by the way of exception, but the much more frequently the exact opposite. In the most advanced industrial countries we have subdued the forces of nature and pressed them into the service of mankind; we have definitely multiplied production, so that a child now produces more than a hundred adults previously did. And what is the result. (Engels, 1986, 35).

Another example of this inability to predict and foresee the remote consequences ‘of actions directed to this [the most tangible result] turn out to be of quite a different, mainly even of quite an opposite character’ is Engel’s discussion of the activities of the Cuban plantation owners:

What did it matter to the Spanish planters in Cuba, who burned down forests on the slopes of the mountains and obtained from the ashes sufficient fertilizer for *one*

¹⁹ Rain that falls on a protective tree canopy and their necessary dialectical relationships (interconnections) are able to maintain the integrity of the soil beneath, which in turn sustains the forest growth and its canopy. In removing the forest trees and their essential land-cover function, society drastically realigns the metabolizing matrix of the organic interconnecting processes within the Irish weather system.

generation of very highly profitable coffee trees, what did it matter to them that the heavy tropical rainfall afterwards washed away the now unprotected upper stratum of soil, leaving behind only bare rock? (Engel, 2010c, *MECW*, vol.25, 463).

The immediate consequence of the Spanish coffee planters cutting down and burning the mountain rainforest was the growth of ‘highly profitable coffee trees’, but this intended action of ‘slash and burn’ was not able to foresee the more remote and unintended consequences that we associated with the process of desertification. Since these ‘tillers of the soil’ were capitalist plantation owners they were only interested in maintaining their economic viability²⁰. But to achieve this they had to overcome the particular form of the metabolic rift associated with coffee cultivation²¹. Consequently, they sought the cheapest form of badly needed fertilizer for their coffee plantations, which turned out to be locally sourced from the surrounding forests. But the remote consequences that emerged much later than the grabbing of the forest ashes were not located on the plantation estates but were to be seen on the mountain sides where the original rainforest flourished.

The remote consequences emerged because the seasonal tropical rains continued to fall however not on the canopy of a rainforest but on a lower layer of vegetative land cover. Thus, the initial burning of the trees and the subsequent removal of the protective canopy meant that the tropical rainfall was now metabolizing with scrawnier forms of vegetative land cover, which eventually failed to protect the soil from being washed away by the seasonal tropical rains.

These latter events as remote consequences were determined by metabolizing processes that were slowly changing and finally reaching a point (currently known as a tipping point) where a number of aspects and conditions of existence of the original metabolizing processes were eliminated – the vegetative land cover and the soil that originally supported that land cover. The difference therefore between the immediate and the remote consequences is that the initial intervention was that of the removal of the phenomenal form of the tree canopy – the immediate consequence – was simultaneously thwarting of the ‘abstract’ metabolizing processes – the remote consequences. However, that same action of wrenching of concrete object from its immediate environment also eliminated that physical moment from its functional role it performed within the matrix of metabolizing organic processes. In removing this interconnection, the metabolizing operations of the organic processes became increasingly impeded in which that original canopy was functioning as an essential moment in the reproduction of that local Cuban ecosystems.

Therefore, the Cuban example revealed the emergence of one remote consequence, but in his brief discussion of the Italian Alps Engels uncovers the presence of multiple remote consequences and thereby adding another layer of complexity to this problematic:

When the Italians of the Alps used up the pine forests on the southern slopes, so carefully cherished on the northern slopes, they had no inkling that by doing so they were cutting at the roots of the dairy industry in their region; they had still less inkling that they were thereby depriving their mountain springs of water for the greater part of

²⁰ Engels stated it this way: ‘As long as the individual manufacturer or merchant sells a manufactured or purchased commodity with the usual coveted profit, he is satisfied and does not concern himself with what afterwards becomes of the commodity and its purchasers’ (Engels, 1986, 183).

²¹ John Bellamy Foster

the year, and making it possible for them to pour still more furious torrents on the plains during the rainy seasons²² (Engels, 1986, 180).

We have to presume that the deforestation engaged in by these Italian farmers was a result of a collective and conscious decision made by them for short-run economic gain, which was the intended and sought-after immediate consequence. However, Engels suggests that this particular action had not just one following-on remote consequence but a number of remote consequences. The one-off action of cutting the trees down destroyed the dairy industry in that locality. The destruction of the dairy industry was probably determined by how the elimination of the mountain forest, impacted on the whole water supply system depriving that industry of its essential raw material for milk production – water, however, ‘during the rainy season’ another consequence emerged, whereby getting rid of forest trees and their canopy, the heavy rainfall had no barrier to prevent it forming furious torrents of water flowing off the mountains onto plains below. Therefore, one physical engagement with concrete reality can have not only remote consequences but multiple remote consequences.

Therefore, a consciously orchestrated intervention will not only have an immediate effect (intended and unintended) but also crucially it will have the potential to have many remote consequences – ‘unforeseen effects’. This has to do with how the dialectical metabolizing processes become thwarted in their operation as they attempt to accommodate themselves to the impact of the initial intervention (and some of the following-on remote consequences) and the failure of those ‘social agents of change’ to understand and realize that they are dealing with a complex changing reality, even in its natural form. Accordingly, this added complexity of having to deal with a number of remote consequences as highlighted in the case of the deforestation of the Southern Alps, undermines our ability to control nature as Engels suggests:

‘Let us not, however, flatter ourselves overmuch on account of our human victories over nature. For each such victory nature takes its revenge on us. Each victory, it is true, in the first place brings about the results we expected, but in the second and third places it is quite different, unforeseen effects which only too often cancel the first (Engels, 1986, 180).

Engels is proposing here is that we may believe that our intended action ‘brings about the results we expected’, but the ‘unforeseen effects’ – the remote consequences – can in time reverse the perceived accomplishment achieved by the immediate action – following on consequence. There are two critical points in Engels commentary here that needs to be emphasized. Firstly, this analysis here of the interconnections between immediate and remote consequences with regard to our engagement with nature has profound implications for our understanding of the societal relationships we have with the complex workings of Nature. It is not a simple one-to-one relationship. Secondly, Engels introduces another dimension to his analytical exposition in which the new introduced concept of place(s) and its sequential ordering allows us to compare consequences over a long-time frame and also to assess their impact on each other – ‘cancel the first’ place immediate effect. Thus, Engels adds further level of complexity to his understanding of causation by suggesting that remote consequence can be not only many in number but also this string of consequences can be hierarchical in

²² What is becoming obvious in these examples is how the various participants, across differing global locations and historical timeframes, who are involved in these short-run financial gain ventures appear to be unable or unwilling to foresee the remote disastrous ecological consequences of their economically inspired activities.

their impact on reality, through the idea of sequential places. The initial action and its immediate following-on consequence is where the 'first place' effect or consequence occurs. The 'second and third places' are therefore remote consequences which have to be the result of the essential organic process being thwarted by the initial form of the intervention. The impeded process continues to operate in its changed condition and only manifests this thwarted condition when it metabolizes with other organic processes. Herein, lies the time delay between the immediate 'first place' result and the subsequent 'second and third places.' The recognition of this complex relationship between the differing places where consequences emerge challenges our attempt to 'rule over nature' despotically:

Thus at every step we are reminded that we by no means rule over nature like a conqueror over a foreign people, like someone standing outside nature – but that we, with flesh, blood and brain, belong to nature, and exist in its midst, and that all our mastery of it consists in the fact that we have the advantage over all other creatures of being able to learn its laws and apply them correctly (Engels, 1986, 180).

