INTRODUCTION

ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

"The bourgeois have very good grounds for falsely ascribing supernatural creative power to labour; since precisely from the fact that labour depends on nature it follows that the man who possesses no other property than his labour power must, in all conditions of society and culture, be the slave of other men who have made themselves the owners of the material conditions of labour" (Marx, "Critique of the Gotha Programme).

The denial of the radical ecologist's emphasis on a pristine original nature has often led to the notion of the constructedness of not just the nature in front of us today but also of our reason, of ecology or, more precisely, ecological thinking. There are three positions here. The radical ecologist, the reform environmentalist and the culturalist. The radical ecologist aims to restore the 'original' harmony with nature and argues for more nature-friendly ways of living. The reform environmentalist reduces the problem to one involving better management of existing resources and environmental awareness, with full faith on human rationality and progress. The cultural theorist debunks the idea of both nature and of human reason and progress and shows their constructedness and historicity.

What we argue here is that though both nature and human reason are constructed in the sense that the idea of both are given to us in thought, yet this capacity for reason, for thought and construction does not negate our fundamental character as a natural being; hence nature is not just given to us in thought but is a material reality, outside as well as inside us. That is, human subjectivity has a definite basis in our character as a natural being. Given this connection between human subjectivity and nature, which entails that our character as a natural being underlies our capacities as a subject, it would be mistaken to assume either that nature has an autonomous agency to which humans cannot but merely adapt to, or that human subjectivity is all-powerful and self-sustaining, what Latour calls "men-
among-themselves". This opposition between "things-in-themselves", that is pristine and original nature, and "men-among-themselves" must give way to exploring the connection between them.\(^1\)

Refusal to view the human subject as related to his own character as a natural being is part of the attempt to view him as self-constituted from the beginning, taking the rational, self-conscious as the starting-point of history. Epistemologically, such a self-constitutive notion of human subject "requires that we free ourselves from the projections of meanings onto things, that we be able to draw back from the world, and concentrate purely on our process of observation and thought about things".\(^2\) The point however is not just to relate to the wider world in terms of meanings, that is a "subject defined in relation to a cosmic order".\(^3\) What is needed is to be able to view this meaning-giving capacity in humans itself, our self-consciousness as itself derivative and conditional on the existence of a wider socio-natural world. Thus Marx writes that "it is not human nature that is a quality of self-consciousness"; instead, "self-consciousness is rather a quality of human nature, of the human eye, etc."\(^4\)

Thus we must be able to relate human qualities themselves to our capacities as a natural being. Or else we end up, as Marx points out, ascribing supernatural creative power to labour, denying that labour depends on nature and hence justifying the dispossession of the producer from the means of production and subsistence.\(^5\)

The human subject is thus overburdened and overinflated under the logic of

---

\(^1\) See Bruno Latour, "We Have Never Been Modern", Brighton, 1993.

\(^2\) Charles Taylor, "Hegel", Cambridge, 1976, p. 7. Taylor however treats this notion of the subject as just an epistemological problem, at the level of identity or of a particular philosophical approach: he seems to restrict the subject to the possible ways in which meaning is derived from or projected onto the world. He has no account of the human subject’s character as a natural being as well. In his words, “any account of the human subject has to cope with certain universal facets of experience: that at times we can be ‘in touch’ with ourselves, with our central concerns, we can be clear about who we are and what our purposes are; while at other times we are confused, unclear, or distraught...”(Ibid., p. 6).

\(^3\) Ibid., p. 6.


\(^5\) As Marx writes, “The bourgeois have very good grounds for falsely ascribing supernatural creative power to labour; since precisely from the fact that labour depends on nature it follows that the man who possesses no other property than his labour power must, in all conditions of society and culture, be the slave of other men who have made themselves the owners of the material conditions of labour”(Marx, “Critique of the Gotha Programme”, Marx-Engels, Selected Works, Moscow, 1977, p. 315).
capital, an over-burdening which is based on the seeing human subject in isolation from the external world, and refusal to see the 'external' world in him: the over-burdening of the human subject derives from the human-nature-dichotomy engendered by the logic of capital.

We, therefore, show that our capacities as a human subject emerged out of nature, that is, from our activity as a natural being. Human subjectivity however does not, having once emerged, remain the same but itself develops and gets transformed even as it transforms outer nature. In the course of this collective transformation of nature, humans develop language, culture and ideas even as they enter into definite relations with each other. Society, given its specific social process with definite relations of production and the specific articulation of its different factors, defines its own particular transformation of and metabolism with nature. For our purposes the social process is taken to refer to the specific manner in which human labour and nature are internalised by society for attaining its energy and resource requirements.

The social process in all societies internalises human labour and nature for their survival and flourishing but since labour itself is a force of nature acting on nature, humans constantly reshape nature and yet it is the perpetually present substrate which forever underlies all its transformations. Humans are the non-identical vis-à-vis.

---

6 Godelier argues that the specific manner in which different social factors and instances get articulated in society itself defines the prevailing mode of production. Or rather, since "a mode of production is a reality which requires to be reconstructed in thought, in the very process of scientific knowledge", we can say that the specific manner of this articulation, what we have here called the social process, is not "determined" by the mode of production from the outside but is itself the reality which the concept of mode of production is trying to capture (M. Godelier, "Perspectives in Marxist Anthropology", London, 1977, p. 24).

7 The social process as the purveyor of the metabolism between humans and nature was pointed out by Bukharin in the 1920s. He wrote that "the interrelation between society and nature is a process of social reproduction. In this process, society applies its human labour energy and obtains a certain quantity of energy from nature" (quoted in John Bellamy Foster, "Marx's Theory of Metabolic Rift: Classical Foundations for Environmental Sociology", American Journal of Sociology, Vol.105. no.2 (September 1999), p. 392).

8 This talk of nature as the substrate of the social process perhaps immediately brings to mind the critique of what Heidegger called the 'metaphysics of presence'. However, going beyond the 'metaphysics of presence' cannot be done at the expense of repudiating the primacy of nature over humans so long as humans rule over and threaten to destroy nature, that is, so long as humans as humans have their primacy over nature. That is why, at another level, I do not think it "politically enabling" to talk of a hybrid or cyborg society where human labour and nature are so intermingled that we cannot even in any way refer to nature as the non-identical to humans. See Donna Haraway,
Introduction: ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

vis nature, yet this is so only since humans share an identity with nature for there is nature in humans as well. The social process however treats nature as though humans exist apart from it, as though humans have no more than a relationship of exteriority with nature. The logic of capital, which is the social process under capitalism and under so-called socialist societies, however internalises nature only as the repository of abstract and homogeneous value. Nature is treated as identical to itself, hence not as non-identical to humans. Once nature is abstracted from its myriad use-values and is a mere purveyor of homogeneous value, its transformation undergoes a qualitative change. Nature is not just transformed but produced under capitalist production.

The thesis of the production of nature allows us to go beyond the "politics of nature" and argue that there is no nature out there to be discovered or preserved or to go back to but that each society produces its own specific nature. As Neil Smith writes, the question is not the preservation of nature but asking in whose interests is the production of nature. The ecological production of nature must therefore go beyond the capitalist production of nature, and, better still, beyond the logic of capital which engenders and in turn is sustained by the dichotomy between humans and nature.

The ecological production of nature cannot however be achieved without, to start with, abandoning the logic of capital whose "objective" functioning governs


10 The problem is obviously not with the fact that each society produces its own nature but with the capitalist or for that matter any unecological production of nature. The underlying assumption is of course that capital posits the human-nature distinction as dichotomy: human uniqueness and distinctiveness is mobilized by capital against nature itself. Joel Kovel writes that "capital stands at the end of a whole set of estrangements from nature, and integrates them into itself." He further writes, "far from being a merely economic arrangement, then capital is the culmination of an ancient lesion between humanity and nature, expressed in the notion of the "domination of nature" (Joel Kovel, "The Enemy of Nature: The End of Capitalism or the End of the World", London and New York, 2002, pp. 8 - 9).
and controls our metabolism with nature thereby leading to extremely uneccological outcomes. The logic of capital then has to be replaced in favour of a society which consciously and democratically decides upon its metabolism with nature. Rejection of the logic of capital for an ecological society involves revealing the political character of this logic and also that of the capitalist production of nature. Thus society can gain control over its metabolism with nature through what we call the expansion of the political. If however society’s control over its metabolism with nature is all we mean by the expansion of the political then the ecological character of such a post-capitalist society can still be questioned. Hence a post-capitalist ecological society requires that this expansion of the political be complemented by redefining the political to include ecological thinking, understood as non-identitarian thinking.  

