

UNIVERSITY OF WINCHESTER

FACULTY OF EDUCATION, HEALTH & SOCIAL CARE

The Great Act of Learning: A red-green cosmopolitics of emergence

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ABSTRACT

Joseph Dietzgen remains an anomaly within the Marxist canon for his adherence to a monism which very deliberately collapses the psychological, epistemological and ontological into a 'social democratic' materialism within which subjectivity is an immanent feature of the single substantive universe. Dietzgen's distinctive adoption of a monism which owes much – largely unacknowledged – both to Spinoza and to Romanticism, offers the possibility of a counternarrative to the main stories of official communism and democratic socialism. Such a narrative might be used to retrieve and reconstruct aspects of the Marxist tradition which more comfortably accommodate its conceptual apparatuses to the philosophical requirements of an age of ecological crisis. Why? Firstly, because of the inheritance partially shared by Dietzgen's Marxism and by ecological Deep Green theory, from Spinoza through Schelling to the early Marx; Secondly, because Dietzgen's ideas very loosely presaged something of the scientific revolution of the early twentieth-century, and because some of those who were influenced by Dietzgen such as Bogdanov were quick to accept the new physics and to turn them to an ontological project which was more thoroughly holist, pedagogical and ecological in outlook than the emerging Leninist orthodoxy; Thirdly, because the expression of the heritage of Spinozism and Romanticism in the development of later twentieth-century ecosophical thinking rather parallels the ways in which the anomalous Marxism of Dietzgen moved towards the pedagogical; his project was, from the outset one which intended to promote cosmological reorientation as a key feature of social democratic change; Fourthly, Dietzgen's philosophy of internal relations, though largely neglected within Marxism, found echoes in the process philosophy of Whitehead, which itself took a strongly ecological direction. It has been argued that if Dietzgen and his anomalous tendency within Marxism are to have any relevance to the current period, one must have regard for the way in which the sciences of physics, and of biology (in particular neurology) have developed, and re-read a less deterministic philosophy of science through Dietzgen accordingly. In this study, Dietzgen's ideas have been stretched and reconstructed to bring to light more explicitly features of the thinking of both his forebears and his philosophical successors. The philosophy of Mathews and Naess enrich our understanding of how we might reshape ourselves in this period to affect a transformation towards human flourishing. Such a transformation is embodied in every child, as an emergent subjectivity. Both Dietzgen and Mathews have powerfully critiqued the egocentric, atomic self of bourgeois society. The extent to which an

individual born to such a society fails to register their orientation towards their own activity, their class, their species and their land community is the measure of an adaptive pathology, the continuance of which take us further from viability as a species.

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Part 1: The subject and nature

Chapter 1: Retrieving Dietzgen for Ecosocialism

Introduction

Amidst gathering uncertainty about the prospects for our teetering economic edifices and, indeed regarding the whole delicate network of ecological relations which provide our life-support, human children continue to be born. With the emergence of each self-conscious subject, the planet is regarded anew, under a unique perspective. The emergent person is, at once, within and of the earth and its fragile relations, and yet seemingly outside and beyond nature, a free creative agent. Progressive forces consider each child as offering the hope for transformation through their own becoming: both socialists and greens can and must locate economic, ecological and political change at the level of the individual subjective orientation of each person. And yet individual, isolated subjectivity is an illusion. The first part of this work begins by considering the sometimes neglected theoretical tools at the disposal of socialists and greens, by the use of which we might better understand the relations between subject *and* nature. In the second part, some of the implications of the use of this theory are worked through, towards a re-embedding of human subject *in* nature. Finally, the question is addressed of the emergence of a subject *out of* nature, who must remain always both within, and transformative of, the conditions of her possibility. The antinomies in play are regarded as dialectics not of mind and matter, nor yet of subject and nature per se, but of matter in an extended sense, and *itself*.

Marx bequeathed a materialist and dialectical theory of social development, the ontological underpinnings of which were never fully elaborated, leaving thinkers from Engels onward the possibility of developing it in a variety of philosophical directions. This study will explore the possible connectives between the embryonic ontology of

early Marxism and more recent ecosophical theorising, considering whether the cosmology associated with Deep Ecology has anything to offer socialists in their understanding of natural relations.

It is true that the mantle of Deep Ecology has been adopted by all manner of militantly anti-humanist and anti-enlightenment greens such as those who would identify themselves as primitivists or anarcho-primitivists. Distrust between such thinkers and the traditional left runs high, despite the unacknowledged debt owed by some of the most serious among them (such as Zerzan, 2002) to Marx's analysis of capitalism. However, those on the left who would wish to develop more fundamental ideological unity between red and green should perhaps seek to isolate the core of Deep Ecological thinking and to delve into the long and manifold history of our own socialist movements with the aim of identifying where, between the deep red and deep green, might lie some common ground. This work is merely a contribution towards such an ongoing project. To this end, references to deep green theorists will be highly selective. For purposes of synthesis I will focus solely on the thought of a pair of representatives of Deep Ecology, Freya Mathews and Arne Naess, along with a philosopher who was a major influence on Mathews' thought, John Cowperthwaite Graves (1971), and also the 'organic philosophy' of Alfred North Whitehead (1975, 1978, 2004). I will suggest that at the heart of Deep Ecological philosophy – henceforth referred to, after Arne Naess (1973, 1989), as ecosophy – is the position that there is an essential unity to all things. This unity is not merely ecological, nor yet biological, but *ontological*: there exists but one single unifying substance. This position of Naess and of Mathews, both of whom acknowledge the influence of Baruch Spinoza, we will refer to as *subject monism*¹, or simply *monism*.

There are those who will argue that any attempt to open a dialogue between the philosophical traditions represented on the one side by Marxism and, on the other, by Deep Ecology are doomed to inevitable failure. The necessary fruitlessness of such an

¹ Within this work it will not be possible to consider the moral connectives drawn by Naess and Mathews which they take to derive from a monist ontology. Whilst one might quite legitimately comment that it is the moral and political projects of both deep ecologists and of socialists which drive their ontological theorising, the problems associated with whether it is possible to derive the ethical from the ontological *at all* will of necessity fall beyond the scope of this work.

exchange, it will be claimed, stems from the entrenchment of positions on such matters as the role of human agency in nature which are so different as to admit of no commensurability. The case will be put that, however painful the steps towards establishing a radical ecological socialist philosophy may be, there do exist within the history of Marxist thought instances of philosophies which may serve us well in at least finding a shared discursive paradigm. The flawed and often poorly articulated, but nevertheless distinctive monism of Joseph Dietzgen offers just such a philosophy. This study will explore the sense in which Dietzgen's Marxism both prefigures the cosmology of Deep Ecology and offers a means of reconciling the narrative of human progress and labour with that of human 'nestedness'. The task facing the socialist looking to explore such a possibility needs to be located principally at the level of 'cosmic' (rather than 'social') ontology.