It is critical to point out even at this stage of our analysis is that Engels is referring here to dialectical laws.

However, our analysis so far has concentrated on the work of Engels, but Marx was also aware of how remote consequences can occur as he indicates in following where he comments on the work of Fraas in a letter that he sent to Engels:

Very interesting is the book by Fraas (1847): *Klima und Pflanzenwelt in der Zeit, eine Geschichte beider*, namely as proving that climate and flora change in historical times.... He claims that with cultivation—depending on its degree—the 'moisture' so beloved by the peasants gets lost (hence also the plants migrate from south to north), and finally steppe formation occurs. The first effect of cultivation is useful, but finally devastating through deforestation, etc.... The conclusion is that cultivation—when it proceeds in natural growth and is not consciously controlled (as a bourgeois he naturally does not reach this point)—leaves deserts behind it, Persia, Mesopotamia, etc., Greece²³. So once again an unconscious socialist tendency! (emphasis added).

Marx reveals here not only the emergence of the remote consequence of desertification after deforestation but also how society needs to understand and control these unintended remote consequences. However, intriguingly Marx also mentions that the bourgeoisie may be unable to plan to control remote consequences while socialists consciously can. As we are going to discover, through the work of Engels, this blindness to remote consequences is a result of a particular bourgeois perspective of reality.

However, at certain times in the evolution of the natural sciences, some of their scientists have been forced to recognize remote consequences but because of the inherent

²³ Engels used the same examples:

The people who, in Mesopotamia, Greece, Asia Minor and elsewhere, destroyed the forests to obtain cultivable land, never dreamed that by removing along with the forests the collecting centres and reservoirs of moisture they were laying the basis for the present forlorn state of those countries (Engels, 1986, 180).

Engels is not just noting the occurrence of remote consequences due to deforestation but also how those consequences has long lasting effect on those societies, even to the present day.

discrete orientation of their research activities, none of these discoveries led to a paradigm change towards a dialectical understanding of reality. A consequence of this fragmentation in the trajectory of the natural sciences is their inability to recognize the essential tenet of dialectical science is the presence of reciprocal interconnections. Engels also suggests that this inherent inability to predict remote consequences with precision is also manifested in the difference between the production activities of society and the less successful predictability in the more social/political activities of society:

It required the labour of thousands of years for us to learn a little of how to calculate the more remote *natural* effects of our actions in the field of production, but it has been still more difficult in regard to the more *social* effects of these actions (Engels, 1986, 181)

Here, we believe that Engels is referring more to industrial production rather than agricultural production, where according to Marx the organic forces of Nature, and especially climate, still instils a degree of unpredictable in the cultivation of crops.²⁴ Engels continues by discussing how the immediate ‘social effects’ of how the adoption of the potato diet by the lower classes in most European countries impacted on their living conditions, but the same immediate ‘social effects’ had dire remote consequences for Irish peasantry – their ‘extermination’ (Engels, 1971:190).

.... the effect which the reduction of the workers to a potato diet had on the living conditions of the masses of the people in whole countries, or compared to the famine the potato blight brought to Ireland in 1847, which consigned to the grave a million Irishmen, nourished solely or almost exclusively on potatoes, and forced the emigration overseas of two million more? (Engels, 1986, 181).

It is important to point out that the adoption of the potato by the Irish peasantry and the Famine like all remote consequences is not determined by a singular causation but by multiple causes, which we are going to discover, are embedded in a matrix of interconnecting processes²⁵.

But probably the most significant and critical use of remote consequences, and one that we will return to, is Marx’s comment on how Capitalism destroys both the soil and the worker:

Moreover, all progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil; all progress in increasing the soil for a

²⁴ Marx distinguishes agricultural cultivation from industrial production with regard to society’s ability to control their differing conditions of production:

The shortening or lengthening of the production period (an average of nine months for winter sowing) is itself dependent on the alteration of good and bad years, and hence cannot be precisely determined in advance and controlled, as in industry proper’ (Marx 1978, 318) (emphasis added).

²⁵In this case, the adoption of the potato allowed the colonial rental process to further extract surplus labour from their tenantry but it simultaneously restricted their subsistence diet to one staple food. When the potato blight struck as it did throughout the countries of Europe, it destroys the entire food supply to the Irish peasantry but not so the lower classes of Europe (Slater,2018b).

given time is progress towards ruining the more long-lasting sources of that fertility. (Marx, 1976, 638) (emphasis included).

One aspect of Marx identifying remote consequence in this case of capitalist agriculture is that cause and the consequence can occur simultaneously, the only difference is the differing time periods between them with the concrete manifestation of the consequence happening later.

Both Engels and Marx's awareness of remote consequences and especially how they interconnect the economic activities of capitalist society with its ecological base is not only a critical conceptualization of the relationship between society and nature but also, they highlight the complex interaction between intended actions and unintended effects of those actions. This is particularly relevant to how we continually damage our ecological environment without us becoming fully conscious of our actions. In this light, Engels and Marx have become our conceptual 'canaries' in the eco-mineshaft of the workings of the earth.

Therefore, the existence of remote consequences poses a challenge to our ability to understand and to engage with reality, especially the ecological reality of the natural world. Their unpredictability is a constant reminder that we are not masters of our destiny and if we don't gain the power to control the emergence of remote consequences that are detrimental to our global environment, we are more than likely to continue to destroy our earth. Accordingly, we urgently need to discover why we have failed to understand why they occur. The failure of bourgeois understanding of reality to see it as a dialectically determined reality has given rise, but this misinterpretation of concrete reality has even penetrated the scientific community producing according to Marx and Engels fictitious 'scientific' theories.

5. The false consciousness of surface scrutiny and the fictitious²⁶ 'scientific' interpretations.

In a letter that Marx wrote to Engels on 27 June 1867, Marx identified how the vulgar interpretation of reality is determined by the thingification process as it operates at the level of surface appearances:

Here it will be shown how the philistines' and vulgar economists' manner of conceiving things arises, namely, because the only thing that is ever reflected in their minds is the immediate form of appearances of relations, and not in their inner connections. (Marx, p). (emphasis added).