Human labour and nature provide the necessary conditions of existence for all societies, regardless of their social process. Under the logic of capital, the social process results in the production of nature. We here take the production of nature to take account of human-nature combinations and hybrids that lead to "a delicate shuttle weaving the natural and social worlds into a seamless fabric". Such an inter-weaving and interspersing of humans and nature has, however, led to recent...

---

11 The question of appropriate foras and mechanisms to actualise society’s rational and conscious metabolism with nature reminds us not just of the efforts at grassroots democracy represented by the so-called new social movements but also of communes visualised since at least the second half of the 19th century and also of the soviets given to us by the October Revolution of 1917. See in this context, Slavoj Zizek, “A Cyberspace Lenin: Why Not”, International Socialism, no. 95, Summer 2002.


13 The notion of the social process or of the inner logic of society has often led to misplaced criticism of Marx. Writers like Rorty and Laclau, take the Marxist understanding of societies as self-regulating, with an inner logic of its own, as a continuation of the Creation story that there is nothing outside of the Creator’s will. Our emphasis on human subjectivity and nature as the necessary conditions of existence for society shows that the inner logic of society has to understood in terms of these conditions and that the refusal to do itself is an idealist move. But it is precisely such a move which nature-sceptic constructionist and deconstructionist thinkers make. See Rorty "Contingency, Irony, and Solidarity", Cambridge, 1989, where he argues that “the very idea that the world or the self has an intrinsic nature ... is a remnant of the idea that the world is a divine creation" (p. 21). See Ernesto Laclau, "New Reflections on the Revolution of Our Time", London and New York, 1990, pp. 19-21.

theorisations that no longer talk about society's relationship with nature but only about human-nonhuman collectives and heterogeneous networks of quasi-objects and quasi-subjects.\textsuperscript{15} In this approach, nature as such is not supposed to exist or to function as any useful category. Thus while the idea of an ahistorical and given nature is rightfully debunked here, this is done by denying agency, at all levels, to nature as such as though once nature is taken to be historical and socially produced, nature as the non-identical to humans ceases to exist or looses all validity.

Our thesis of the production of nature allows us to take account of such an otherwise useful theorisation about human-nature hybrids without falling into some of its pitfalls. We can do this since we try to incorporate the insights of such an approach in our understanding that human subjectivity and nature are the necessary conditions of existence of society. We however argue that overlooking human labour and nature, with the former's basis in the latter, as the necessary conditions of existence of society would mean the inability to comprehend the natural basis of the capacities of the human subject. This would possibly lead to opening the ground for the partial truths of either radical ecology, reform environmentalism or the cultural theorist. Our approach here hopefully provides a way out of this.

The thesis of the production of nature therefore allows us to see that human labour and nature get internalised in the social process of the logic of capital, resulting in the capitalist production of nature along with the hybrids and networks between humans and non-humans. A post-capitalist ecological production of nature presupposes the replacement of the logic of capital by society's conscious and democratically decided control over its metabolism with nature and the mediation of this democracy and control through ecological thinking, which involves more than nature-consciousness - it calls for the ability to think about and include the non-identical.

The question of the agency of nature and role of the social process in either recognizing or overlooking it is one of the key points around which a lot of the

\textsuperscript{15} Latour and Haraway have been key proponents of this approach. Referring to Latour's hybrid theories Demeritt writes that Latour's "metaphors make it possible to follow environmental historians in talking about the agency of nature without appealing to a transcendent nature beyond (society)" (quoted in Braun and Castree, eds., "Remaking Reality: Nature at the Millenium", p. 208).
debates on ecology have centred. There are those who recognize the agency of nature as such but differ in its specific articulation and there are those who refuse to concede agency to nature as such and talk about human-nature mix in such a way that a distinction between humans and nature is supposed to give way to hybridities between the two. This of course means no role for nature as such. We here try to emphasize the agency of nature as such even as we take account of the human-nature hybrid character of much of social reality in front of us today. That is, we attack the reification of ecology into nature even as we refuse to reify nature into ecology. An ecological society has to ecologise in Latour's sense but has to take account of human subjectivity and nature as the two sources of its sustenance.

I capitalist production and human-nature dichotomy : labour's natural basis and the ecological production of nature

The present work is based on the presumption that any understanding of the ecological problem under capitalism has to take into account the specificities of the capitalist production vis-à-vis earlier or other systems of production. But this requires that we also examine, at a broader level, the character of human transformative activity itself and the ecological problems arising from it. Since human activity is obviously common to all societies, the ecological problems arising from it are by no account limited to the workings of capitalism only.

If therefore the ecological problem needs to be handled at the level of human activity itself, the question of human relationship with nature has to be addressed at a very fundamental level for after all our relationship with nature is indeed extremely fundamental. In a sense it is time that we no longer digress so far away from certain of our fundamental interconnectedness with nature and with the outside world generally. This has meant that my work here has in a way tried to see to what extent the conditions existing in capitalist society can act as the point of departure for a possible post-capitalist ecological society; for the fact of our internal interconnectedness with nature can only be occluded under capitalism but cannot be

---

16 The initial sections of Margaret FitzSimmons and David Goodman's essay in Bruce Braun and Noel Castree, "Remaking Reality: Nature at the Millenium", offers a good account of the debate on
Introduction: ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

denied. This is so since as in any other society the universal conditions of production exist in capitalist society as well, for example our ontological dependence on nature. The point is to retrieve that and free it from the logic of capital: one of the first and fundamental steps towards an ecological society. The point will be clearer below.

This has meant analysing capitalist society beyond its own given images and self-understanding. An analysis of the specific conditions of capitalist production, however, is not possible without being able to decipher what is not specific to it, that is, what are the universal features of all productive activity in all societies. Thus Marx famously distinguished between production in general and specific production. An examination of the universal features of human productive activity showed us that some of the problems arising from this activity are not only sometimes wrongly attributed to capitalist production but also that some of the ecological problems thought to be emanating from human industry as such are no more than the consequences of capitalist production.

Thus we needed to see first of all whether there is any source of ecological destruction from human productive activity as such, given that such activity is taking place today at a global level whose effects are, at the same time, often irreversible. Lack of complete knowledge of all the processes of nature and of the long term effects of our actions are for example ecological problems which all producing societies invariably face one time or the other. Human activity, however, always takes place within or itself engenders definite social relations of production. These social relations generate a social process which regulates and, particularly under capitalism, takes over the process of human metabolism with nature. Under capitalism the human-nature dichotomy is so complete that human subjectivity is completely opposed to nature, which is no more than the foil on which human abstract labour plays out its prowess and transformative capacities.

---

17 Now this distinction between production in general and specific production is nothing but the conceptual distinction Marx made between the labour-process considered in itself and the specific forms it takes, given the social relations prevailing at any point in time. Production in general or the labour process is, Marx writes, "the ever-lasting Nature-imposed condition of human existence, and therefore is independent of every social phase of that existence, or rather, is common to every such phase". Thus Marx's goes on to, in "Capital", "consider the labour-process independently of the particular form it assumes under given social conditions". This particular form assumed by the labour
Any ecological society has to address both the sources of ecological destruction. Our conception of an ecological society therefore addresses the question of social control over society's metabolism with nature as well the other question of the unintended consequences of human activity on nature's self-generating and life-sustaining capacities. Ecological politics have to explore not simply the possibilities for society's democratic control over its metabolism with nature but also inform this democracy and social autonomy with the ecological mode of thinking which can circumvent the pitfalls arising from abstraction needed to comprehend society's relation with nature mediated as it is by the structures of modern science and industry.