I will begin by arguing, with Dietzgen and contra Official Communist ontology², that a successful application of dialectical method not only finds desirable but actually requires a monistic ontology. We will then proceed to see how Dietzgen outlined such a schema. Though marred by inexactitude, inconsistency and conceptual shortcomings, Dietzgen's proposals mark a rare opportunity for discourse with oppositional currents in ecological thought. Specifically, it will be proposed that a 'Dietzgenist' ontology enriched with the deep green monism developed in the ecosophy of Mathews and Naess (1973, 1989) might allow for the continued operation of dialectics whilst also beginning to address the kinds of concerns

² The standard Leninist line on this question deriving from *Materialism & Empirio-criticism* (Lenin, 1948, p.253) is that it was Eugene Dietzgen and Pavel Dauge's reading and re-presentation of Joseph Dietzgen's thought as 'cosmic socialism', an extension of Marxism into Marx-Engels-Dietzgenism (or just plain Dietzgenism), that worked the confusion inherent in Dietzgen's writing up into an oppositional trend (against Bolshevism and what would become Marxism-Leninism/Official Communism), but that, if one reads Dietzgen as Lenin would have us do, then "in that worker-philosopher, who discovered dialectical materialism in his own way, there is much that is great!" (ibid., p.253). Lenin (1948, p.254) went to slam as deviationism any move away from Marx and towards Eugene Dietzgen and Pavel Georgiyevich Dauge's reading of Dietzgenism. In a sense he was correct to do this, as evidenced by the adoption of Dietzgenism or versions and varieties of it by ultra-left currents – impossibilists and council communists, this becoming closely associated with proletarian autodidacticism and thus spontaneism, etc. Lenin's is also the version accepted by one of those few commentators to have dedicated any time to Dietzgen over the last quarter century, Jonathan Rée (1984, p.31), for whom Eugene Dietzgen's eulogy to the 'cosmic socialism' of his father became the accepted version in the English speaking world. Rée characterises this version of Joseph Dietzgen as semi-religious and muddleheaded. This may be true of Dietzgen Jr., but misses the point that Dietzgen's albeit imprecisely and repetitively expressed cosmology containing within it the new "Social Democratic materialism" which Lenin admired, though with qualifications.

expressed by many (such as Giri, 2004), regarding the ontological role of human practice within nature (though the implications of this suggestion open a range of possibilities which necessarily fall beyond the scope of this study). It is worth noting that there is no necessity to perceive nineteenth-century monism as politically progressive per se. Indeed Gasman (1971) emphasised the role of Haeckeleian monism and the German Monist League in the formulation of National Socialist politics. Hence, the emphasis here will remain solely with that specific form of monism which Dietzgen and his followers variously dubbed ‘social democratic’, ‘socialist’, ‘cosmic’ or ‘dialectical’ materialist monism.

Perhaps one of the few references to Dietzgen which has endured the twentieth-century and for which the unfortunate tanner-philosopher is remembered appears in Walter Benjamin’s essay *Theses on the Philosophy of History* (1968). In this work, penned in 1939, Benjamin’s charge against Dietzgen hinges on the question of the relation of labour to nature. This accusation must be addressed and dismissed first as it is central to the issue of the relevance of Dietzgen’s thinking to any ecological project. Benjamin’s critique is of the Gotha Programme. Specifically he charges Liebknecht and Lasalle with technocratic instrumentalism, the blind subjection of nature to human will and an imagined vision of inevitable progress, which Benjamin saw as a prelude to the development of both Stalinism and Fascism. In Watson’s (1998) words, “Benjamin’s use of Dietzgen was polemical, abstracting quotations in order to paint a portrait of the criminal banality of pseudo-socialism and positivist reformism” (p.107)³. However, whilst it is true that Dietzgen had moved to the right in the 1870s (before becoming re-radicalised in Chicago in the last two years of his life) Watson identifies that even in the “hopelessly vague” Volkstaat essays of 1876 from which Benjamin draws, there are plenty of passages which might be selected to contradict the reformist and instrumentalist charge.

However, the anti-ecologicistic charge goes deeper. It is that, contrary to Marx’s claim regarding value, that “labour is the father of material wealth, and earth is its

³ Watson goes on to suggest that Benjamin’s inaccurate ascription of a quotation to “Wilhelm Dietzgen” (Benjamin, 1968, p.260) suggests that, rather than applying a conscientious critique to Joseph Dietzgen’s work as a whole, Benjamin was using him as an exemplar of instrumentalist reformism in general.

mother” (Marx, 1990, p.134), Dietzgen was a forerunner of the Lassallean position that labour is the source of all wealth:

“This vulgar-Marxist conception of the nature of labour [ascribed to Dietzgen] ...recognises only the progress in the mastery of nature, not the retrogression of society; it already displays the technocratic features later encountered in Fascism. Among these is a conception of nature which differs ominously from the one in the Socialist utopias before the 1848 revolution.” (Benjamin, 1968, p. 259)

Benjamin wishes to associate Dietzgen with those whose “new conception of labour amounts to the exploitation of nature, which with naïve complacency is contrasted with the exploitation of the proletariat” (ibid., p.259). The distinction Benjamin wants to draw is between the exploitation of nature and the realisation of nature’s potential. However, his illustration of this point seems from a twenty-first century perspective spectacularly ill-judged. In choosing to identify Fourier’s vision as a ‘sound’ exemplar of the human realisation of nature’s potential, he cites the utopian socialist’s account of a world in which

“as a result of efficient co-operative labor, four moons would illuminate the earthly night, the ice would recede from the poles, sea water would no longer taste salty, and beasts of prey would do man’s bidding. All this illustrates a kind of labour which, far from exploiting nature, is capable of delivering her of the creations which lie dormant in her womb as potentials.” (Ibid., p. 259)

This conception, echoed today in the corporate vision of the infinite malleability of the genetic capacity of flora and fauna to be shaped to human ends, the mighty potential of the power of melting icecaps and a forever illuminated night sky, has developed into precisely the totemic standard of anti-ecological *dystopian* rather than *utopian* dreams, a “Second Genesis... heralded as an amplification of nature’s own principles, thus justifying the emerging corporate eugenics science as a second-tier

evolutionary trend” (McLaren & Houston, 2005, p.78). Yet, for Benjamin, it is Dietzgen who is cast as the technician: “Nature, which as Dietzgen puts it “exists gratis”, is a complement to the corrupted conception of labor.” (Benjamin, 1968, p. 259) Benjamin was thinking, no doubt of the appalling and brutal subjection of labour to the dirty and backbreaking productivist exploitation of natural resources seen in both the Soviet Union and in Fascist Germany (this in contrast with Fourier’s vision). But, to select Dietzgen as the standard of such instrumentalist thinking was misguided. For sure, Dietzgen’s naïve optimism looked terribly misplaced by the 1930s, as Watson comments, “Benjamin’s ‘unfairness’ to Dietzgen is not the result of stupidity or duplicity”, rather it is a response to the “*tone of the Volkstaad [sic.]* essays of the 1870s... Benjamin was protesting at the glazed impersonality of positive culture in a period of atrocity and holocaust: by 1939, any trace of confidence in progress was an obscene caricature” (original emphases) (Watson, 1998, p.108).

In defence of Dietzgen, it is worth looking at the context of the passage against which Benjamin lays his charge. For Dietzgen, nature is ‘gratis’ in the sense that it cannot be owned:

That work on a small scale is not profitable and that private property exploits the workmen, is an empirical fact; it is won experimentally by induction and did not fall into our heads from the nebulous region of hazy generalities. From that act we deduce, as a “practical conclusion”, the demand for co-operative work on a rational and communal scale. Since Adam Smith, and even earlier, it is acknowledged that *labor, when applied to nature which is obviously nobody’s property, is the creator of all capital and rent and profit.* (Emphases added) (Dietzgen, 1906b, pp.192-3).

Whilst this position deviates in an interesting and provoking manner from Marx’s dictum above, Dietzgen’s understanding of nature as free insofar as it is “nobody’s property” does not equate with licensing its ‘free’ exploitation. Rather, what Dietzgen

wishes to do here is to locate nature as in a fundamental sense outside of the circuit of exchange. Human activity is the progenitor of value in that value exists only as a relation internal to the logic of human production, consumption and exchange, though Dietzgen acknowledges that such value cannot exist entirely incorporeally, but only in the application of social relations to already existing natural ones. Whilst we might want to question this formulation from the Deep Ecological perspective of ‘intrinsic value’, Dietzgen’s highlighting of the ‘special’ status of nature in relation to value is certainly closer to ecological thinking than the position of Benjamin which equates the infinite malleability of nature with utopian human achievement.