These 'conceivers' of reality are vulgar because they perceive reality as not only being made up of detached thing-like objects but this thingified reality can be understood at the 'immediate form of appearances'. Thus, the thingification process creates a fictitious ontology of concrete reality where its' apparent reality is a world consisting of things rather than processes, and these detached and independent things dominate the apparent forms of

²⁶ Causation does not necessarily have to be consciously constructed as fictitious. By simply explicating one determination only as would be the case for linear cause-and-effect epistemological framework, the consequential one-sidedness of this form of analysis is conceptually inadequate to grasp the complexity of a multi-sided reality.

interaction between ourselves and those things. Operating through this mystifying ideology, the thing-like phenomena will always appear as given – ‘ready-made’ (Marx, TSV, 1978, pt 3, 485). What needs to be explored from within this ideological framework are the diverse relationships that are presumed to exist between these apparent phenomenal things and how those surface relationships can be engaged with for intended results. The critical point to be highlighted here is that the apparent ‘ready-made’²⁷ things of surface reality conditions the emergence of a particular form of consciousness, which Marx identified as vulgar:

As such, they in fact determine the actions of individual capitalists, etc, and provide the motives, which are reflected in their consciousness. Vulgar political economy does nothing more than express in doctrinaire fashion this consciousness, which, in respect motives and notions, remain in thrall to the appearance of the capitalist mode of production. And the more it clings to the shallow, superficial appearance, only bringing it into some order, the more it considers that it is acting ‘naturally’ and avoiding all abstract subtleties. (Marx, TSV, part 3, 485). (emphasis added).

Accordingly, the dual form of thingification process apparently determines not only the material reconfiguration of concrete reality but it also conditions the way we interpret reality and subsequently how we physically engage with that reality. When thingification is deemed to be the exclusive determination of and its inherent interpretative apparatus of surface reality, direct and immediate engagement with reality is generally done through the application of linear cause and effect logic by the engaging social agents. The bourgeois obsessive preoccupation with the immediate consequences of intended actions is not just determined by their insatiable desire for profitability but it is very much based on the assumption that concrete reality is fixed and unchanging in its diverse configurations. This presumed solidity and permanence is not just perceived to be the essential attribute of the physical world, including of course its natural realm, but also it is imagined to prevail within the economic world of Capitalism. This particular blinding illusion is evident in the consciousness of those ‘social agents of practical activities’ who attempt to control specific workings of a complex ‘concrete’ world by the use of the one-sided linear cause-and-effect framework, Kosik highlights this tendency:

Immediate utilitarian praxis and corresponding routine thinking.... allow people to find their way about the world, to feel familiar with things and to manipulate them, but it does not provide them with a *comprehension* of things and of reality. That is why Marx could write that agents of social conditions feel at ease, as fish do in water, in the world of phenomenal forms that are alienated from their inner connections and are in such isolation absolutely senseless (Kosik, 1976, 1/2).

In short, the inherent immediacy of practical engagement with and in this thingified reality ensures the use of the simple trajectory of cause-and-effect. This orientation creates a disparity between what is intended to be achieved and what is actually achievable – the former is determined by an ideological outlook while the latter is determined by the structure of concrete reality and how it is engaged with. Everything consciously done, does more than

²⁷ Marx stated how the ready-made things come about:

These ready-made relations and forms, which appear as pre-conditions in real production because the capitalist mode of production moves within forms it has created itself and which are its results, confront it equally as ready-made pre-conditions in the process of reproduction (Marx, TSV, part 3, 485).

what was intended! In more specific terms, the normal bourgeois view of the reality is a world of things, while in fact concrete reality is determined by underlying processes. This mismatch between understanding reality and the actual workings of concrete reality itself is also present within the science of political economy where the faulty solution of linear cause-and-effect is given a theoretical articulation as Engels suggests:

Classical political economy, the social science of the bourgeoisie in the main examines only the social effects of human actions in the fields of production and exchange that are actually intended. This fully corresponds to the social organization of which it is the theoretical expression. As individual capitalists are engaged in production and exchange for the sake of the immediate profit, only the nearest, most immediate results must first be taken into account. (Engels, 1986, 182/3) (emphasis added).

Linear cause-and-effect is a particular strategy of engagement with a preconceived plan to rearrange certain components of reality (natural and social) based upon the false understanding that concrete reality is static and thing-like in its configuration. Accordingly, the linear cause-and-effect approach assumes that remote consequences do not exist, and that the trajectory of this approach is not only linear but also crucially that it results in just one immediate and intended consequence²⁸. For this orientation to be successful, no underlying processes are presumed to exist or determine the workings of this misconceived ontology of reality. But these alleged conditions of a thing-like reality do not exist, - linear cause-and-effect trajectory of engagement with reality will always produce more than its intended consequence – remote consequences²⁹. Here begins, with regard to the bourgeois understanding of reality, the mystery of remote consequences. Besides even when they are seen to emerge, they tend to be interpreted as discrete and isolated chance events. The apparent discreteness and detachment of accidental events only occurs in the consciousness of societal agents and their inability to recognize the underlying determinants of remote consequences. This conjured up and delusional ‘reality’ has become the particular bourgeois form of ontology as reflected within the concrete-in-thought. This blindness to understand the dynamic underlying forces of concrete reality, and especially those forces that are inherent in ecological processes, is constantly hindering our ability to sustain our environment and ourselves with that environment. One key consequence of the thingification process is that our conceptual orientation in our surface scrutiny of reality is that we only see things as we attempt to make sense of the ‘unorganised mass of the whole’ of the organic totality of reality

The following by Marx is how an ideological construction is involved in our understanding of reality thus creating a thing-like concepts - interpretative rigid impressions - from a dialectically determined concrete reality:

‘..... understanding is not only one-sided but has the essential function of making the world one-sided, a great and remarkable work, for only one-sidedness can extract the particular from the unorganised mass of the whole and give it shape (Marx, 1975, 1843, *MECW*, vol.1;233) (emphasis added).

²⁸ But Capitalism is not alone in this regard as Engels suggests:

All hitherto existing modes of production have aimed merely at achieving the most immediately and directly useful effect of labour. The further consequences, which appear only later and become effective through gradual repetition and accumulation, were totally neglected. (Engels, 1986, 181/2).

Because none of those historical modes were able to crack the dialectical code.

This form of conceptualizing since it is one-sided can only provide a static identity to the thing formulation and subsequently would eliminate the possibility of locating the dialectical determination of the thing-object. This loss of movement and change that would be grasped through a two-sided interpretation. Here is a perfect example of the process of reification in which an interpretation of reality can only express particular static aspects of that reality and not its essential moving and interconnected structure. Thus, Marx highlights the inherent inadequacy of this type of one-sided interpretation, which we mundanely use when we engage with concrete reality. And although it may be faulty it is this one-sided form of interpretation that we continue to use it to make sense of ‘the unorganised mass ‘of the world. But this reified one-sided form of interpretation tends to pierce into reality by ‘extracting the particular’ features from the whole of reality observed and thereby give those identified features a ‘character of a thing’. Kosik identifies this trend with regard practical activities:

All activity is ‘one-sided’ because it pursues a particular goal, and therefore, isolates some moments of reality as essential while, leaving others aside. This spontaneous activity elevates certain moments important for attaining particular goals and thus cleaves a unified reality, intervenes in reality, ‘evaluates’ reality. (Kosik, 1976, 5) (emphasis added).