The break from natural relations: capitalist conditions and the non-identical

Ecological politics therefore has to take account of ecological relations both at the level of the ontological unity between humans and nature and of the inseparable unity between inner human nature and outer nature. But how are we able to address both the dimensions of the ecological problem as we have presented them here? This is because we have engaged in an analysis of both human productive activity as such, of what Marx called production in general as well as what is specific to the definite social relations within which production takes place. But like all historical materialist analyses, we are self-consciously aware that such a standpoint is itself the consequence of a particular conjuncture represented by the capitalist relations of production. For capitalist society homogenizes both nature as well as human labour into abstract value but this is a process which simultaneously frees humans from the particularity and stagnant embeddedness of primordial natural relations represented by pre-capitalist society.  

---

18 Referring to the other side of our estrangement from nature which capital has brought about, Harvey writes that "estrangement from immediate sensuous engagement with nature is an essential moment in consciousness formation. It therefore is a step on a path towards emancipation and self-realisation." (David Harvey, "The Nature of Environment: The Dialectics of Social and Environmental Change", The Socialist Register 1993, London, 1993, p. 42).
Hence conditions are created for the first time for us to be able to look back upon our present relation with nature as the result of the negation of a prior stage. We are able to look into and reflect on the conditions that brought about our own present existence. This cannot have been possible without being able to see what is there which is not identical to ourselves. That is if we are not all-embracing and self-sufficient enough to posit all reality as our own creation over which we have absolute control, then there must be something which is not us, through the creative negation of which we exist. It is only as beings freed from the immediacy of natural existence and also from relations of production based on non-economic ascriptive social factors, which capitalism has brought about, that we then distinguish between what is specific to us and what is general - the universal conditions of our existence - given by the larger totality of nature.

Non-identitarian thinking and the expansion of the political

While capitalism brought about the conditions for non-identitarian thinking it itself thrives on just the opposite, that is, identitarian thinking. It takes itself as the universal, as that which has always been true. But since it does this by abstracting itself from all natural relations, through the process of the self-expansion of abstract value, denying natural use value, it also simultaneously creates the conditions for a freely willed, ecological society. Such a freely willed ecological society will continuously be subverted so long as the process of society's metabolism with nature is left to the reified logic of the self-expansion of value. Understanding that the purported independence of this logic of value, its supposedly apolitical, purely economic character is itself a political ruse of capitalism means that the goal of society's control over its metabolism with nature cannot but be a political act, what we call the expansion of the political.

For an ecological society, the expansion of the political however requires the redefinition or reformulation of the political itself. The political has to be informed

---

19 This is of course akin to saying that we are living in reflexive society. See Ulrich Beck, "Ecological Politics in an Age of Risk", Cambridge, 1995. For an insightful turn to the reflexivization thesis linking it with repression see Slavoj Zizek, "You May!", London Review of Books, Vol. 21, no. 6, 18 March 1999.
by ecological reason and the ecological mode of thinking. Society's autonomous democratic control and reflection over its metabolism with nature, ideally speaking, itself presupposes and in turn creates the conditions for ecological thinking, thereby discarding the identitarian thinking fostered by the logic of value-expansion. The expansion of the political is therefore not a plea for a deep ecological society based on the immediacy of direct natural relations, based on again the immediacy of empirically direct democracy, otherwise an important part of the agenda of radical ecologists.

If science and industry that mediates our metabolism with nature has the labour process as its inner basis then given that the labour process itself is a force of nature acting on nature we should try to see to it that instead of trying to do away with science and industry's mediation of our metabolism with nature, attempts should be made to ensure that there is not just democratic control over society's metabolism with nature but that this control is itself mediated through or rather informed by an ecological non-identitarian thinking.\(^{20}\)

The possibility of non-identitarian thinking, that is, thinking which takes account of the non-identical and always understands the totality as comprising the particular and universal, the given and the not-given, the identical and the non-identical is integral to any conceptual abstraction through which an ecological society might come to cognize and transform the world. But again it is precisely through non-identitarian thinking that we arrived at the recognition of the agency of nature as such: as the non-identical vis-à-vis humans. It is precisely this fact that we try to capture when we say that labour and nature are the necessary conditions of existence of society. And this is where we come to the thesis of the ecological production of nature which we are proposing here.

**The production of nature: capitalist and ecological (?)**

---

\(^{20}\) In any case, mediation per se cannot be interpreted as creating a dichotomy between humans and nature. Instead, the idea of the mediation of society's metabolism with nature derives from the fact that we finally form a larger unity with nature. What we are arguing here is however that this larger unity or if you like the totality of nature has to take to account of the non-identical, that is in this case, of human autonomy and consciousness as manifest in the labour process.
Introduction: ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

The thesis of the production of nature is based on the understanding that the internalization of nature in the social process takes place under capitalism without any regard to the specific use-values of nature. The process of the self-expansion of value takes in nature as merely, or rather, to the extent that it is, a repository of value. Nature is of course still physically transformed as always, but, qualitatively, nature is no longer transformed as nature but as the material which has value abstracted from its natural use value. Society's metabolism with nature is no longer guided in any measure by the consumption requirements of the producers (labourers). As the producers are completely dispossessed from the means of production and production itself which their collective labour brings about is driven by the process of the self-expansion of value, nowhere is nature transformed as nature. The capitalist process of production qualitatively produces its own nature. Now as far as the scale of the transformation of nature is concerned the capitalist transformation of nature is obviously the most far-reaching with global dimensions, effecting planetary shifts in the earth's cycles and processes. *The capitalist production of nature is therefore a living reality in front of us today.*

The only relevant response to this ecologically destructive production of nature effected by the flows of self-expanding value is to counter-pose it with the possibility of an alternative production of nature. The exploration of this alternative ecological production of nature is one of the aims of this work. But then this has meant examining the present ecologically destructive conditions of the transformation and production of nature for it is only through an immanent critique of the existing contradictions and tensions and the possibilities they open up for something new that the search for an ecological production of nature can gain plausibility as well as become an imminent possibility.

This has led us to theoretically examine the specific features of the capitalist production of nature. But the specific cannot be known without reference to the universal. For then we might very well end up confusing the universal with the specific. That is why as noted above we have given particular attention to Marx's distinction between production in general and specific production. In taking such an approach we hope to be able to avoid some of the pitfalls of both reform

---

21 Refer Neil Smith, "Uneven Development: Nature, Capital and the Production of Space".
environmentalism and radical ecology. Nor are we going to take the position that capitalism is always destructive of nature and that all projects of capitalist transformation of nature are without any natural basis.\textsuperscript{22}

Here in trying to figure out what is specific to capitalism and what is not, we will find that in spite of the mediation of the human relationship to nature by the structures of modern science and industry, our character as a natural being is given to us in ways that cannot be done away with. Viewing what Marx called the process of labour "as the universal condition for the metabolic interaction between man and nature", we will try to show that taking human labour, consciousness as pre-given to humans without being able to see this capacity for purposive action, labour as having emerged in the course of human activity on nature leads to the positing of human labour, subjectivity as no longer a force of nature acting on nature.\textsuperscript{23} The lack of a materialist analysis of human labour therefore has meant the inauguration of a self-serving dichotomy between human and nature.

With its basis in a society which is divided between the labourers, dispossessed from the means of production and are compelled to sell only what they possess, their labour-power, and the capitalist who has appropriated the means of production, the self-expanding process of value which is the logic of capital constantly generates in its day to day operation precisely this human-nature dichotomy which we are talking about. Further, the derivation of all value from abstract labour means that a homogenized and alienated human subjectivity gets over-inflated vis-à-vis nature. This over-inflation is in fact the over-burdening of the human subject and is indicative of the exploitative nature of capitalist production and can be seen to partly explain the treatment of humans as no more than reservoirs of labour.

\textsuperscript{22} In this context I would like to point out the importance Meszaros gives to the distinction between capital as such and capitalism as a social system, as more than just the flow of capital. At the same time it would be naïve to fail to see the operation of the same logic of capital in non-capitalist societies, particularly 'socialist' societies. See Istvan Meszaros, "Beyond Capital: Towards a Theory of Transition" Vols. 1 & 2, Calcutta, 2000.