Let us return to the ontological question via the methodological concerns of Bertell Ollman (2003a). In order to be able to examine any singularity in terms of its arising and its passing away, in terms of its relations to social and economic spheres, in either temporal or spatial terms – that is to say, dialectically – it is necessary first to define the parameters of the singular concept insofar as its identity at a horizon of ontological possibility furthers the epistemological enquiry in question. Ollman uses the term ‘abstraction’ in a particular manner to extend an account of the peculiar way in which Marx appears inconsistently to expand singular concepts in the cause of political expediency. For example, in explaining the role and function of ‘man’ dialectically and at several ‘levels of abstraction’, Marx needs to be able to employ his method to explode the singularity to include a constellation of relations encompassed by the definitional possibilities of the concept: the abstraction contains within its ontological definition the possibility of expansion to include all of those relations of production, consumption and exchange within the *total* system of capital:

Man, however much he may therefore be a *particular* individual – and it is just this particularity which makes him an individual and a real *individual* communal being – is just as much the *totality*, the ideal totality, the subjective existence of thought and experienced society present for itself (original emphases) (Marx, 1992, p.151).

From a Marxist or ecosocialist perspective, it is essential to accept as fundamental to the effective operation of a dialectical methodology the epistemological liberty to

abstract conceptual particularities in a flexible manner with regard to their generality. It would be of no *use* to abstract a singular phenomenon such as a sudden and calamitous reduction in a fish population without the capacity to identify the event not only geographically and temporally, but also within the context of economic growth imperatives derived from structural features of capitalist accumulation. A failure to recognise the importance of expanding the parameters of a process can result in a tendency to abstract end results as self-referencing and requiring only internal reorientation. Over-fishing, for instance, might be understood largely in terms of ‘stock reproduction’ requiring technical or working-practice solutions rather than large scale change in terms of patterns of production consumption and exchange, and ultimately in understandings of fish-stock ‘ownership’ and the treatment of oceans as if they were commodities.

Ollman formalises this capacity to abstract by means of imposing a framework of *levels of generality* within which abstractive acts may occur. For instance, the abstractive lens at Ollman’s ‘level two’ de-focuses those attributes which are particular to individuals and brings into sharp relief “what is general to people, their activities, and products *because they exist and function within modern capitalism*” (emphases added) (Ollman, 2003a, p.88)⁴. Much of the work of Joseph Dietzgen considers humans at their most general level of abstraction (Ollman’s ‘level seven’) – that “which brings into focus our qualities as a material part of nature” (ibid., p.89). Operating with abstractions at such a level of generalisation necessarily demands thinking in terms of categories most often utilised by physics, abstractions such as ‘mass’, ‘extension’, ‘entropy’. Whilst acknowledging the specifically *epistemological* efficacy of this account as an explanatory mechanism, one might wish to thereby curtail any broader implications of dialectical method. However, Marxist history is littered with those, from Engels and Dietzgen onwards who took up the challenge of applying the principles of abstraction *ontologically*. Whilst it is not absolutely clear from Marx that he perceived any justification for such

⁴ Ollman levels are: level one – that which refers to actual occasions, singular individuals or events; level two – people’s activities and products insofar as they function as part of recent capitalist society; level three – capitalism as such; level four – human class societies in general; level five – the human species; level six – the living world, including human and nonhuman species, their life functions, instincts and energies; level seven – material nature, the cosmos (Ollman, 2003a, pp.88-9)

an endeavour, he did at least look charitably upon the efforts of Joseph Dietzgen to establish a thoroughgoing dialectical materialist ontology⁵.

Bertell Ollman's reading of Marx's dialectical method (2003a) owes to Dietzgen its operational grounding in monism. Dietzgen writes:

The mind does not recognise any absolute separation between things. That is, there is no sense in which something is knowable in isolation, without its having a relationship with other things and with the Universal whole. However, for the purposes of understanding, *mind is free to abstract out the Universe's 'parts' into separate things*. (Emphases added) (Dietzgen, 1906a, p364).

Dietzgen has leapt from a desire to *do* Marx's method, to an understanding that in order for the mind to abstract 'real' categories in the process of dialectical transformation, 'reality' must be sufficiently malleable as to allow one to find within it dynamic processes which might interact with, sublimate and supersede one another in an infinite variety of immanent interrelationships. The only field which would allow for this possibility would, on Dietzgen's account, be a unified yet unknowably plentiful field. Yet without a radically dialectical understanding of nature (or matter in the extended sense which we will explore later), the epistemological operation remains in an asymptotic relation to the existential flow of process. Humans divide and subdivide the universe ad infinitum, in order to illuminate it by division. In answer to the question, which, then, is the true division, Dietzgen (*ibid.*, p.434) answers: as the objects of understanding are in constant motion and change, and as the human mind too changes over historical time, so humans must progress in their experience of classification, conception and science. A 'true' classification then, can never be fixed among the eddying patterns of the universe. There are a number of potential problems with this formulation, not least of which is that its inherent empiricist bias potentially leaves its materialism inert and mechanical. Indeed, as we shall explore next, Dietzgen might be open to the charge of re-introducing bourgeois

⁵ Indeed a range of sources testify to Marx's positive assessment of Dietzgen's work, asserting that it contained "much that is excellent" (Burns, 2002, p.221).

materialism and positivism by the back door. On another, equally plausible reading, Dietzgen's ontological prioritisation of phenomena could be said to lead him into precisely the idealist trap for which Lenin damned the empirio-critical Machists (and would have damned the logical positivists who followed them). Further discussion of this will follow in Chapter 6. However, it will be argued that a reading of Dietzgen which interprets his monism as prefiguring developments in twentieth-century science allows the epistemological act of dialectical abstraction to remain whilst causing the charge of positivism to fall.

Dietzgen's monism

If the level of interest in the writings of Joseph Dietzgen waned and had, by the late 1930s all but disappeared, it was not entirely the fault of Leninist 'Official Communism'. Dietzgen's writing is repetitive and often turgid. More importantly, his inconsistent nomenclature reveals terminological inexactitudes which go to the heart of his project. Nevertheless, it was Lenin's dismissal of the central plank of Dietzgen's ontology which did much to sideline what was most distinctive in his philosophy for generations of Marxists: of major Marxist thinkers working today, only Bertell Ollman can be identified as operating within the tradition of Dietzgen's *monist materialism*. Lenin's reading (1948, 1961, 1977) of Dietzgen's work is selective. Where Dietzgen muddies his monism with dualism and idealism, Lenin is sympathetic, where he is positively and consistently monist and cosmological (which is most of the time), Lenin is critical. Lenin disputes the claim that the *category of material* must be extended to subsume phenomena such as forces and thought, which is central to the thrust of the 'cosmic materialist' vision. Ultimately, although Lenin emphasises the muddled nature of Dietzgen's project, his reading is sympathetic because he chooses to focus on those passages which either appear to identify matter as the limit of the mind, or which define mind and matter as expressive of a greater unifying whole⁶.