This enacted rationality cleaves concrete reality by how the pursuit of ‘a particular goal’ is a direct manifestation of the application of linear cause and effect. It is realized in a practical activity of physical endeavour by how it ‘elevates’ immediate consequence(s) while simultaneously isolating, more often, by ignoring the emergence of remote consequences which naturally occur in a dialectically determined reality. In short, the essential ‘united reality’ of the interconnectedness of a processual world is severed by an apparent ‘spontaneous activity’ which it extracts ‘the particular [form] from the unorganised mass of the whole and give it shape (Marx, 1975, 1843, *MECW*, vol.1; 233). According to Marx, this process of ‘giving it shape’ begins in the thought process (concrete-in-thought) by reifying it as a thing-like object:

The character of a thing is a product of understanding. Each thing must isolate itself and become isolated in order to be something. (Marx, 1975, 1843, *MECW*, vol.1; 233) (emphasis given).

Consequently, this interpretative process of reification creates a particular image of a shaped thing from ‘the unorganised mass of the whole’ concrete reality. In doing so, it ideologically breaks this now imagined reified object away from the reality ‘of unorganised mass of the whole’ and consequently isolating it as a separate and independently existing thing-object from its original ‘unorganised’ and interconnecting mass of reality. A thing-like conceptualization is therefore an imagined projection of a practical engagement with reality and accordingly it is the initial point in the production of the social form of a use-value product – conceiving those naturally occurring substances as raw material ready to enter a production process. This imaginary exercise is a product of society’s attempt to interpret that reality by framing ‘the fluid essence of this content’ of the world into envisioned thing-like objects. This is a preliminary act in the process of thingification as determined by the interpretative tendency of human society to conceive and perceive the fluid and connected contents of concrete reality as thing-like. In Althusser’s terms, the thingification process begins in the ‘concrete-in- thought’. However, as we have pointed out the thingification process does not just operate on the ideological level but it also critically has a physical aspect to it, where its particular form of ideological reification manifests itself as a material

practice. A good example of this propensity is the following discussion by Marx on how science subjugates the autonomous laws of nature in order to appropriate it in thingified objects of utility:

‘... nature becomes purely an object for humankind, purely a matter of utility; ceases to be recognized as a power for itself; and the theoretical discovery of its autonomous laws appears merely as a ruse so as to subjugate it under human needs, whether as an object of consumption or as a means of production (Marx, 1973, 410).

Marx here is teasing out the implications of Nature being transformed by science into a thingified object where ‘its autonomous laws’, which we hope now will be recognized as its dialectical laws, are ignored even when they are discovered. What Marx is unfolding is how society is only interested in what Nature produces - objects of utility for society to use. Apparently, society and its sciences are not concerned in how those organic objects are produced and reproduced by Nature, they are only interested in those surface objects as objects of utility rather than the actual forces (laws) that generated them. Even when those laws are actually investigated, it is done so in order to appropriate those natural objects more efficiently.

The overall epistemological consequence of this process of thingification is that there are not only a ‘manifold diversity of’ things in the world but also all of these things create a vast number of one-sided interpretations, as Marx continues to suggest:

By confining each of the contents of the world in a stable definiteness and as it were solidifying the fluid essence of this content, understanding brings out the manifold diversity of the world, for the world would not be many-sided without the many one-sidednesses. (Marx, 1975, 1843, *MECW*, vol.1; 233)³⁰.

Accordingly, if this conceived reality is essentially a thingified entity, one that is made up of a ‘manifold diversity’ of things then our one-sided interpretation of these ‘real’ things will have to reflect this thing ‘diversity of the world’ by producing an equally many one-sided interpretations. One significant consequence of this process of intellectual reification is that this apparent diversity of isolated things when investigated scientifically, has to reflect this thingified diversity. This particular trajectory creates an epistemology which fragments its investigative endeavours into concrete reality by piece-meal forms of investigation. Consequently, the epistemological understanding of reality is one in which the internal interconnecting determinations that are inherent in the workings of an organic totality are rarely if ever incorporated into scientific research. And when they are included, they are generally perceived to be external and thereby subordinate to the internal determinations of the ‘detached’ phenomenon.

However, leaving science aside, in the mundane engagements with reality, the linear cause-and-effect logic as applied to the real world is concerned with the relationships between things and people and where the sought-after effect becomes an immediate

³⁰ It might be conceptually possible to flip the inherent trajectory of this conceptual understanding of concrete reality from its idealistic formulation to a materialist activity where the physical extraction of the ‘fluid essence’ of concrete reality takes on the physical form of a thing-like object. In doing so, the physical process of extraction in its thing-like form severs that newly formed object from its original source of its organic being within a natural organic totality.

consequence, which is generally determined by social agents consciously engaging in a planned activity. They attempt to activate certain ‘moments’ of concrete reality in a hoped-for exclusive linear trajectory. It is very much a short-term strategy and the temporal immediacy of this action and reaction does not intellectually allow for the emergence of remote consequences nor the recognition of the determination of underlying processes. Processes that are ever present in reality because they condition it and play determinant roles are never recognized as active agents. Rather their manifested concrete moments are only understood as static thing-like objects or events. Remote consequences under these circumstances appear as more like chance or accidental events belonging to a different time frame and often spatially beyond the initial place/point of engagement, when ‘something’ has gone wrong with the engagement with reality. In contrast to this flawed interpretation, dialectical understanding sees remote consequences are in fact connected to immediate consequences and even to the initial act of engagement because they are all determined by forces that are endemic in the processes of concrete reality, which have been impacted upon by the initial action of the social agents.

When the linear cause-and-effect logic is the epistemological basis of a planned intended action, the actual physical activity tends to be focused in on an attempt to control the perceived variables needed to achieve the intended task. The other present ‘variables’ (moments) of a functioning organic totality are often ignored, - as Marx succinctly put it as he observed– ‘One perceives that here the difficulty is always eliminated by disregarding it...’ (Marx, 1978, TSV, part 3, 539) and if not ignored they could be pronounced as trivial side-effects. However, in certain instances of the practical engagement with reality, the social agents may endeavour to be make them ineffective by attempting to break their organic/elemental interconnectedness. The complexity of any engagement with dialectical concrete reality, is not just manifested with regard to the multitude of consequences that emerge but also with regard to many determinations of causation. This situation calls into question the ability of linear cause-and-effect to adequately account for any event – intended or not. At most linear cause-and-effect is one-sided and inadequate, at worst it is misleading and fictitious.

Therefore, the conceptual consequences of reality being dialectical is that the formulation of causes and effects within the framework of linear cause-and-effect logic will always be fictitious! This has profound implications for the ‘vulgar’ empiricist’s attempt to explicate the causation of concrete phenomena as Engels suggests in the following:

In other words, in order to save having to give the real cause of a change brought about by a function of our organism (with its inherent maze of relations and interactions), we substitute a fictitious cause, a so-called force corresponding to the change. Then we carry this convenient method over to the external world also, and so invent as many forces as there are diverse phenomena (Engels, 1986, 80) (emphasis added and brackets included).