\textsuperscript{23} Marx, quoted in John Bellamy Foster, "Marx's Theory of Metabolic Rift: Classical Foundations for Environmental Sociology", \textit{American Journal of Sociology}, Vol. 105, no. 2, September 1999, p. 380. Marx conceived of labour as "a process" in which "man opposes himself to Nature as one of her own forces, setting in motion arms, legs, head and hands, the natural forces of his body, in order to appropriate Nature's productions in a form adapted to his own wants"(Marx, "Capital", Vol. 1, p. 173).
Over-burdening of the human subject: denial of labour's basis in "nature in us"

The over-burdening of human subjectivity as abstract labour available for the generation of (surplus) value, has not only led to the denial of our character as natural beings but, from an ecological viewpoint, to the treatment of nature as merely the foil upon which the depredations of the logic of capital can continue unabated. Any project for an ecological society has to take account of this character of capitalist production. Reform environmentalism fails to challenge this logic of the capitalist production of uneccological natures. It therefore does not challenge in a fundamental manner the over-burdening of the subject so characteristic of capitalist production and hence perpetuates the human-nature dichotomy engendered by the logic of capital.

The radical ecological response is however to deny human subjectivity its nature-transformative role. While the reform environmentalist treats human labour in isolation from its basis in nature, radical ecology views human labour's activity on nature as without any natural basis and hence in fact in fundamental opposition to nature and its pristineness. That is, while reform environmentalism treated human labour as though it does not have a natural basis, radical ecology considers that it does not in fact have a basis in nature.

Thus radical ecology is to a large extent a reaction to the human-nature dichotomy created by the logic of capitalist production which it unwittingly extends. This reaction is however flawed to the extent that what is specific to capitalist production is conflated to cover the very process of labour. The rejection of the mediation of society's metabolism with nature through science and industry that have the process of labour for their basis, means that radical ecology does not view labour as a force of nature acting as the mediator of the metabolic interaction between society and nature. This has meant the demand for the immediacy of our relationship with nature and the one-sided privileging of direct experience of pristine nature over cognition through conceptual abstraction.

24 The non-identitarian thinking we referred to above is just another characteristic of a
We intend to counter such an understanding of human relationship with nature and work out the possibility for an ecological society based on concrete analysis of the logic of value. We will delineate what is specific to it and what is given to us as a universal feature of our fundamental character as a natural being, circumscribed by and yet contradicting the larger totality of nature of which we are irrevocably a part. We thus need to understand things in a larger perspective. We basically are a part of nature in two basic senses. One, as ontologically a part of nature and the other as part of the environment which we ourselves build by transforming our natural surroundings. However since under capitalism we are alienated from the world which we ourselves have transformed and built, the ecological problematic is largely to be understood in the latter sense.

Human-nature dichotomy is fostered by capitalism, where human subjectivity is over-burdened, leading to the possibility of the production of nature. The over-burdening of the human subject can, viewed historically, provide the basis for a socially controlled and democratically decided ecological society. For, after all, with the breaking up of traditional natural relations we can for the first time look upon society as society, as functioning in a manner which is independent of us, as something we can detach ourselves from. This has meant that we conceive of forms of society by departing from what is already given to us, and in that sense transcend the pre-givenness of our existence which was not possible in pre-capitalist societies. We can therefore put up society's metabolism with nature itself for examination and scrutiny, and reflect upon it in order to devise ways and means of achieving an ecological society.

Now the production of nature is itself the result of a dichotomy between humans and nature which capitalist production generates internally. This dichotomy as we already pointed out above has to do with the over-burdening of the human subject and which in turn provides the basis for identitarian thinking but still vis-à-vis precapitalist societies provides some conditions for its own transcendence to non-identitarian thinking which of course presupposes an end to the logic of self-expanding value.

human subjectivity homogenized to no more than the generator of value.
Introduction: ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

II labour's ontological basis in nature and the character of human transformative activity

So far we have pointed out that the ecological problem needs to be handled at the level of both the question of the social control over our metabolism with nature as well as the question of informing such autonomous social control with an ecological consciousness and thinking. Both questions relate to our relationship with the outside world. They, however, do so in different ways. The first question about the social control of our metabolism with nature concerns itself primarily with the transformation which both humans and nature undergo as a result of human activity on nature. Humans engage in activity on nature. But are they at one with the work they do and hence are they at home with the world they transform through their labour? Do humans feel human in their work, their life-activity or do they feel human only in their animal activity, for example, eating and procreating? Only if humans are able to collectively decide upon and control their work on nature will their inner (human) nature achieve a unity with the outer nature which they transform.

The second question about our ecological consciousness does not directly relate with the question on the social unity which humans form with the world outside through their work but with the way humans are related to the world of nature as natural beings. As a natural being, humans are bound by and defined by natural determinations. Nature is not only there outside of us but it is also there in us. In that sense we again form a unity with nature or rather nature is the totality of which we are a part. This means that we are what we are since we are part of a totality which has given rise to and allows for beings like us. But since we are again not nature but humans who belong to this totality we can be sure that the latter is not a homogeneous field but full of what is not itself, full of difference. This relates to our the ontological unity with nature. But this unity, it should be noted, says more than just that we are dependent on nature and that we cannot survive without it. That is human relation to nature is not merely one of exteriority, but it is an internal relation.
Introduction: ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

Now the two questions are not however themselves unconnected. In reality the point about our ontological unity with nature which the second question raises has a major bearing on the first. Following Marx, we argue that human activity on nature derives from our character as a natural being. Like any objective, natural being the objects needed for our survival and for our affirmation as a human being, endowed with consciousness and purpose, lie outside of us. Our life-activity is directed at objects outside of us. It is in the course of our life-activity on nature that we have developed into humans. This means that our activity as natural beings provided the basis for our emergence from the animal kingdom.

But if our life-activity which defines and shapes our human being itself derives from our character as natural beings then we cannot place our activity and the capacity to labour, including our science and industry, outside of the totality of nature which not just bounds us but also is the world which we constantly negate and transform in order to transform and realize ourselves. Radical ecologists would deny the natural basis to human science and industry, treating them as an aberration from nature while reform environmentalists treat them as a pure product of human subjective powers that are given to humans from without. What we are trying to do is look for the natural basis of human science and industry to the extent that they are a consequence of human labour. Human powers, it will be argued, have to be understood in terms of the larger totality of nature which not just limit and circumscribe them but also provide their inner basis and facilitate them.

The otherwise purely ecological insight that we are absolutely dependent on nature and we need to protect it has to be broadened, revised and, in fact, qualitatively enriched. Contra reform environmentalism, ecological politics must go beyond treating nature as just providing limits to our activity, as something which can take 'revenge' on us. Nature, understood in this sense, facilitates and allows our development into human beings. Contra radical ecology, however, we argue that our productive activity on nature derives its basis from the system of nature itself. For nature is also the totality within which we engage in our species-activity.

25 See Marx, "Economic and Philosophic Manuscripts of 1844" and our discussion in chapter 2.
Introduction: ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

Here we see that the two questions raised above meet and converge. The question concerning society's autonomous control over its metabolism with nature cannot be considered in isolation from our ontological unity with nature for at least two reasons. One, social control, even if democratic and socially autonomous, cannot in itself guarantee an ecological metabolism with nature. Hence the fact of our ontological unity with nature based on ecological thinking must provide the conceptual apparatus on the basis of which society's democratic and autonomous metabolism with nature will take place. This is particularly important in the case of a society whose relation with nature is mediated by the structures of modern science and industry for then some level of abstraction and conceptual understanding of society-nature interaction cannot be avoided.

Secondly, ignoring the basis of human labour, science and industry in our character as a natural being opens the way for a human-nature dichotomy which is anyway generated by the very logic of the self-expansion of value, as we pointed out above. We also pointed out that the capitalist production of nature is itself the result of a dichotomy between humans and nature which the process of self-expansion of value constantly generates internally. This dichotomy as we already pointed out above has to do with the over-burdening of the human subject. This, in turn, provides the basis for identitarian thinking but still vis-à-vis precapitalist societies provides some conditions for its own transcendence to non-identitarian thinking in any future ecological production of nature. Such an ecological production of nature however presupposes an end to the logic of self-expanding value. But this dichotomy has to be understood in a larger perspective if we are to distinguish ourselves from the reform environmentalists and radical ecologists.