Dietzgen's problems are perhaps unsurprising. When one is attempting to discuss an ontological scheme which sees all everyday abstractions superseded by a universal

⁶ See Chapter 6 for more discussion.

category, language which is perfectly satisfactory when applied to the experiences and phenomena of life at an ordinary level quickly becomes at best inadequate and, more often, a damaging obstacle to understanding and description. The monistic paradigm is necessarily very difficult to translate back into the terminological framework of individuated things, concepts and properties. Twentieth-century science has found quite the same difficulty (Mathews, 1991, p.69) in attempting to communicate the geometrodynamical model which we will examine later (or indeed theories of multidimensionality, of superstrings and of branes (Randall, 2005)). In relation to twentieth-century physics, Žižek comments that our everyday understanding of reality has been so thoroughly upturned by recent developments that in so doing quantum mechanics have faced an “inherent deadlock”:

in order to enter the circuit of scientific communication, it has to rely on the terms of our everyday language, which unavoidably call to mind objects and events of ‘ordinary’ sensible reality (the *spin* of a particle, the *nucleus* of an atom, etc.) and thereby introduce an element of irreconcilable disturbance – the moment we take too ‘literally’ we are led astray. (Žižek, 1996, p.271)

The only alternative would be a scientific gobbledegook that entirely escaped the confines of ordinary (three dimensional) language, leaving only a “pure syntax” (ibid.).

When Dietzgen refers to the absolute category in terms which do not appear strictly materialist as “the One” or “the Universe”, he generally does so in order to distinguish the universal substance from substantive matter as usually understood. He also sometimes refers to substantive matter simply and unproblematically as “matter” in order to distinguish it from “mind” or from “forces” as understood at the time, again without recognising the linguistic confusion which arises from not distinguishing this sense of “matter” from the more universal sense he wishes to establish through his monistic cosmology.

In common with the crude mechanical materialists of his day, Dietzgen wanted to radically extend the category of matter. He makes this clear in a number of passages which directly contradict Lenin's reading. In 'Social Democratic Philosophy' (1876), Dietzgen writes: "*The conception of matter must be given a more comprehensive meaning. To it belong all phenomena of reality*" (Original emphasis) (Dietzgen, 1906b, p.222). And, again:

Socialist materialism understands by matter not only the ponderable and tangible, but the whole real existence. Everything that is contained in the Universe – and in it is contained everything, the All and the Universe being but two names for one thing – everything this Socialist materialism embraces in one conception, one name, one category.

(Emphasis added)(ibid, pp.300-301)

Whilst Dietzgen, like modern physicists, struggles to communicate his ontology, his intention is clear: matter must subsume all other categories. There is no mind, spirit, activity, movement which is not an expression of matter. Gods and souls are metaphysical reifications. Whilst psychology is important, its status as a science derives from its understanding of the materiality of thought.

In order to secure his materialism in its dialecticism rather than allow it to become a strictly positivist ontology like that of his materialist contemporaries, it will be necessary to demonstrate later the way in which quantum physics reveals matter itself to be out of balance, self-negating. Additionally, it will be necessary in order to make the connection with ecosophical thinking to explore further the implications of positing a single unified field of existence allowing for neither break nor discontinuity. This will include employing those postulations of twentieth-century physics which Dietzgen would have so welcomed, suggesting that dynamics, the operation of which we have traditionally understood as *forces* are all aspects of the material plenum. First however, we need to explore Dietzgen's monism. It will be important to explore its central claim to have clarified the sense in which two abstractions frequently employed by humans in their dividing up of the unified material world – *minds* and *forces* – are nothing else but that, *abstractions*. These are epistemological interventions, which, in the terms we will employ later, amount to no

more than flickering material self-recognitions, dynamic matter acting upon itself in such a way as to register and define, in the flashing moment of potentiality before mind, force and god are lost again in the flow of materiality, a human reality. If we are to claim that Dietzgen represents a distinct strand in Marxist materialist thought, it is necessary to excise the frequent references to “the All”, “the One” and so on, and make clear and unequivocal that the single universal category is *matter*.

In the words of the ‘Dietzgenist’, Ernest Untermann, “Historical materialism takes its departure from human society, dialectical monism from the natural universe”(Untermann, 1906, p.243). The question of whether this turns orthodox Marxism on its head we shall leave aside for a moment. It is certainly true that, like many later ecological thinkers, Dietzgen wishes to emphasise first and foremost the formal unity of all things, understanding the network of relations which constitute the tools of Marxist social analysis as expressive of the totality of interrelationships that form the dialectical realisation of the natural universe. In this respect, he acknowledges a methodological debt to Spinoza:

We [...] follow the suggestion of Spinoza, who required of the philosophers that they should consider everything in the light of eternity. In so doing we find that the tangible things, such as the brain, are qualities of nature, and that in the same way the so called functions are natural things, substantial parts of the universe. (Dietzgen, 1906a, p.381)

And again,

Our dialectical materialism proves that the question [of whether the mind be judged a property of the brain] ought to be considered after the precept of Spinoza from the standpoint of the Universe, *sub specie æternitatis*. In the endless Universe, matter in the sense of the old and antiquated materialists, that is, of tangible matter, does not possess the slightest preferential right to be more substantial, i.e., more immediate, more distinct and more certain than any other phenomenon of Nature. (Dietzgen, 1906b, p.307)

In calling into question the ‘function’ of aspects of the natural universe, he wishes to break down the dualism which would separate thing and relation, subject and predicate. Predications are ascriptions of partial relations, abstractive expediencies misapprehended as positive distinctions. We shall return to the sense in which Dietzgen wishes to redefine the relation of ‘mind’ to ‘matter’ later. Whilst it is true that Dietzgen goes well beyond Spinoza in his ontological prioritisation of phenomena, he does so largely only insofar as ‘individual’ phenomena are suggestive of broader relations within nature, including between human and other aspects of the universe.

Dietzgen refers to many entities which are not ponderable but which nevertheless exist as abstractions. His references to gravity, electricity and light are revealing. He does not talk of these as forces but as part of the material natural world, even though they cannot be grasped by the senses in the same way as other aspects of materiality. He is clear that Marxists need to rethink their understanding of what constitutes materiality in order to take in those aspects which are not physical or corporeal (Burns, 2002, p.204). For Dietzgen, forces should be conceived, not as effects of matter, nor as instantiating effects upon matter, but identical with matter in his extended sense (Dietzgen, 1906a, pp.124-32). In this regard Dietzgen shared his vision both with his contemporaries, the bourgeois materialists – Jacob Moleschott who had famously and controversially declared the inseparability of force and matter, and Ludwig Büchner, knowledge of whom Dietzgen demonstrates – and, perhaps more intriguingly, with William Clifford⁷. If Clifford foreshadowed the work of Einstein, as is often remarked, then Dietzgen’s monism too, though not as grounded in the emerging mathematics as Clifford’s, prefigures the twentieth-century’s attempts to create a unified field theory which would reduce both forces and matter to a dynamic unity existing geometrically and, only analogously, at the edge of human comprehension. The socialist materialist position, as expressed by Dietzgen is that:

⁷ Clifford, writing at exactly the same time as Dietzgen, proposed a neo-Spinozistic ontology which reduced the mental and physical to a panpsychist monist order wherein a postulated non-Euclidean geometry of curved space would allow “that this variation of the curvature of space is what really happens in that phenomenon which we call the motion of matter, whether ponderable or ethereal” (Clifford, 1876, p.14).

We regard... forces, like heat, gravitation and all which is audible, visible and tangible, as a form or species, as a piece or product of the general force, which is identical with the omnipresent, eternal and indestructible cosmic matter.(Dietzgen, 1906b, p.219).

Our conception of matter and force is, so to speak, democratic. One is of the same value as the other; everything individual is but the property, appendix, predicate or attribute of the entire Nature as a whole... All things are merely links of the great universal connection. (Ibid. p.301)

Here again Dietzgen runs up against the difficult problem of how to use language in such a way as to collapse the dualisms which are ontologically redundant within his monistic universe. However, he is forced to fall back on ‘predicates’ of the whole, or, worse, ‘appendices’.