In falsely ‘solidifying the fluid essence of the content’ of reality (Marx, 1975, *MECW*, vol.1: 233) the vulgar empiricist has no choice but to propose ‘a fictitious cause’ for an empirical phenomenon under investigation which has already been isolated as an independent ‘fact’. In detaching the ‘fixed’ fact ‘from the unorganised mass of the whole’ (Marx, 1975, *MECW*, vol.1: 233) reality, the empiricist has to ‘invent as many forces (‘fictitious’ causes) as there are empirical phenomena’ (Marx, 1975, *MECW*, vol.1: 233).

Fictitious forms of causation, whether applied to the social or natural realms of concrete reality, reign supreme within those interpretations that remain enthralled by the

concrete world of surface phenomena. All of these fictitious causes of the surface phenomena, including practical activities, are formulated by conscious social agents. With regard to social interaction between societal individuals, this is especially so, where the 'intended' action by the identified social participants has an inherent tendency to be explained by idealist formulations, where causation is exclusively perceived to be determined by the conscious aims of the participants³¹. In all of these one-sided and 'fictitious' interpretations, immediate intentions (which become determinate causes within idealism) strive only to have immediate consequences. On this surface level of appearances, linear cause-and-effect dominates the explanatory devices and as a consequence the perceived connections between the phenomenal surface objects of concrete reality are always external, and never internal to the whole organic totality of metabolizing processes.

However, rarely are these socio-organic processes acknowledged as being present within concrete reality because supposedly isolated entities and independent phenomena can only be externally related to each other as their autonomous anatomies are structured exclusively by inner determinants. This apparent autonomy of their existence as isolated and independently existing phenomena 'penetrates the consciousness of acting individuals' by suggesting that any form of relationship between surface things are essentially external³². Ollman brilliantly teases out the implications of these external relations:

The philosophy of external relations, which reigns in both common sense and learned discourse of our time, holds that there are both 'things' (the social science jargon for which is 'factors') and relations, but that they are logically independent of each other. Thus, in principle, the relations between two or more things can undergo dramatic changes and even disappear altogether without affecting the qualities by which we recognise these things and which we define the terms that refer to them. And the same approach is taken to the various stages through which anything passes. As with relations, change is viewed as external to the thing itself, something that happened (or will happen) to it, so that its new form is treated as independent of what it was earlier (...), rather than as an essential aspect or stage of what it is. With this way of organising reality, both perception and conception tend to concentrate on small, relatively isolated and static things, with their many relations and changes only receiving serious attention when they 'bump' into us (or we into them). (Ollman, 1976, 10).

These so-called external connections have to be considered as always posited over and beyond the inner determinations of the objects compared. And what connecting determinations are located have to be a result of surface scrutiny rather than any in depth form of analysis and inevitably causation will be a one-sided and a singular formulation. This is especially so when the determination is sought under linear cause-and-effect framework. The actual separation of the surface forms of external and internal determinations completely undermines the possibility of identifying the underlying processes as being part of these

³¹ Linear cause-and-effect logic when seen from within the societal context will inevitably highlight the conscious rationality of the involved social agents and will therefore only concentrate on the effectiveness of their declared rationalities exclusively (Weber's problematic).

³² Marx stated this in the following way:

...acquires its externalised independent aspect. It is an independent form only in its externalisation, in its complete separation from its antecedents. (Marx, Theories of Surplus Value, Part 3.484).

determinations. Therefore, external links and connections are at most incidental or nonessential to their determinations of their existence as presumed independent entities. Therefore, what external ties that are supposed to exist between these surface objects ‘are contingent’ rather than necessary’ (Ollman, 1971, 15). Consequently, external connections can only come into play when the entities linked are falsely seen as surface phenomena and are thus thingified.

The most limiting feature of linear cause-and-effect logic is its inherent tendency to see only immediate consequences. Remote consequences when they emerge are seen as chance events, or unintended and unfortunate side effects, which might be viewed as having a slight connection to initial action, but its precise causal determination remains unknown. So, the linear form appears to be the physical manifestation of ‘proposed aims and the results arrived at’ and is very much embedded in the capitalist mode of production as Engels states:

In relation to nature, as to society, the present mode of production is predominantly concerned only about the first, the most tangible result; and then surprise is expressed that the more remote effects of actions directed to this end turn out to be of quite a different, mainly even of quite an opposite, character; that the harmony of demand and supply becomes transformed into its polar opposite as shown by the course of each ten years’ industrial cycle,... (Marx and Engels, 2010c, *MECW*, vol.25, 463).

To counter the one-sidedness of linear cause-and-effect, we need to begin to see beyond the surface appearance of thing-objects within the thingification process into a reality that is determined by dialectical processes. And to begin this endeavour we need to adopt the dialectical perspective by seeing the thing as a concrete passing moment (or a matrix of metabolizing processes) and thus creating the possibility of changing the ecological conditions of production and consumption of the product-thing. Marx in the following provides us with the critical insight into the dialectical double form of the thing-like phenomena:

In its mystified form, the dialectic...it seemed to transfigure and glorify what exists. In its rational form it is a scandal and abomination to the bourgeois and its doctrinaire spokesmen, because it includes in its positive understanding of what exists a simultaneous recognition of its negation, its inevitable destruction; because it regards every historically developed form as being in a fluid state, in motion, and therefore grasps its transient aspect as well; and because it does not let itself be impressed by anything, being in its very essence critical and revolutionary (Marx, Post-face to the second edition of *Capital*, 24 January 1873:103, Penguin).

Applying this ‘critical and revolutionary’ dialectical insight into our understanding of ‘concrete reality, it appears that the recognition of the double form³³ of existence of any entity or phenomenon, is critically important in helping us to grasp the contradictory relationship between the ‘positive understanding of what exists’ – its apparent thing-like characteristics – simultaneously with the ‘recognition of its negation’ – as a moment within a dynamic process. The ‘what exists’ level of a concrete entity is the surface appearance of things, where the thingification process apparently holds sway, while its ‘being in a fluid state, in motion’ is that same entity being determined by transient forces of determination in which the thing is embedded in underlying processes. This double form of reality can be

³³ A good informative example of the dual or double form is Pareto’s summary of Marx’s use of words – ‘Marx’s words are like bats: one can see in them both birds and mice’ (Ollman, 1976, .3).

summarized by the contradictory impulses of an entity being simultaneously a solid thing and an essential moment of a dynamic process. However, with regard to the ecological aspect of this double form of existence for the concrete phenomenon of reality, it is this notion, as highlighted by Marx, of 'its inevitable destruction' which locates the present of organic forces within its processes of determination. Marx brilliantly stated a similar situation when said 'In the same way, the law of gravity asserts itself when a person's house collapses on top of him (Marx, Capital, 168)³⁴ Thus, its thing-like existence has to be seen as a temporary reprieve – a state of momentary rest (Nicolaus) - in its necessary ecological movement towards its inevitable destruction in the social and physical process of consumption and its return as waste to the bowels of the earth.