Attempts to understand the consequences of our activity on nature in isolation from the fact of our ontological unity with nature in turn paradoxically opens the way to the human-nature dichotomy engendered by the capitalist system of production. The point is that precisely because our activity derives from the larger totality of nature, our activity can under ideal (ecological) conditions lead to the inseparable unity between inner human nature and outer nature.
But, more importantly, as this unity is anyway a fact which is given to us from our character as natural beings, what is possible is that even a society with its autonomous control over its metabolism with nature, can very well act unecologically in the sense that it may not take account of our absolute dependence on nature and it may not be akin to ecological thinking. Ecological politics must therefore raise not just the question of society's control of its metabolism with nature but also of the mode of this control, for example, the conceptual thinking and abstraction that informs this control. *Society's autonomous control over its metabolism with nature is a necessary but not a sufficient condition for an ecological production of nature.*

**III ecology as the break up of capitalist totality: dominance of the object**

In one sense the present work can be seen as an exploration of the dialectic between subject and object, the conditions under which it can and does take place, so that neither subject nor object gets sublimated or dominated in one or the other. The present ecological crisis is an indication that this dialectic is not allowed to work itself out, that what is happening is the decimation of the object, nature, into the playground of the self-expansion of value derived from abstract labour. The dialectic within the different and ever-expanding elements and moments of the natural in the human and the human in the natural, has given way to the domination of nature, both outer nature and inner human nature, which is being fashioned after the self-image of capital and its depredations.

This logic of domination is fostered by a self-enclosed process of imposing a particular pattern of reality which is self-created and self-perpetuating. The deployment of human agency towards this goal and the attempt to render the subject subjectless cannot however be a self-enclosed, self-consuming process. This is because of the limitations of human thought to capture reality, be it human nature or outer nature. Any self-enclosed logic of domination or oppression always leaves a
residual in both human subjectivity as well as outer nature that have tremendous resources to be able to break open this shell.26

The present ecology movement can be seen as a challenge to the hegemonizing logic of capitalist production, as a rupture in the shell within which capitalism is imposing itself on reality as a whole.27 The break-up of the shell will hopefully allow for the restoration of a subject-object dialectic conscious not only of its own operation but also of its own interminability, and hence the need to create conditions that allow for the most enriching dialectic. In this work we are going to see that society's metabolism with nature is part of this ongoing dialectic between subject and object, humans and nature which can be brought about through the expansion of the political, whereby society can gain control over the process of its metabolism with nature. This will result in a society autonomously engaging in productive intercourse with nature under the most democratic conditions and fully keeping in mind the implications of its long-run and short-run actions on the environment.

primacy of the object: overcoming the over-burdening of the human subject

But we should not forget that the dialectic between the subject and object has a fundamental inequality in favour of the object. As Adorno writes, "due to the inequality inherent in the concept of mediation, the subject enters into the object altogether differently from the way the object enters into the subject. An object can be conceived only by a subject but always remains something other than the subject, whereas a subject by its very nature is from the outset an object as well. Not even as an idea can we conceive a subject that is not an object; but we can conceive an

26 This will have direct implications when discussing the operation of the logic of capital and the reification of human powers in it. It then becomes important to ask the role of human subjectivity in the otherwise structural and self-driven logic of the self-expansion of value which dictates society's metabolism with nature. Refer Samuel Knafo, "The Fetishizing Subject in Marx's Capital", Capital and Class, Issue no. 76, Spring 2002.

27 According to Cary Wolfe, "Jameson points out how ecology in the post-modern moment at one and the same time operates as a genuinely utopian figure for a longed-for 'outside' to global capitalism (to this extent 'ecology' remains tied to the rather different category of 'nature' and thus remains something of a 'modern' rather than properly 'post-modern' category), and functions as an index of the failure of postmodern society to achieve that end" (Cary Wolfe, "Old Orders for New: Ecology, Animal Rights, and the Poverty of Humanism", Diacritics, Vol. 28, no. 2, Summer 1998, p. 29).
object that is not a subject. To be an object also is part of the meaning of subjectivity; but it is not equally part of the meaning of objectivity to be a subject.\textsuperscript{28}

In contrast to this in most schools of non-dialectical thought the subject, idea, or the concept is given too much importance leading to the overburdening of the subject which however has other serious consequences. The overburdening of the subject and the accompanying dissolution of nature leads to the claim to absolute identity of the subject or, its obverse, the fragmentation of the subject. What is not recognized is that the subject cannot be a subject only by virtue of itself, without the object. The subject is a subject only by dint of its place in the larger whole of which it is a part. Or else, there is no subject at all; only an objectified subject, subjectless subject, for object exists on its own, without the subject.\textsuperscript{29} Death of the subject as subsumption of the subject is what happens if there is no notion of the totality within which things are organized and give meaning to each other in their mutual difference and similarity.\textsuperscript{30} As Adorno writes, "totality is not an affirmative but rather a critical category. Dialectical critique seeks to salvage or help to establish what does not obey totality, what opposes it or what forms itself as the potential of a not yet existent individuation".\textsuperscript{31}

Within this totality the object is dominant. This means the subject can never claim absolute identity, since there is always a residual which the subject cannot capture. This lack in the subject is in fact what lies at the basis of the capacity of the

\textsuperscript{29} Writes Adorno, "world domination over nature turns against the thinking subject himself; nothing is left of him but that eternally same I think that must accompany all my ideas"(Ibid., p. 26).
\textsuperscript{30} Introduction of the notion of system or totality allows us to show the lack in consciousness, that is to show what is outside of it. Dissolution of the over-burdened subject, involves showing its relation to the objective world, and hence its own limited character. The identitarian claims of the homogenizing concept have to be shown to be contradicted by reality or totality. Jameson writes, referring to Adorno, "the fundamental operation whereby the concept can be retained and dereified all at once involves its reinsertion into totality or system... As for totality, it plays a significant role in freeing us from the 'spell' of the concept..."(Frederic Jameson, "Late Marxism: Adorno, or, The Persistence of the Dialectic", London and New York, 1990, p. 26).
\textsuperscript{31} Theodor Adorno, "Introduction", in Adorno et. al., "The Positivist Dispute in German Sociology", London, 1976, p. 12.
subject to go beyond the given and bring about all the transformations in both external and inner nature. Under capitalist society the absolute identity which has been foisted on the subject has led to the preponderance of the totality in such a manner that the subject is completely mobilised and subsumed by reified structures. But the subject cannot rise without the totality of which it is a part and with which it is in constant unity and struggle.

Without an understanding of the totality of relations between nature and society, and the subject as piercing this totality, we will end up splitting knowledge and becoming, ignore the process through which we acquired rationality, take it as a given datum so that rationality and all its ramifications, including morality and ethics, are seen as separate from our attempts to gain mastery over nature. This will lead us to, for example, the Kantian split which afflicts Habermas's thought, treating the process of domination of external nature separately from the formation of our ideas about this process. That is, "moral self-control is no longer seen as simply the internalized continuation of the social compulsion required for the control of nature but is rather acquired through a process of interactive identification with a variety of other subjects in the immediate environment, a process which has an independent dynamic".

Since therefore rationality itself has emerged in the process of the society's metabolism with nature, as we shall see in chapter 2, we cannot treat it in isolation from the latter. Hence human knowledge and concepts are themselves embedded in the material processes that sustain and reproduce society. Given the fact that humans as subject are bound by and circumscribed in the objective natural world as transformed by human labour, the concepts and categories can never fully capture reality in any absolute sense.

Nor can humans ever attain complete mastery over nature and the consequences of their actions on it. There is always a residual which cannot be captured by

---

32 The emergence of humans from nature meant that the totality of nature itself posited something outside of itself, indicating a lack in the given which then posits something new. This dialectic between the totality and what escapes it, the non-identical, is what leads to the new and the qualitatively higher. The emergence of humans and their intercourse with nature follow this logic.

Introduction: ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

concepts and categories with which we try to order reality. *This lack, this inadequacy means that human finiteness within the larger objective world provides the objective basis for the dialectic between subject and object.* The point is that the subject-object dialectic should go on. Capitalism, however, acts in a way which puts an end to it by diluting the subject in the objective, reified processes of the expansion of value based on abstract labour. Ecology can be fruitfully viewed as an attempt to facilitate a more vigorous interplay between humans or society and nature or the environment.