Dietzgen’s materialism is in effect a form of physicalism. Such a position requires a number of leaps of imagination – not least of them the equating of matter with space – which are difficult to express within everyday language, but which nevertheless form a basis for some interpretations of the ontological implications of much of contemporary physics (Esfeld, 1999). Firstly, though, it is not sufficient within Dietzgen’s ontology for space *alone* to be identified as identical with matter. Extension allows only for that set of relations which express regional abstractions, wherein an ascription of properties is predicated upon the negation of the whole by the description of the part. Such a description is inadequate to a fully dialectical account. Predicates cannot be postulated with individuated abstractions as their ultimate subject, for such an ascription would reify the part over the whole, which is the only true subject of properties. When one describes the attributes of an abstraction one does so by positing a lack at the heart of the abstraction, defining the individual via properties which are those of the whole. “Those who assume the forces to be mere properties or predicates of matter are badly informed of the relativity ... between substance and property” (Dietzgen, 1906b, pp.297-8). In a very real sense, individual properties such as mass or momentum are abstractive conveniences, efficacious as means to isolate aspects of the relation of dynamic parts to the whole for practical

purposes, but only ever relative to other abstractive possibilities – possibilities which, quantum physics suggests, would render other abstractions void: that is, mass *or* momentum, the abstraction collapses the dialectic. In order for such a schema to operate successfully as an explanatory mechanism it is necessary to make explicit what Dietzgen often (but not consistently⁸) overlooks and to state that it is not space which is identical with matter, but *spacetime*. Such a model facilitates an account of abstractive process (consciousness) along with other motions as sequences of spacetime points having an identity within a shared dynamic. Quantum physics characterises the processes involved in this model as fundamentally *entangled*. In the quantum universe, the description of a system cannot ever exhaust the local observables of a system:

Thus, as far as the state-dependent properties of microphysical systems (such as position, momentum and spin) are concerned, quantum mechanics suggests the following ontology: (1) These systems are relational in the sense that each system does not have these properties separately... all there is to these properties are the relations among these systems... (2) These relations are only completely specified by the pure state of a whole, which is in the last analysis the whole of all quantum systems. (Esfeld, 1999, p.326)

Graves (1971, pp.92-3) reiterates that at the quantum level, electromagnetic and gravitational fields can be regarded as material, though when they are used at other levels to calculate the forces of sensible bodies, they may be considered immaterial. Here again, we are reminded of the explanatory validity of abstractions as both bound to an Ollmanian level of generality. However, quantum field-theory leaves us with a situation which closely resembles Dietzgen's relativity between substance and property in the *everyday* world: this is a correspondence of sorts, albeit a loose one rather than a strict parallelism *between* levels. Higher-order properties, that is, "macroscopic up to mental properties" (Esfeld, 1999, p.332) may also be conceived as

⁸ Passing references mark Dietzgen's acknowledgement of the spatiotemporal nature of materiality, for instance, "Space and time are the general form of reality" (Dietzgen, 1906a, p.167).

subject to quantum entanglement⁹. That is, it only *appears* to us that abstracted quantities are measurable, having definable numerical values. On this account, all properties are relative to the whole, unknowable in all their specificities except insofar as they relate to the whole. Dietzgen (2004, p.350) insists upon the internally contradictory nature of the universal whole, immeasurable and yet comprised of finite, commensurable, transient things, each *appearing* to be measurable in abstraction, and having contradictory attributes simultaneously ascribed to it. Whilst a partial abstraction of gravitational, electromagnetic or other components can be made, these are, to some extent arbitrary. Similarly, absolute mass and energy are part of an “obsolete ontology”¹⁰(Graves, 1971, p.315).

Dietzgen’s monism meets another, possibly more intractable, problem when it comes to the question of the mind. If he is to be consistent, he must offer an account of consciousness itself, including self-consciousness, *as a material phenomenon*, more specifically, regardless of its phenomenological content, as a *material movement*. Such a project must necessarily set him at odds with orthodox interpretations of Marx and will, again, open him to the charge of advocating an undialectical or bourgeois,

⁹ See Chapter 7 for more detail.

¹⁰ In post-Einsteinian physics, mass and therefore matter seem less important than once they were. Reality cannot be reduced to matter as traditionally conceived. We have already met the solution to this in extending the sense of matter to spacetime: this is fundamental to consistent monist ontology. Although traditional substantialist prioritisation of mass may not hold the sway it would have done in Dietzgen’s day, post-Einsteinian mass as identical with energy remains central to accounts of fundamental ontology. Even a photon technically has a mass, though, of course, not calculable independently of its energy. Here Mathews comes at it from the question of individuation: “[A] subject, understood as a centre of subjectivity, is necessarily an indivisible unity: there are no “scattered” subjects, and I think it is uncontroversial to say that the boundaries between even only relatively individuated subjects are not nominal (i.e., it is not a matter merely of choice or convention whether a particular set of experiences is ascribed to you or to me; those experiences are already either yours or mine). The individuation of subjects, or centres of subjectivity, is thus objectively determinate rather than nominal. Since physical existence is not, on the face of it, externally objectively individuated in this way however – which is to say, since physical things are not generally themselves indivisible unities – we have to ask whether the physical realm could be externally divided up so as to correspond with an internal differentiation into a manifold of individuated subjects, or centres of subjectivity.” (Ibid., p.46)

reductivist positivism¹¹. Dietzgen often compounds the confusion engendered by his inexactness of phrase, as here, from his 1887 *Positive Outcome*: “The human mind [...] is no more an independent thing than any other, but simply a phenomenon, a reflex or predicate of nature”(Dietzgen, 1906a, p.385). Or, again:

Not thought produces truth, but being, of which thought is only that part which is engaged in securing a picture of truth. [...] [T]he philosophy which has been bequeathed to us by [...] dialectical logic must explain not alone thought, but also the original of which thought is a reflex. (Ibid. p.388)

Dietzgen’s conception here is far from clear. On the one hand, a reading such as Lenin’s could very easily utilise such passages of Dietzgen’s to support a reflection theory, seemingly clearly exemplified in the term ‘*reflex*’. However, a more nuanced reading which places the clumsiness of the phrasing into a more consistently monist context might favour a position such as that of Walden (2004). On Walden’s account (ibid., p5), the object is not mechanically and automatically reflected in thought, but, rather, represents *an ontological capacity to be known in thought*. For Walden (2004), Dietzgen’s standpoint is that the objective and the material furnish the ontological basis for the cognitive capacity of the subject to recognize and understand the object.

¹¹ V.I. Lenin was particularly interested in Dietzgen’s approach to the question of mind and matter. In *Materialism and Empirio-Criticism* (1948), Lenin asserts categorically that Dietzgen is a *dialectical* materialist, and goes on to defend this assertion by explicating his reading of Dietzgen’s relationship of phenomena to thing-in-itself. Lenin quotes Dietzgen as stating that the relationship of world-in-itself to the world as it appears to us is a relationship of whole to parts (ibid., p.117). Every phenomenon is a source of inexhaustible exploration by the human faculty of cognition, because every grain of sand or particle of dust is unknowable in its full extent. However, Lenin does not make explicit that, for Dietzgen, this is not as a result of the empiricist ontological prioritisation of things-in-themselves over phenomena, but a result of his substance-monism. Dietzgen’s position dictates that all phenomena must necessarily only ever suggest a relationship of parts to the universal whole: fundamentally, for Dietzgen, *every thing is everything*. This is a point he makes over and again. It is the epistemological quandary which this throws up, resolved, Dietzgen believed, by understanding dialectical process as a ‘regional’ event – that is, as a relationship of partial, positional and isolatable knowledge to unattainable, ‘total’ knowledge – rather than as a universal explanatory mechanism, which Lenin fails consistently to grasp. Unfortunately, instead, Lenin focuses on one of the occasions where Dietzgen refers directly to what Lenin expands into his reflection theory of knowledge: “the human organ of perception radiates no metaphysical light, but is a piece of nature which reflects other pieces of nature” (Dietzgen, cited in Lenin, 1948, pp. 251-2). If it is here that Dietzgen himself is weakest and fails to grasp wholeheartedly the epistemological implications of substance-monism for perception, it is also here that Lenin finds a political ally in laying the ground for Marxist scientific vanguardism (Walden, 2004). But, other readings are possible. (As we will see in Chapter 6, alternative and more critical readings of Dietzgen predominated among Lenin’s Bolshevik comrades around the time of the writing of *Materialism and Empiriocriticism*.) Dietzgen’s ‘reflection’ here, might legitimately be taken to indicate no more than that the mind is an abstraction from nature which is *of the same stuff* as other abstractions from nature.