6. Why Marx and Engels advocated for a dialectical science that transcends all pre-existing sciences.

The contemporary sciences, crippled as they are by their inability to come to grips with the thingification process and move beyond its conceptual constraints, will have to undergo fundamental changes in their understanding of and subsequent orientation to concrete reality, The most dramatic change as proposed by Marx and Engels is that they will need to amalgamate their efforts into one scientific endeavour in order to be able to tackle the many-sided aspects of concrete reality. Marx famously proposed such an incorporation of the sciences:

Natural science will in time incorporate into itself the science of man, just as the science of man will incorporate into itself natural science: there will be one science (Marx, 1971, 344).

However, this required all-embracing one science will by necessity undermine the intellectual and institutional detachment and independent existence of the contemporary sciences. From our analysis it should be obvious that this all-encompassing science will also need to be dialectical, in order to grasp the complexity of concrete reality. The subsequent incorporation of the dialectical engagement with the organic reality of Nature will completely transform not only the social production processes but also society's ensuing patterns of consumption (the essential remote consequence of production). To do so, we will need to develop a co-ordinated range of planning endeavours that are embedded in not only in the production processes of society but also the process of the extraction of elementary substances from the earth as raw material, consumption and the re-entry of substance waste back into the earth. Accordingly, the range of activities to be investigated will expand beyond the immediacy of individual production processes and those expanded practices will also be extended spatially beyond the physical confines of a factory floor.

In this dialectical planning context, it is not predetermined that all remote consequences should have detrimental effects on the ecological realm of society. If the planning is truly dialectical in its approach, it should be able to encourage an engagement in a

³⁴ This assertion was accompanied by a following footnote, in which Marx quoted Engels – 'What are we to think of a law which can only assert itself through periodic crises? It is just a natural law which depends on the lack of awareness of the people who undergo it' (Engels, MECW, vol.3, 1975, 433)

practical activity that is not only many-sided in its determination but also many-sided in its consequences. And of course, the planned remote consequences will be beneficial to the overall functioning of the organic totality. It is this explicit acceptance of the existence of remote consequences that moves the remit of understanding beyond the supposed thing-like events of immediate activity followed by immediate consequence into a complex organic totality of interconnecting processes and the necessary manifestation of remote consequences as surface moments of those underlying processes.

The inherent propensity of use-value products to corrode or perish, is a constant reminder that the process of thingification is itself ironically a mere passing and temporary moment of suspension of the organic laws of Nature. Recognizing the inherent organic forces within the life cycle of a use-value product is the initial step required prior to society planning its production of its use-value products that are ecologically sustainable. The phases of this cycle include their extraction as raw material from the earth's resources as Marx observed '... the earth is the reservoir, from whole bowels the use-value is torn. (Marx, TSV part 2, 245), their production and circulation processes, and finally in their consumption and reintegration as waste back into the earth's 'bowels'. The essential aspect of this planning and subsequent enacting of those sustainable activities is the necessary uncovering of the inherent interconnectedness of the organic totality with regard to its diverse social forms and their organic contents of use-value products. The necessary observation and control required to sustain all aspects of this organic totality is itself determined by the essential reciprocal relationships of action/reaction between causes and consequences of this dialectically determined world. In attempting to maintain the ecological sustainability of all phases of the life cycle of the use-value product, the initially step to be taken will involve undermining the apparent dominance of thingification process within that life cycle so essential for the continuing existence of the commodity form under capitalism³⁵.

The most detailed discussion of such a requirement is when Marx suggested how the scientific techniques used by capitalist agriculture has the immediate consequence of increasing the fertility of the soil but unfortunately, they also have detrimental remote consequences, whereby these same 'scientific' techniques are 'ruining the long-lasting' fertility of the soil, as he famously stated in the following:

Moreover, all progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil; all progress in increasing the fertility of the soil for a given time is a progress towards ruining the long-lasting sources of fertility. [...] Capitalist production, therefore, only develops the techniques and the degree of combination of the social process of production by simultaneously undermining the original sources of all wealth – the soil and the worker (Marx, 1976, 638) (emphasis added).

This is an extraordinary example of the conceptual power of dialectical analysis to locate not only the presence of remote consequences but also establish the interconnections between two apparent discrete phenomena – the worker and the soil! And in doing so informs us how capitalism simultaneously exploits the worker and the soil. The significance of revealing this

³⁵ Accordingly, the commodity form raises the thing form of the product to a position of dominance over all the other moments of the life cycle, because the realization of the commodity can only occur within a thingified form, whether real or fictitious.

‘consequential’ connection is quite profound. In planning to counter these forms of exploitation, Marx is proposing that the socialistic rearrangement of labour conditions is paired with the restoration of the organic sustainability of the earth’s soil. Therefore, socialism within the economy and sustainability within the soil are essential requirements to plan for, in order to free ourselves from the crushing economic and ecological fetters of Capitalism. Accordingly, Marx has brilliantly fused the necessary salvation of Nature with society by calling for the emergence of eco-socialism, and even providing some detail on what needs to be planned for to achieve such a liberating project:

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; achieving this with the least expenditure of energy under conditions the most favourable to, and worthy of, their human nature (Marx, 1981, 820) (emphasis added).

So, Marx calls upon the ‘associated producers’ to regulate ‘rationally’ ‘their interchange with Nature’, which we believe from our discussion in this article can throw some light upon. Firstly, regulating has to mean planning production that eliminates not only the exploitation of labour but also ‘rationally regulating’ this associated form of production with organic nature. Rationally from our perspective has to be understood as dialectically rational. It is critical for the planning process that the planners understand that reality is determined by dialectically determined forces and processes and that remote consequences are the result of these forces³⁶. Secondly, this dialectically informed orientation to reality and especially to Nature allows the socialized planners to avoid the crippling hold that bourgeois misinterpretation of this concrete reality has had on the capitalist producers and their ideologues. This conceptual blindness as encapsulated in the thingification process that has resulted in not only a misinterpretation of the organic totality of Nature but also a resultant abuse of its organic forces has constantly diminished our control and mastery over those forces. And thirdly, in attempting to harness the powers of Nature for our own physical survival we have abused and subsequently misused the dialectically determined processes of Nature. This in turn has led to a vast waste of scarce natural resources and ‘expenditure of energy’ on behalf of society, which would have not occurred if we had correctly interpreted concrete reality dialectically and engaged appropriately with that reality – dialectically. And lastly, we propose that Marx’s final assertion of this quotation, creating ‘conditions the most favourable to, and worthy of, their human nature (Marx, 1981, 820)’ needs to be highlighted as it captures the necessary insight that we gain from our exposition in that our ‘eternal tussle with nature’ is about not only sustaining nature but in sustaining nature we are sustaining ourselves because we possess the double form³⁷ which determines us as beings – ‘human nature’.

Therefore, planning our engagement with concrete reality in this context becomes more complex and comprehensive endeavour as we simultaneously include the economic and move beyond that exclusive sphere of activity into attempting to engage with Nature in a

³⁶ Accordingly, science needs to be similarly directed by this epistemological understanding of concrete reality, a reality determined by dialectical laws, where this dialectical awareness is the essential and necessary orientation.