**Over-burdening of the subject and the primacy of the concept**

We must then examine the conditions under capitalism that constrain the interplay between subject and object, and hence the possibilities of reviving such a dialectical process. This interplay is marked by the subject's perpetual attempt to go beyond the limits given by the object. But precisely because the object provides the ultimate limits and conditions that circumscribe the subject, the notion of a totality is retained and in fact perpetuated by this very dialectic. In its attempts to transcend the given object, the ecological subject uses concepts against concepts, for like the human subject, concepts are never adequate to the reality they are trying to represent in thought. The notion of a totality here helps in conceptualizing the very inadequacy of the concept, in bringing to light the fallacy of absolute identity. The non-identical and identical are therefore interdependent. This interdependence or rather dialectic between the two as mediated by the concept however cannot be

---

34 Human finiteness based on the primacy of the object as the basis of ecological thinking is reflected in the following as well: "In order for it to survive, the 21st century must be atheist in the best sense: a positive disbelief in God, concerned only with, and respectful of, terrestrial life. It will require the development of an immanent, materialist ethics, coupled with an awareness of finitude, of the mortality of species, the planet and the entire universe, and not an illusory belief in immortality, which is only a misplaced contempt for life" (Ian Pindar and Paul Sutton, translators, in Introduction to Felix Guattari, "The Three Ecologies", London and New Brunswick, 2000, p. 16). On his part Guattari writes that "mental ecosophy will lead us to reinvent the relation of subject to the body, to phantasm, to the passage of time, to the 'mysteries' of life and death" (Ibid., p. 35). Human finitude is again invoked as integral to ecosophy.

35 As pointed out in footnote 13 above, the objective, reified character of the logic of capital and the role of the human subject in it is a debatable point. See Samuel Knafo, "The Fetishizing Subject in Marx's Capital".

Introduction: ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

conceived without the notion of totality. Further it is the network of interrelations between identity and non-identity reflected in the concepts which "dialectics holds up to our consciousness as a contradiction". These interrelations mean that "the inside of non-identity is its relation to that which it is not, and which its managed, frozen self-identity withholds from it."

The problem which thought and the use of concepts raises in their claim to absolute identity can be resolved if we do not give primacy to the concept and keep it circumscribed within the totality which it can never fully capture. As Peter Dews points out, this 'constellation' of concepts "are able to generate out of the tension between them an openness to that non-identity of the thing itself, which would be 'the thing's own identity against its identifications". Concepts are therefore not ossified entities that stand out of reality and impose a world after their own image. Reality does veritably enter into its representation in the concept, for the concept is constantly propelled and prodded by reality itself. Dews concludes that "for Adorno there is no necessary antagonism between conceptual thought and reality, no inevitable mutual exclusion of Knowledge and Becoming. The problem is posed not by conceptual thought as such but by the assumption of the primacy of the concept, the delusion that mind lies beyond the total process in which it finds itself as a moment." The over-burdening of the human subject and the primacy of the concept, of identitarian thinking are therefore related to the human-nature dichotomy engendered by the logic of self-expansion of value.

37] For, as Frederic Jameson argues, "the conscious reintroduction of system of totality comes as a solution to the closure of identity; it cannot free us from the latter's illusions and mirages, since no mere thinking can do that, but it suddenly makes these last visible and affords a glimpse of the great magic spell in which modern life is seized and immobilized" ("Late Marxism: Adorno, or, The Persistent of the Dialectic", pp. 27-28).
39] Ibid., p. 163.
40] Habermas for one, according to Dews, assumes "that philosophical thinking must take an objectified nature for granted - and then struggle to avoid collision with it." Writes Habermas, "The interpretative knowledge of essences, which discerns patterns of meaning, bounces off an objectified nature; and the hermeneutic substitute for it is only available for that sphere of non-being in which, according to metaphysics, the ideal essentails cannot even gain a foothold" (Peter Dews, "The Limits of Disenchantment: Essays on Contemporary European Philosophy", London, 1995, p. 8).
42] Ibid., p. 30.
Ecology and critique of the concept

Much has been talked about the tyranny of the concept in modern philosophy. But it is because of the overburdening of the subject that the concept has been rendered so hopelessly and destructively inadequate in modernity. For the thought that everything is for humans and made by humans, the removal of nature from any form of active agency, has led to a situation wherein the non-conceptual or the non-human is simply not taken account of. The concept capitalism, for example, is created by humans but not everything which is present under capitalist society is created by humans. We always forget the limitation of the concept, which by definition fails to take account of the non-conceptual. As a result, reality is, in the case of 'society', purged of any non-human substrate or nature. Society is a concept which does not bring in our minds any thing of nature though as we shall see nature is internalized in society both in terms of the energy which society derives from nature and in terms of the transformation which nature undergoes in the course of the formation and transformation of society.

For Adorno, "philosophy, which once seemed obsolete, lives on because the moment to realize it was missed... Perhaps it was an inadequate interpretation which promised that it would be put into practice". Here we are trying to explore the conditions that have hindered the realization of philosophy. Concepts that were supposed to make reality accessible and hence human have themselves been thoroughly repudiated as hegemonic, with an oppressive dynamic of their own. What is important is that we recognize the inadequacy in the concept, the residual that can never be captured fully. We are against self-enclosures of all kinds and at all levels.

---

43 Theodor Adorno, "Negative Dialectics", p. 3. Ingolfur Bluhdorn discusses the role of the concept and the non-identical as found in the works of Adorno and Horkheimer. His main thesis is, however, that systems thinking formulated by Niklas Luhmann can take us out of the conundrum of identitarian thinking needed for a "post-ecologist" ecological society. See Ingolfur Bluhdorn, "Post-ecologist Politics: Social Theory and the Abdication of the Ecologist Paradigm".

44 In a sense, the fluidity of concepts and the ability to grasp the non-identical, the not-given is of fundamental importance for an ecological society whose very functioning and structural logic should be able, at least in principle, to take account of all contingencies that might lead to an unecological outcome. Bruno Latour seems to be talking along similar lines when he argues for the "suspension of certainty concerning ends and means" for the process of what he calls "ecologising": "Ecologising' means creating the procedures that make it possible to follow a network of quasi-ojects whose
If even the most democratic society were to forget that concepts can never fully comprehend or represent reality, it would soon run into major problems. A critique of representation is definitely due if we look at the problems about homogenization of both nature and culture and the flattening of difference through basically the one-sided and reductionist depredations of value-expansion. This phenomenon reached enormous proportions in the last half of the 20th century and is continuing with perhaps increased force today. In this context, ecology in particular can be seen as the major force rendering the concept fluid and open-ended.

IV Ecological politics: the production of nature

The central thesis of my work is that ecology can and should go beyond the 'politics of nature' so that the rationality in it can become the basis for the ever-expanding realm of human freedom. Freedom from nature was achieved when we used our capacity for rational thought and action to get out of natural determinations. In the process however we have got stuck in 'second nature', our own social world which looms large over us today and whose consequences threaten to destroy our ecosystem and ourselves. Ecology properly understood can be that moment in our struggle against this 'second nature' of heteronomous reified structures which will open the possibility of rationally organizing society's metabolism with nature so that in being able to act according to ecological rationality we enhance our freedom.

One of the advantages of the thesis of the production of nature is that it allows us to view the capitalist relationship between nature and society as not universally relations of subordination remain uncertain and which thus require a new form of political activity adapted to following them'. Our new form of political activity will be discussed in chapter 4 below (Bruno Latour, "To Modernise or Ecologise? That is the Question", in Bruce Braun and Noel Castree, eds., "Remaking Reality: Nature at Millenium", p. 233 & p. 235).

45 Going beyond the politics of nature does not mean rejecting nature as such from its role as a possible reference point. While my complete disagreement with the nature conservationist and deep ecologist positions about the pristineness of nature might not be in dispute I would like to distance myself from some of the positions of theorists like Latour. While he argues that we need "to abandon the false conceit that ecology has anything to do with nature as such" I think that recognizing nature as such can very well go with some of his principal insights on the interpersal of human and non-humans into quasi-objects. The notion of nature as such and his notion of quasi-objects together can provide us with insights into the capitalist production of nature and any future ecological production of nature.
Introduction: ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

uneccological given the fact that the capitalist production of nature is also part and in fact a special case of the general relationship between humans and nature. For if we were to argue that the capitalist mode of production universally engenders ecological destruction then that would tantamount to dichotomously pitting humans against nature, the obverse of the deep ecologists' argument. The thesis of the production of nature allows us to view the capitalist production of nature as part of the universal process of society's struggle with and transformation of nature, and yet not lose its specific features that give rise to unecological outcomes emanating from the very inner logic of the capitalist production process. In other words it allows us to understand the dialectic between the universal and the particular in the process of society's metabolism with nature.