Nevertheless, this hardly removes the problem, as what is in question is the process of *becoming* known in thought. In fact Dietzgen *did*, albeit vaguely, foresee a thoroughly materialist account of perception and cognition in his proto-unified-field materialist cosmology, wherein forces, such as light are also material, and enable a continuous and unbroken material dynamic (which might be expressed in ecosophical terms as fluctuation within the plenum) which connects in a very real way *material movements* of all types, be they expressed substantively, in terms of a force, such as light, or electricity or ‘mentally’ as a material dynamic occurring ‘within’ but not localisable to the neural complexes of the subject¹². Even in 1869, he refers to thought arising “from infinite circulation of matter” (Dietzgen, 1906a, p.81). Whilst this is helpful in firmly *relating* sense perception to material movement, it falls short of identifying sense perception and mental activity *as* material movement, as aspects of a dynamic whole. Whilst his monism allows in principle for the articulation of a thoroughgoing materialist theory of perception and cognition, such a theory is never carefully expressed by Dietzgen, who does indeed often fall back on descriptive accounts which seem to confound the implications of his analysis with precisely the reflection theory favoured by Lenin. It is perhaps not entirely in Dietzgen’s disfavour that he did not fully follow through his mature monist materialism with a reconsideration of his (1869) theory of perception, as the likelihood is that such a theory would have revealed the shortcomings inherent in the positivism implicit in much of Dietzgen’s philosophy of science. The fact that he by and large retreats into half-hearted articulations of a position similar to Engels’ and which Lenin would later crystallize as the reflection theory leaves us with a limited opening for revising Dietzgen’s thought in this area without losing its essential monist ontology. For all this, it must be recognised that in his earliest work, *The Nature of Human Brain Work: a Renewed Critique of Pure and Practical Reason* (1869), which was also the best known of his writings among early twentieth-century readers, Dietzgen does present a sustained attempt at a dialectical account of mind-matter. However, as already

¹² See Chapter 7 for more on this.

indicated, at this stage, Dietzgen's monistic ontology was not fully articulated, and this is evident in a haphazard theory of perception¹³.

We return to the passage used by Lenin to promote a *dualistic* account of perception as dialectical, and, oddly, it is here Dietzgen comes closest to realizing a unified monistic theory. "In the practical world of sense perceptions," says Dietzgen, "there is nothing permanent, nothing homogenous, nothing beyond nature, nothing like a "thing itself"." (Dietzgen, 1906a, 83) If Dietzgen (like Lenin) is to succeed in his assertion of materialism, it will be necessary to do so, as Žižek argues

not by clinging to the minimum of objective reality outside the thought's subjective mediation, but by insisting on the absolute inherence of the external obstacle which prevents thought from attaining full identity with itself. The moment we concede this point, and externalise the obstacle, we regress to the pseudo-problematic of the thought asymptotically approaching the ever-elusive "objective reality", never able to grasp it in its infinite complexity. (Žižek, 2004, p.179)

All too often Dietzgen wrestles with precisely this "pseudo-problematic". However, in the passage used by Lenin he is clear that "in the practical world" which is an ever-shifting coming into being and passing away, there can never be posited an obstacle against which to counter-pose consciousness, "there is nothing permanent, nothing homogenous, nothing beyond nature, nothing like a "thing itself"." (Dietzgen, 1906a,

¹³ In particular, Dietzgen's account of mind and matter in the second chapter of his *Brain Work* is a mess. Having gone on to state that ideas are "material and real", he displaces the "I" as (immaterial?) overseer both of material object and thought. However robust the argument he were to make for the materiality of the mind (and what he offers is far from robust), he fails to deal with this stubborn dualism. Thought and object are both reduced to classes of phenomena. If thought is both "material quality" and "a phenomenon of sense perception" (Dietzgen, 1906a, p.63), how is the phenomenon recognized? By virtue of what is it rendered phenomenal? The only consistent answer to this within the ontology Dietzgen later develops would be that nature ("the universe", "the One"), *recognizes itself*. In order to avoid flipping Dietzgen's empiricism over into idealism, such an explanation will of necessity require an understanding of the nature of 'recognition' which derives from thinking differently about material existence, either as in some sense conscious and realizing godhood (as in Spinoza), or, as we shall see, as fundamentally dialectical or "out of joint". However, no such case is made in this early work, which, instead, presents a pottage of empiricism, dialectical materialism and idealist confusion. The nearest Dietzgen gets to clarifying how 'recognition' operates as a general dialectical operation is in his treatment of consciousness as contradiction: "Contradiction is innate in consciousness, and its nature is so contradictory that it is at the same time a differentiating, a generalising and an understanding nature. Consciousness generalises contradiction." (Ibid. p.79) If he were to be so bold as to withdraw special status from consciousness in this respect, he would approach an account of materiality as self/mis-recognition (or self-contradiction). See Chapter 7 for further consideration of the question of perception.

p. 83). In a world of ontological uncertainty, wherein every thing is both everything and yet at odds with its own thinghood, where there is nothing which could qualify as a thing in itself, thought exists always and already as an immanence within this absence. What, then, of materiality? As Žižek suggests, Materiality resides in consciousness' self-recognition, allowed only by the contradiction within thought which denies it self-identity – that is, though it can be conscious of itself only because it is ruptured by materiality, it is, in fact, the material world at odds with itself.

Dietzgen's defence:

Nevertheless," says Kant, "things are also something in themselves, for otherwise we should have the absurd contradiction that there could be phenomena without things that produce them." But no! A phenomena [sic.] is no more and no less different from the thing which produces it than the stretch of a twenty-mile road is different from the road itself.

(Ibid.)

This is not, surely, an argument for the reflection theory Lenin proposes. It is, rather, an assertion of universal materiality. Materiality which is always already at the centre of consciousness, not only as the contradiction of self-recognition, but because thought travels the same road as all other material movement; it is a dynamic among greater dynamics.

The point is not that there is an independent reality out there, outside myself; the point is that I myself am "out there", part of that reality [...] so, instead of Lenin's (implicitly idealist) notion of objective reality as existing "out there", separated from consciousness by layers of illusions and distortions, and cognitively approachable only through infinite approximation, we should assert that "objective" knowledge of reality is impossible precisely because we (consciousness) are always-already part of it, in the midst of it – the thing that separates us from objective knowledge of reality is our very ontological inclusion in it. (Žižek , 2004, p.180)

Insofar as Dietzgen's efforts to place us "out there" entangled consciousness within a positivist loop, he was unable to render matter itself fully dialectical in the senses in which we will explore later.