³⁷ A good informative example of the dual or double form is Pareto’s summary of Marx’s use of words – ‘Marx’s words are like bats: one can see in them both birds and mice’ (Ollman, 1976, 3).

sustainable way. Planning production activity beyond the horizon of the thingification process, will entail recognizing not only that concrete reality is dialectically determined but also it will need to be able to take into account how the inherent organic forces of that dialectical reality constantly change over time within a particular bioregion. Planning in this dialectical context will therefore be far more complex than in our current capitalist setting because not only is the social aspect of production to be reformulated but also the ecological requirements of the earth's sustainability will have to become the dominant determination over society's production processes. Accordingly, the present-day orientation of producing use-value products through the capitalist firms will have to be recognized as a totally inappropriate institutional arrangement to engage in sustainable economic activities. The necessary elimination of the dominance of the commodity form will also get rid of the firm's contemporary inherent self-interest to ignore the remote ecological consequences of its economic actions. The necessary planning institutional mechanism that will have to come into existence will have to become aware and subsequently deal sustainably with all the dialectical interconnections of organic totality. To do this, it will be necessary to have at least this planning and controlling institution located in a precisely defined bioregion so that this local institution will be able to plan and co-ordinate all aspects of production and consumption under its remit. It will have to plan to deal with the appropriation of indigenous resources for the local production processes, to coordinate consumption among the local population and also to be able to organize the organic disposal of its waste. In short, the economic activities of all forms of production and consumption will have to become subservient to the overall sustainability of the local organic totality in which they are located in. Involved in this planning institution has to be the need to constantly monitor and investigate these local dialectical interconnections because of the inherent fluidity of local organic totality³⁸.

To reverse our current crippling relationships with the eco-systems of our earth, we need therefore to urgently reformulate and re-orientate how we engage with the natural reality of the earth's ecosystems. This initially requires an epistemological reformulation which must include science, since science is the most effective way we make sense of the world. This necessary epistemological revolution requires us to move away from science's current tendency of conceiving reality as thing-like to a more dialectical understanding of world, where all is connected, and this all is constantly changing. Releasing ourselves from the economic fetters of capitalism will not be sufficient in itself to save us as we also face ecological collapse of the earth's ecosystem. To do achieve the latter, we need to become aware of the 'thingified' orientation present that Engels identified within natural science:

In the contemplation of individual things, it forgets the connection between them; in the contemplation of their existence, it forgets the beginning and end of that existence; of their repose, it forgets their motion. It cannot see the wood for the trees. (Marx and Engels, 2010c, 23).

Obviously, these inhibiting constraints of scientific endeavour continue to exist because science is still immersed in the stupefying and befuddling thingification process. These conceptual 'weaknesses' have not been overcome in modernity. Levins in the following

³⁸ It is fascinating to speculate that these rural based planning institutions may become the intellectual centres of the future in contrast to how the contemporary 'historical motive power of society' (Marx, 1976, 637) is concentrated in urban centres.

points out that these inherent epistemological problems of a ‘thingified’ science are not just of the past but are still endemic in contemporary science:

Our science still prefers the description of fixed, passive things studied in isolation to the understanding of webs of processes. But we are confronting surprising, rapid, pervasive qualitative changes. It is necessary to shift our point of view and recognize that ‘things’ are moments in the intersection of processes. (Levins, 1994, 446).

Sayer is even more precise as he relates this reifying tendency to analytic thinking:

Particular things are thus abstracted from their relations (both social and organic). The world is fragmented into a collection of disconnected atoms, related to each other only accidentally and externally. This is the way that analytic thinking also proceeds (Sayers 1990). It isolates and separates things, it abstracts them from the context of their relations and considers them apart. (Sayers, 2022, 4) (brackets included)

It could be argued that the thingification process in science today is furthered entrenched by how science is in general funded. Contemporary natural science and its effort to understand concrete reality tends to be especially orientated to provide concrete solutions to practical problems. This is so because private enterprises have sought out the sciences to help them overcome practical problems in their production activities. Consequently, much of the scientist’s unit of investigation is ‘ready-made’ for them by practical problems that have emerged on the surface level of concrete reality. Funding research by private corporations will never employ scientists to engage in pure science by investigating the essential interconnectedness of an organic totality³⁹, because capitalists need to be supplied with thing-like solutions. Preferably providing the need for them to produce thing-like commodities rather than the recognition of already existing organic processes. As a consequence, this inherent piece-meal trajectory of the sciences determines that their investigative procedures conceptually fragment the inherent totality of reality as they investigate isolated and detached phenomena. In doing so furthering of our inability to uncover the determinations of reality that are the result of the dialectical interconnectedness of concrete reality. Accordingly, their analysis of causation is not only internally orientated within the entity under examination but also this restricted form of investigation can only give a partial account of its determinations. Using Marx and Engels terminology here, natural science gives only a one-sided account of a many-sided reality. Their inherent trajectory of investigating only the conditions of discrete concrete phenomena, in effect add to the problem of comprehending the powerful forces of reality that operate throughout the workings of an organic totality. In short, because scientists do not explicitly appropriate interconnecting determinations into their analysis, their non-dialectical comprehension of reality keeps falling short and leading, according to Engels, to confusion and then finally to despair:

But the scientists who have learnt to think dialectically are still few and far between, and hence the conflict between the discoveries made and the old traditional mode of

³⁹ Marx identified how capital relates to science:

‘...and all of the sciences have been pressed into the service of capital, Invention then becomes a business, and the application of science to direct production itself becomes a prospect which determines and solicits it (Marx, Grundrisse, 704).

thought is the explanation of the boundless confusion which now reigns in theoretical natural science and reduces both, teachers and students, writers and readers to despair' (Engels, Duhring, p.26- 29).

Although the present state of science and especially its inherent thingified orientation, is not adequate to the task of saving the earth, we still need to combine planning with science to help us to co-ordinate our sustainable relationships with nature. Science is still the main medium we use to grasp the workings of reality. Engels asserts that the 'conscious organisation of social production' and our planned relationship to organic nature will bring in a new epoch in the historical evolution of humanity and significantly natural science will play a critical role:

Historical evolution makes such an organisation daily more indispensable, but also with every day more possible. From it will date a new epoch of history, in which mankind itself, and with the mankind all branches of its activity, and particularly natural science, will experience an advance that will put everything preceding it in the deepest shade (Engels 1986, 35).

It is more than interesting that Engels explicitly identified that natural science would experience this epoch changing conscious organization in planning our relationships with concrete reality. We have to presume that this 'advance' in these sciences would have to manifest itself as a conceptual one, in fact as a fundamental paradigm changing occurrence. What we want to suggest is that this advance in natural science is to be achieved by the necessary adoption of the dialectical framework within the natural sciences and its subsequent practical application to organic nature⁴⁰. The reasons for the need of dialectical analysis, as we have unfolded, is that the concrete reality in general and its natural form in particular, are determined by dialectical laws of evolution, which was succinctly expressed by Engels in the assertion that 'nature works dialectically' (Engels 1986, 24). Finally, the adoption of the dialectic, both as an ontology and epistemology, will free us and the earth's ecosystems from the crippling impositions we impose on Nature, on account of our faulty understanding of it. However, this necessary dialectical smashing of the thingification process will not free us from the laws of Nature, according to Engels, freedom is not from the dialectical workings of Nature but to have the knowledge to act according to those laws of not just of external nature but also of human nature:

Freedom does not consist in the dream of independence of natural laws, but in the knowledge of these laws, and in the possibility this gives to systematically making them work towards definite ends. This holds good in relation to the laws of external nature and to those which govern the bodily and mental existence of men themselves – two classes of laws which can separate them from each other at most only in thought but not in reality. ... Freedom therefore consists in the control over ourselves and over external nature which is founded on natural necessity. (Engels Anti-Duhring –German edition 1939, 125).