The thesis of the production of nature therefore squares up with our understanding of the concept and the need for non-identitarian thinking. Seeing in capitalist production mere depredation of nature would mean that production in general has been completely subsumed in capitalist production. Capitalist production cannot however totalize itself in a manner that it is no longer a specific case of production in general, a specific case of the more general need for humans to engage in productive activity with nature. The point is to be able to see that the processes of capital do not constitute a completely insular, self-regulated objective logic with: no role for either human subjectivity or nature as nature. By saying that capitalism produces its own nature we no longer counterpose humans against nature, and, instead, human productive activity is taken to have its basis in our character as a natural being. Thus we see that capitalist production is underlain by human productive activity as such and, more importantly, by nature as such.

In other words, the production and reproduction of capital is possible since there is something, or, as one might call it, the substrate of nature, which is not capital, for capital in itself is the specific product of a specific society and not spontaneously generated by human productive activity as such. That is why Marx
understood capital as a social relation. The non-identical in capital, the non-identical over which capital rides and rules over, refashions and produces as its own is what we try to capture through the notion of the production of nature. This non-identical is what cannot be fully subsumed in the social process of production, for if that happens then we will reach a dead end in practice and a circular logic in our thinking. For it will then be impossible to explain the source of the element of negativity which moves and impels the social process.

I argue here that ecology can be viewed as rupturing the self-regulated, self-energised, self-driven (self-) image of the logic of capital; and if that sounds too ambitious then one can grant at least that it renders this self-image transparent and yet integral to capital's self-obfuscating perpetuation. It further reveals the necessary conditions of the existence of capital. But since capital is dead accumulated labour, it is labour along with nature which is a necessary condition of existence of capital. This then relates quite obviously to the question of the role of human subjectivity in Marx's notion of the reification of the process of self-expansion of value and commodity fetishism.

Samuel Knafo, as pointed out above, argues that for Marx human subjectivity is irreducible to the 'objectified' logic of value. The human subject is not completely programmed into fitting and operating according to the dictates of 'objective' structures. He writes that "social and objective forms do not determine how subjects act, but instead quality their actions". They do not "determine the choices people make, but they do structure the meaning people impart upon their experience of social relations". He therefore "shifts from a causal perspective that emphasizes the role of structures in producing certain effects, to a perspective that sees structures as mediating forms in social relations, which make agency appear in specific ways".

---

46 Marx was critical of Ricardo and Sismondi since "they do not conceive capital in its specific determinateness of form, as a relation of production reflected in itself, and think only of its physical substance, raw material, etc." (Marx in Marx and Engels, *Collected Works*, Vol. 28*(Grundisse*), Moscow, 1986, p. 235).
47 Samuel Knafo, "The Fetishizing Subject in Marx's *Capital*".
48 Ibid., p. 158.
49 Ibid., p. 158.
50 Ibid., p. 158.
In a way therefore, Knafo brings in the agency of human subjectivity as a necessary condition for the perpetuation of the logic of capital.

But for us here it is not just human subjectivity but also nature whose agency is crucial for capital. This follows from the fact that, as we argue here, human agency as reflected in labour is, as Marx pointed out, a force of nature acting on nature. One of my key positions is therefore that we must not only include human subjectivity but also nature as the necessary conditions of existence for the production and reproduction of capital. Thus the thesis of the production of nature will be defended here as will be the non-identitarian thinking which makes it possible to conceptualise it.

The capitalist production of nature gives us the idea that it is the capitalist production of nature and not all production which is unecological. This is because if (i) human subjectivity and nature are the necessary (not sufficient) conditions of existence of the logic of capital, nay of all societies, and (ii) human productive activity has a basis in nature then (iii) capitalist production becomes a specific case of the general process of production in all societies and (iv) given that capitalist production is underlain by human productive activity which has a basis in nature this activity cannot be subsumed away into the specific form which it assumes under capitalism. To repeat what we had noted earlier there is something which is not-capital in capital. These four however can serve as the four features of the capitalist production, features that are denied or rather occluded by the very functioning of the logic of capital. Ecology has to retrieve this not-capital, nature and labour, show the internal interconnection between the two.

For our purposes here the above features can possibly help us see the conditions that make capitalism possible and so it can be a good starting point for our search for a post-capitalist ecological society. Capitalist society's metabolism with nature is obfuscated by the denial of its necessary conditions of existence and

---

51 This last explicitly recognizes that the economic logic of capital is not as objective, with an internally closed structural logic as is made out to be: human agency appears in specific ways and, as we have argued here, even nature is one of the conditions for capital's existence. Point (iv) is therefore a politically enabling position. Refer Smauel Knafo, "The Fetishizing Subject in Marx's Capital".
the over-burdening of the subject in a manner which however denies people's control over society's metabolism with nature. This is the logic of capital, a logic which is supposed to be beyond and independent of the subject: the economic logic is autonomous and independent of the political.

Ecological politics should, therefore, be able to reveal the political nature of the capitalist production of nature. Based on the above understanding, we suggest that any post-capitalist ecological society can come about through the expansion of the political so that the economic logic is dissolved and society gains control over its metabolism with nature, and the fact of our ontological unity with nature becomes part of our ecological consciousness. Ecological consciousness of our ontological unity with nature and society's control over its metabolism with nature: these are two dimensions of the expansion of the political that we are suggesting here.

The expansion of the political so that society gains control over its metabolism with nature means that the 'objective' economic logic of capital has to go. Such a post-capitalist ecological society autonomously controls its metabolism with nature through a democratically decided rational plan taking account of the needs of society and the available resources at its disposal. But is there a guarantee that such a democratically planned metabolism will be ecological?

My response is that since we are talking about a transitional society it would be misplaced to ask for a guarantee. What we can do is to see whether this society can get rid of the definitively unecological tendencies prevalent in capitalism. Apart from ecological destruction as the unintended consequences of our productive activity in nature, we said it is the logic of capital which produces unecological natures. Now the question is to what extent can this logic of capital be jettisoned, to be replaced by society's autonomous metabolism with nature. That is, capitalism might go but isn't capital there to stay? Or, if not capital, some form of impersonal

---

52 Meszaros in his appropriately titled work, "Beyond Capital", argues that the real target of socialist transformation should be to do away with capital itself which is saying more than doing away with capitalism: "You have put an end to capitalism but you have not even touched the power of capital when you have done it.... Capital can survive capitalism, hopefully not by thousands of years, but when capitalism is overthrown in a limited area, the power of capital continues even if it is in a hybrid form" ("Beyond Capital", Vol.2, Calcutta, 2000, p. 980).
social structure with a logic of its own might emerge to determine society's metabolism with nature.\footnote{Marx has been criticised for assuming that the society of associated producers will do away with the need for mediation of social relations and production through impersonal structures. Gorz calls this the Marxist utopia - communism, which "therefore presents itself as the achieved form of rationalization: total triumph of Reason and the triumph of total Reason; scientific domination of Nature and reflexive scientific mastery of the process of that domination". In positing human subjectivity and nature as providing the necessary conditions of existence of not just capitalism but of all societies the identity between social reality and Reason which Gorz is attacking Marx for is rendered impossible. It is here suggested that contrary to Gorz's view, Marx was aware of this considering his views on labour's relationship to nature even if he does not explicitly draw the implication of this for his society for associated producers. (Andre Gorz, "Critique of Economic Reason", London, 1989, p. 28)}

The expansion of the political in order to ensure an ecological society brings such questions to the fore. We are not going to go into the entire gamut of these questions here.\footnote{Gorz referred above discusses these questions and so does Meszaros again mentioned above. See the previous two footnotes.} Out here, we point out the necessary if not sufficient conditions for an ecological production of nature. The necessary conditions are that the logic of capital should go and society should autonomously control its metabolism with nature through a democratically decided upon rational plan. This control and the resultant production of nature should in turn not just be informed by ecological thinking, in the sense of, for example, non-identitarian thinking, but should explicitly take account of human subjectivity and nature as the necessary conditions of (the) society's existence.