However, for Dietzgen's advocates from Untermann to Walden, it is his efforts at an ontological identification of mind as an event within the material movement of the cosmos which made sense of the dialectical account of historical evolution, even superseding Marx in clarifying the relation of thought to practice:

True, Marx and Engels were able to show by the data of history itself that material conditions have always shaped human thought, which resulted in historical events. But not until Dietzgen had shown that *the human mind itself was a product of that greater historical process*, of which human history is but a small part, the cosmic process, and that the human faculty of thought produced its thoughts by means of the natural environment, was the historical materialism of Marx fully explained. (Emphases added)(Untermann, 1914, p.125)

Whilst a real danger remains that such readings conflate neo-positivism with determinism, in general, they have been argued as a defence *against* deterministic historical materialism. It is worth examining this position before moving to consider abstraction which re-centres the problem on Richey's (2003) charge of positivism.

Untermann's critique of bourgeois science does take into account the sense in which its mechanical materialist 'monism' of the period (after Moleschott) was only a "half-hearted monism" which "continues the fruitless discussion of semi-metaphysical *functions, forces or faculties*" (original emphases) (ibid., p.151), but Untermann's focus of attention is not, however, the 'forces' which science would later seek to unify with matter, but the specific 'faculty', thought, (which science continued to struggle with). Untermann's answer to science's persistent ascription of a special status to 'thought' returns to a central point from Dietzgen's 1869 piece: "Thought is work, and like every other work it requires an object to which it is applied. The statements: I do, I work, I think, must be completed by an answer to the question: What are you

doing, working , thinking?” (Dietzgen, 1906a, p.62). Untermann reiterates the claim, lending it a characteristically neo-physicalist tone:

Labor-power is the latent (potential) energy of the human body, and it performs its function by converting this potential energy into kinetic energy, or motion. Quite analogically, thinking is a function of the faculty of thought. This faculty is the labor-power of the human brain... The brain performs its function by converting its latent energy in to motion, or thought... This function is a labyrinth of objective reactions and subjective counter-reactions. It is all this as a part of the entire natural universe, and it is nothing else. (Untermann, 1914, pp.251-2)

Here we have a basis for the thoroughgoing monist account of consciousness which Dietzgen never fully elaborates, for if this description were to be combined with an understanding of the movement of forces as material, we would begin to see the materiality of human brain-work. Žižek, too, whilst helpful in explicating the sense in which materiality divides consciousness from itself, does not explore the ways in which mental labour as a material process might articulate the dialectic of material self-contradiction. In 1869, Dietzgen tends to present abstracted ‘substance’ (materiality) not so much as a universal material plenum, but as an epistemological phenomenon arising from the abstractive capacity of the mind to unify diverse manifestations. There is a danger in this description of presenting thought as creating material rather than riven by material’s self-recognition. In addition, such a stance overlooks the reality that, by and large, the mind *does not grasp reality as a single unified whole*¹⁴, nor does it consciously recognise its embeddedness with materiality. This is a point of great significance and will be drawn out later in an analysis of the ecosophical pedagogical project as it relates to Dietzgen’s ontology.

The appeal for Walden and others in the Dietzgen camp who present consciousness as an aspect of dynamic materiality is that this approach (arguably) allows for the claim that *ideas are practice* (Walden, 2004, p.5). Rather than a formulation for the

¹⁴ See Schelling on this problem, as discussed in Chapter 4

emergence of revolutionary consciousness, this might appear to be a guarantor of eternal reproduction. If consciousness exists only within practice, it is hard to see how revolutionary contradictions might be realised. It is clear that the consequences of such a position would have been inimical to Lenin, for whom the contradiction between consciousness and materiality was echoed in an ontology which identified the proletariat with natural consciousness and counter-posed this with vanguard-as-revolutionary consciousness. The ‘Dietzgenian’ position which developed as an oppositional trend within early twentieth-century Marxism was able to argue, contra *What is to be Done?* that one must recognise that consciousness simply *is* practice. On this understanding, just as the abstraction ‘matter’ is exploded, so too is ‘practice’. Crudely, if consciousness *is* practice, revolutionary consciousness *is* the action of the masses¹⁵.

It has been noted that Dietzgen’s ontology, developing over about twenty years (1869-87) into a more or less coherent philosophical stance, became a distinctive philosophical trend within Marxism, positing a single unitary substance, *matter*. This position gained a great deal of attention a century ago, despite its shortcomings, but has subsequently been forgotten. Before moving to consider how Dietzgen’s ideas might be retrieved through their echoes in ecosophy, we shall now go on to see how Dietzgen proposed that individual objects, including the problematic category of mind, are abstracted from the material unity.

Abstraction and ontology

¹⁵ Dietzgenism thus became allied with spontaneism and ‘ultra-leftism’, first among members of those parties representing the ‘impossibilist’ trend in early century Marxism, for instance in the Socialist Party of Great Britain (Buick, 2005), the Socialist Labour Parties in Scotland and the USA and the Socialist Parties of America and Canada (Gambone, 1995, 1996), and in the following two decades in the thinking of Gorter (1989), Pannekoek (1906, 2003) and others in the Council-Communist trend (ICC, 2001, p.70-71). The Dutch communist left saw Dietzgen’s work as a bulwark against the fatalistic and mechanical vision of historical materialism that underestimated the role of consciousness in class struggle (we return to this controversy in Chapter 6). Their argument was that if matter is that which transforms itself, that which is always subject to change, then it follows that all knowledge is overdetermined, relative and is possible only within determined limits. However, to thereby claim that the relative knowledge of things is only made possible by the active intervention of the mind into a relationship with the processes of nature is to reintroduce a dualism which Dietzgen’s thoroughgoing monism simply will not allow.

In the writings of Dietzgen (and, later of Ollman), the human mind understands the world by classifying it; these classifications are *abstractions* from ‘reality’, mental constructs (Buick, 1975, p.4), and yet constructs which in an important way (though not in the eidetic sense in which Lenin meant it), ‘reflect’ reality, or, perhaps ‘approach’ reality. Dietzgen saw the job of materialist philosophy as demonstrating that this is true even when applied to the development of such categories as ‘thought’. As we have seen, thought is to be conceived of as an abstraction from the always already “out there” of material reality: “To common sense and metaphysical philosophy, these categories indicated the privileged ontological status of ‘man’; but to scientific [socialist] philosophy they were no more than the artefacts of the self-infatuated human brain.” (Rée, 1984, p.25) Whilst it is essential that humans orientate themselves in the world by means of such abstractions, they possess a somewhat shadowy existence on the edge of presence and negation. Any abstraction is both a potential and provisional identity and contains at its heart the *lack* which identifies its partiality in relation to the whole from which it has been provisionally, expediently disaggregated.

Buick’s account of Dietzgen’s philosophy takes it that it is the ability to abstract, that is to “stop the continuous stream of phenomena” (Buick, 1975. p.4), that distinguishes humans from other animals and has enabled us to intervene in and control the external world. Such a position is disputed below. All abstractions are tentative creations, liable to change, hence Dietzgen’s rule at the end of the *Positive Outcome of Philosophy*:

Philosophy, familiar with its historical achievement understands being as the infinite material of life ... It teaches the specialists to remember throughout all their classifications according to all departments and concepts that all specialities are connected by life and not so separated in life as they are in science, but that they are flowing and passing into one another. (Dietzgen, 1906a, p.443)

Here, as elsewhere, Dietzgen’s poetic use of the term ‘life’ to refer to the experience of the flow of change within the universe is clumsy, though, as we will see, allies his

vision of a dynamic ‘living’ monistic plenum with later ecosophical thought (and with some of the more fanciful readings of the implications of quantum theory).

The challenge for the consistent materialist is to offer an account of the methodological centrality of abstraction to dialectical processes without a lapse into nominalism or idealism. Neither the identification of conceptual unities, nor their naming can be formulated as arbitrary processes, and yet the abstracting of identities needs to be sufficiently flexible as to allow for an account of negation and transformation of quantity to quality. In this sense naming ought to reflect both aspects of the real world, and conceptual structures which find the possibility of transformation in the function and roles of parts and wholes. This is necessarily a dynamic relational ontology. It sees particularities as both provisional identities and, fundamentally, as *relations*.