⁴⁰ As Engels states:

But it is precisely dialectics that constitutes the most important form of thinking for the present-day natural science, for it alone offers the analogue for, and thereby the method of explaining, the evolutionary processes occurring in nature, inter-connections in general, and transitions from one field of investigation to another (Engels, Dialectics of Nature, 43).

And this natural necessity is itself determined dialectically!

7. Conclusion

It is only when we have completed our dialectical unfolding of Marx and Engel's understanding of the ontology of reality that we can begin to fully appreciate the significance of how a dialectical analysis can provide critical insights into the socio-natural problematic beyond the conceptual confines of non-dialectical science. There are a number of reasons for this. Firstly, and crucially the dialectic is not just an epistemology – a particular methodology of investigation but it is also an ontology, in which concrete reality is determined by dialectical laws. Secondly, the essential trajectory of a dialectical investigation is to seek out interconnections rather than just documenting the emergence of supposed detached phenomena, as empirical research appears to contend itself to do. Unearthing these interconnections has therefore a tendency to reveal essential relationships between apparent unconnected surface entities. Engels remark about the potential real connections between human society and a meteorite is a case in point here. Thirdly, in seeking out the dialectical laws of movement within the use-value product, which operate beyond the surface appearance of its static thing-like features, we necessarily uncover the ever-present underlying interconnecting processes. However, in doing so we also, through this same process of unfolding, uncover the innate organic/natural substrata on which capitalist society exists upon. Fourthly, the dialectic framework although it rejects the empirical oriented research's ability to grasp the many-sided determinants of dialectical reality, it actually incorporates the findings of empirical research into its investigative procedure as it moves from the surface level of concrete reality into the determinant workings of its interconnecting processes. Consequently, the empirical surface of concrete reality and its constantly changing phenomenal forms is the necessary level of any form of analysis to begin with – scientific or dialectical. The investigative movement from the empirical surface through the analysis of forms and then onto uncovering how those determinant forms are themselves determined by dialectically interconnecting processes. This conceptual unfolding can be summarized in the following:

Empirical investigation of the surface reality will locate its thing-like phenomena⁴¹ – but as it only indicates their presence, it does not explain why they emerge.

Scientific analysis has an inherent tendency to uncover only the internal abstract determinations of apparently detached phenomena. It uncovers some of the determinants (classified as internal) and excluding the essential interconnecting determinations.

⁴¹ Engels stated the following:

It was necessary first to examine things before it was possible to examine processes. One had first to know what any particular thing was before one could observe the changes it was undergoing. (Engels, 1886, *Ludwig Feuerbach and the end of Classical Philosophy* 384).

Dialectical analysis incorporates both the empirical and scientific/analytic levels and their subsequent forms of investigation but also crucially perceives how 'internal' and 'external' determinations are combined within interconnecting relationships. All of these determinations are inherently moments of fluid interconnecting processes.

However, as Marx famously stated that it is not sufficient to change our interpretation of reality, we need to actually change reality. But this was asserted in the context of a criticism of the academic subject of Philosophy. Nevertheless, what we have uncovered from our own explorative work here, is that to adequately appropriate dialectically determined reality in a sustainable way, it is necessary to combine both sides of the dialectic – conceptual and practical engagement. Therefore, to plan and strategize from, in a truly ecological sustainable way, it is critical to recognize the complexity of the workings of Nature. To do this, it is necessary to have prior knowledge of how nature is dialectically determined to resist falling back into the trap of thingification where the apparent concreteness of the surface reassures belief in the existence of a non-dialectical reality. Accordingly, there is a distinction between planning as conceived by empirical orientated research and by dialectically informed research, a distinction recognized by Marx himself⁴².

With the increasing awakening of 'people eco-power' among the global civil societies, there is emerging an intensifying demand for a workable sustaining set of relationships with the earth's ecosystems (that are dialectically determined). In various ways and from differing directions these discrete environmental campaigns are beginning to challenge the dominance of the commodity form over the ecosystems of the earth. However, these arising global eco-masses cannot achieve their goal of saving the planet, without a clear and extensive understanding of the dialectics of Nature. Anything short of adopting this dialectical world view among these global movements will ensure the continuation of a discrete thing-like 'reality', which will perpetuate not only the crippling dominance of the thingification process over the ecosystems of the earth but also it will undermine the unity of purpose among these eco-movements. The pinnacle of this agitation has to be the destruction of the thingified commodity form. Adopting dialectically informed strategies of engagement with concrete natural reality, will necessitate the elimination of the capitalist commodity form. As we have uncovered this social form has been instrumental in 'thingifying' the dynamic forces of Nature. By eliminating it entirely we will accordingly replace the individual enterprise firm as the essential producing unit of society's use-value products. If we can initiate a dialectically informed global strategy among these mass movements which has the essential requirement of the emergence of the organic form of sustainable production will subsequently undermine the social form of the commodity and those that rely on its dominance – the capitalists.

Consequently, in striving for an eco-sustainable world, this emerging global struggle is being fought out between all the peoples of the world and a decreasing cadre of capitalists and their ideologues. The outcome of this life-or-death conflict is whether the planet is able to survive or not as an eco-system that can sustain life on earth. Accordingly, because of the urgency of the global environmental crises, the revolutionary class struggle between the capitalist and proletariat classes will be led and dominated by the ecological concerns, which

⁴² In a letter to Engels Marx stated:

The position is difficult. To pursue an entirely correct course would require a much more critical and dialectical skill than our Wilhelm possesses. (Marx to Engels, 17 December 1867)

in adopting a dialectical strategy will by necessity call for the elimination of the current social form that is destroying the ecological basis of the earth – capitalism! Thus, the impetus for revolutionary change has shifted to the ecological side of the global movement for eco-socialism. Up to our present historical conjuncture, the priority for revolutionary change has come from the proletariat class struggles with capitalism but now the global eco-warriors are increasingly becoming the critical agents of freedom for both the stressed ecosystems of the earth and the exploited proletariats of capitalism. Foster grasps the same idea but more elegantly:

All material struggles are now environmental-class as well as economic-class struggles, with the separation between the two fading. More and more it is becoming clear to humanity as whole that the needed revolutionary break with the system is not simply a question of removing capitalism's fetters on human advance, but beyond that, and more importantly, counteracting its systematic destruction of the earth as a place of habitation (and the habitation of innumerable other species) - a question of *ruin or revolution*. (Foster, 2022, 490).

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