The problem here is however two fold: the ecological production of nature can be hampered by the unintended consequences of human activity and by, as we noted above, the persistence of a logic of capital or the emergence of impersonal and reified structures of mediation. Whether such heteronomy emerges from the mediated character of our production, given the structures of modern science and industry, or from the larger social process of metabolism with nature, non-identitarian thinking can go a long way in addressing the problems that would arise.

Thus the expansion of the political must be able to take account of the non-identical, both in terms of the natural conditions of the human or the social and intrinsically multi-dimensional and contentious character of human affairs, a reflection of the political character of even a post-capitalist ecological society. Such
a transitional society will necessarily be political given the persistence of hierarchies based on class, gender, caste and race. We however distance ourselves from the reform environmentalist positions which attacks the radical ecologists for their pre-political stance.

In effect the expansion of the political is meant to allow for the agency of humans and of nature in the process of social production and reproduction even as society itself produces its own nature. This production of nature of course involves more than just social transformation of external nature; it involves the weaving of human and non-humans into heterogeneous networks, Haraway's cyborg-world. As noted above the emergence of such human-nature hybrids need not involve diluting the society-nature dialectic altogether.

That is, though we are against the reification of ecology into nature we also think that ecological thinking has to take account of nature as such, of nature as use-values. And this so long as humans possess not just the capacity but the tendency to destroy the conditions of life on earth. The overburdened over-inflated human subject can be neutralised to a large measure and made to feel the ground beneath its feet by showing how it is what it is since it is part of a wider order of things that are partly always outside of him/her. This order of things might be transformed, produced and hybridised by him yet it constantly evades him: it is the non-identical. Only by destroying himself and the conditions of life on earth can this non-identical go: as of now the necessary conditions of existence provided by nature are there to remain.

55 In a way admission of the political character of our transitional society distances us from the radical ecologists and also from, to digress a bit, from Stalin's position which argued prematurely that the Soviet state was a state of the whole people, thereby overlooking the class struggle and denying the political character of much of production and distribution. Mao however recognized the continuance of the class struggle for a long time to come under socialism. Refer Mao Tsetung, "Critique of Soviet Economics", New York, 1977.
56 John Barry writes that "a strong critique of bioregionalism would be that social and ecological harmony for it is 'natural', i.e. 'given', making the issue of social and ecological order in some ways 'pre-political'" ("Rethinking Green Politics", London, 1999, p. 89).
58 Haraway seems to insightfully point out that the cyborg world of "transgressed boundaries, potent fusions and dangerous possibilities" might lead, "from one perspective", to "the final imposition of a grid of control on the planet", represented by the "Star Wars apocalypse". Inspite of such a possible if not imminent apocalyptic future of the cyborg world, Haraway sees, "from another perspective", a better future given the "possibilities" opened up by this world itself. Haraway does not see that so
vi. Over view of the work

The work is divided into two parts.

The first part tries to show our ontological unity with nature and how this means that human subjectivity is then grounded in our character as a natural being. The mediation of our relationship with nature through modern science and industry does not therefore in any fundamental manner render all transformation and production of nature completely unnatural. The mediated character of our relationship with nature has a basis in nature. While human productive activity on nature as such has a basis in nature the emergence of a social relations of production and of a social process of internalization of nature and human labour as the two sources for all value means that the ontological unity between humans and nature gets overshadowed by the separation of society and the natural conditions of its sustenance.

The second part examines the social process of the separation of social production from the inorganic conditions of its existence. We will see that this process starts before capitalism when use value became separated from exchange value and money started being used for exchange leading to a society based on surplus extraction for reasons other than direct consumption. The exploitation of nature for purposes beyond direct consumption came to be dictated by the social process which has a logic of its own. The social process the came with capitalism was the logic of capital, what Marx called the process of self-expansion of value. This meant the reduction of nature to abstract value so that the flow of value produces its own nature, the production of nature. Ecological politics should strive to replace the capitalist production of nature with a post-capital ecological production of nature.

The first chapter in the first part of the work argues that human-nature dichotomy which our thinking asymptotically tries to overcome is actually the
product of the functioning of the logic of capital. The separation of the producers from the means of subsistence and production creates the conditions for this dichotomy leading to what we here call the overburdening of the human subject. Both reform environmentalist and deep ecologist fail to challenge the overburdening of the human subject so that, for an ecological society, they rely either on human volition and rational, disembedded action or on going 'back to nature'. One manner in which the overburdening of the human subject can be undermined is by emphasising on the ontological unity between human and nature.

In the second chapter we see that understanding human distinctiveness from nature as having emerged from our activity as a natural being helps us to avoid the overburdening of human subjectivity. Human rationality, self-consciousness or religion can distinguish us from nature but if we are at bottom a natural being then we came out of the animal kingdom with such qualities only through productive activity on nature. Human-nature distinction based on our productive activity allows us to appreciate both our ontological unity with nature as well as the natural basis of human subjectivity which thereby can no longer be overburdened or inflated as self-serving and self-sufficient. But while humans as a natural being and not human subjectivity as self-serving and world-creating becomes the starting point of history, history itself comes to be dominated by second nature: the social process and eventually under capitalism the logic of capital. Human productive activity eventually gives rise to social relations and a social process of production which leads to the separation of social production from the inorganic conditions of its existence.

Chapter three, in part two of the thesis, shows how this social process of production and the human-nature separation which it generates finally culminates in the complete human-nature dichotomy under capitalism. This however leads to the production of nature under the rule of capital, as nature is reduced from heterogeneous use-value to abstract, homogeneous value. The thesis of the production of nature allows us to recognize that all transformation of nature under capitalism need not necessarily be always unecological but that the logic of capital is
Introduction: ecology as the non-identical leading to freedom: society's autonomous metabolism with nature and ecological thinking

inherently anti-nature since it does not know nature as nature but only as abstract value. The production of nature even under capitalism is not automatically unecological. This derives from our premise that the transformation of nature in itself cannot be unecological. However the very character of the logic of capital inherently generates strong tendencies for the production of unecological natures.

Chapter four points out that any post-capitalist ecological society must be able to do away with the 'objective' logic of capital. This requires that we should first be able to view that political character of capitalist production, the fact that it is facilitated by providing "political" rights to people otherwise dispossessed from the means of subsistence and production. We argue for the expansion of the political so that the 'objective' logic of capital no longer dictates the process of society's metabolism with nature but is instead controlled by society in a democratic and planned manner. Society's rational and conscious metabolism with nature according to a democratically decided plan, where the reified logic of capital no longer operates, however can be no guarantee for an ecological society. That is why democracy and our understanding of the production process have to mediated by ecological thinking. Any post-capitalist ecological society must be able to democratically plan and control its metabolism with nature in a rational manner. This plan and control must however be mediated by ecological thinking, what we have called non-identitarian thinking following Adorno.

Finally, in the conclusion we note that doing away with the logic of capital might not only be too ambitious a project but also whether it is at all possible to have a society which is completely or even to a very large extent free from one or the other heteronomous objective logic or at least reified structures. The operation of such a logic or structure might, in a cunning-of-reason fashion, mediate or rather dictate society's metabolism with nature. This would then frustrate our goal of an ecological society. Our tentative response to this is that, in a post-capitalist ecological society, the magnitude of such problems would definitely reduce drastically and qualitatively from what it would be in a properly capitalist society. This means that the problems arising from them can, to a very large extent, be addressed through non-identititarian thinking. We wind up by pointing out that the
emergence of human-nonhuman hybrids, what are called quasi-subjects and quasi-objects by Latour, need not deter us from asserting the agency of nature. This agency of nature means for us that even human subjectivity or labour which fashions, transforms and produces its own nature is, as Marx pointed out long ago, no more than a force of nature working on nature. Nature's agency is manifest in the fact that human labour and nature are the two universal and necessary conditions of existence for all societies: the emergence of human-nonhuman hybrids is very much conditioned by these conditions.