Ollman’s examples of abstractions, drawn from Marx, tend to be conceptual unities necessary for the operation of social and economic systems, ‘interest’, ‘capital’, ‘class’. The difficulties inherent in attempting to theorise a relationship between these conceptual unities and objective matter somewhat obscures the fact that the materialist monist account of matter has equally to struggle not only with natural abstractions such as ‘species’ and ‘man’, but also with less contentious everyday particularities, plates, chairs and specific persons, with atoms and subatomic particles, and even with such fundamental categories as ‘mind’, and, ‘matter’ in the ordinary sense.

Ollman (2003a, p.31) describes the relationship between that which actually exists in nature and society and our conceptions and naming of it is a “two-way street”. There are core aspects of those abstractions of reality which we all agree upon and which identify what it is, and there are those aspects our conceptualisation and recognition of which decide, rather than determine, what it could be. The central feature of the second aspect of abstraction is that it posits the identified abstraction as relational with regard to the systemic or sub-systemic foci in question. On this account the positive aspect of any abstraction is an essentially social construction, whereas the negative is that lack which inhabits its heart by virtue of its only existing in relation to

other social and natural spheres¹⁶. However, with an ontology which posits no break in the continuous flow of matter, if individual abstractions are to retain any meaningful status in objective reality, criteria of individuation are required which are not merely an effect of the divisibility and separability of substance. If true individuality is to be retained in such an ontology, it has to be the function of a very special kind of ‘form’. Ecosophy finds unities in systemic relations, identifying individuated objects as systems, defined as any cohesive collection of items that are dynamically related (Mathews, 1991, p.93). In Mathews’ model of systemic individuation, the unity of the parts is such as to be more than its sum, which not only gives a form or structure to the parts, but so relates and determines them in their synthesis that their functions are transformed – the synthesis so affects the parts that they function towards the whole and the whole and the parts thus reciprocally determine each other. This account of abstractive integrity is clearly not in itself incompatible with Dietzgen’s and Ollman’s understanding of ‘abstraction’ of objects from a material ‘background’ as a dialectical process, but hardly justifies the claim to an asymptotic inevitablism. Rather, it might reasonably be claimed (as Richey does) that these abstractive unities remain an effect of epistemological phenomena with no demonstrability to the “two-way” nature of the abstractive dialectic. As we will explore later, where Mathews may be able to assist in strengthening Ollman and Dietzgen’s account is by reference to the operation of ‘geometrical’ dynamics as a central element of the ontological order, for, whilst Dietzgen’s supporters proposed that he improved upon the historical materialist account of dialectics by drawing attention to the “*dialectical relations between simultaneously existing things*”(original emphasis) (Untermann, 1906, p.245) (this is a point which will be made in relation to Whitehead, later), he perhaps did so at the expense of a more fully realised sense of the temporal dimension¹⁷. In this respect, Engels is clearly also an improvement on

¹⁶ For a complementary account of the positive and negative aspects of the abstractive process, see Whitehead on adversion and aversion in Chapter 3.

¹⁷In this passage from *Brain Work* (1869), Dietzgen introduces a temporal element into the picture: “Even a chemically indivisible element is only a relative unit in its actual existence, and in extension through time as well as extension in space it varies simultaneously and consecutively as much as any organic individual...” (Dietzgen, 1906a, p.83) Importantly though, here as elsewhere, he fails to clarify the criterion of identity as *relative movement*.

Dietzgen, though Engels was unwilling to fully grasp the implications of materialist monism.

It is easy to see how Dietzgen might be charged with reducing the operation of dialectics to a solely *epistemological* process. This is not a straightforward case to answer. The aim here will be to show that holding to a consistent monist materialism which takes into account the strange explanatory devices offered by twentieth-century physics justifies the claim that in an enriched understanding of Dietzgen's monism, we find both an epistemological *and* ontological basis for dialectical method.

For Richey (2003, p.23), Dietzgen reduced the dialectic of nature to a cognitive process of the human mind. The problem for Dietzgen and for Ollman is a real one – how the sense data of experience are used to abstract identities at various levels. Which has ontological priority, *sensa* or abstractions (that is to say identified unities – *objects*)? Given that abstractions are, as we have seen from the example of 'man', contingent upon political utility in Ollman's Dietzgenian reading of Marx, it would appear that sense data are indeed *ontologically prior*, providing the building blocks for the abstractive activity of the mind. Central to Lenin's philosophical worries about Dietzgen was the former's denial of empiricism. Any system which ontologically prioritises sense data produces a chasm between mind and world. Rather, for Lenin, sensation is merely a *direct connection* between consciousness and the world. However, among its other shortcomings, this formulation fails to meet the needs of Marxist science to abstract unities which, far from being reflections in a crude sense are a subtle dialectical product of the relationship between substantive events at different ontological levels. That is, the relation between that material movement and activity which we call conscious thought and that much greater material movement which we identify as human activity (or, more broadly still, life activity) is a real relationship – a tiny ripple within an eddy, an effect of the wider process which thus contains the wider process within it, not as a reflection, but as a condition for the possibility of its own existence. The material activity of consciousness is separated from itself. That is, what it means to be conscious resides in the cleavage between self and not self, which is another way of describing the relation of part to whole. The material fluctuation which is consciousness is a negation in the metaphorical sense

that it exists only as a relation to itself via its relation to the whole, yet for Dietzgen, *in absolute ontological terms, there are no negatives*, only the single positive existent plenum – materiality. But where does this leave us in relation to the grand abstractions of Marx – capital, class and commodity? These are indeed epistemological abstractions rather than conceptual *reflections*. They are *in this sense* a product of a particular regional science¹⁸. Ollman’s abstractions operate in a manner which might be described as merely metaphorical: the levels of abstraction, mere political conveniences which need not correspond to substantive identities in the real world. However, to so characterise them would be to overlook the consistent monism which Dietzgen applies. Within this operational field, the grand abstractions of society and capitalism are no more or less metaphorical than the everyday abstractions of person, tree or rock. These are events understood at an everyday level which may or may not correspond to events at a ‘quantum’ level, but which in the consistent way in which they answer scientific questions are *likely to* correspond to such events and, on Dietzgen’s account ever-increasingly approach the truth of objective reality. (However, Dietzgen is rightly ambivalent about such a ‘truth’, locating it within a dialectical framework which constantly denies its own possibility by refusing to be bound.) For Richey, because Marx’s sophisticated and thoroughly dialectical understanding of materialism sets up an opposition between human and nature which is interpenetrative and co-dependent in a truly dialectical sense, Marxist science provides a governing framework within which to judge all other sciences and philosophies, whereas Dietzgen’s model places human sciences in a limited position, practically autonomous, but as theoretically dependent upon positivism as the

¹⁸ Indeed, Dietzgen and his supporters would go so far as to claim that these understandings are the effect of a positional response to broader patterns of material movement shared only by those exposed to the particular common experience of alienation – the proletariat. The sense in which Dietzgen understands the truth of Marxist materialist monism to be a positional science of the proletariat is explored elsewhere.

psychology, biology or chemistry of his day¹⁹. Dietzgen's relation of human to world, it is claimed, is thus a straightforwardly positivist one: Dietzgen's dialectics operate as a 'regional' science (ibid.p.24) of the mind and let the physicists and biologists get on with the business of describing reality in a positivist manner. Whilst Marx's social theories account for change and ideology in terms of the fundamental relations of economic production, by attempting to clarify these theories by making explicit their psychological assumptions through an inductive theory of cognition, Richey claims that Dietzgen believed he could ground Marx's theories in a larger *non-dialectical* theory of nature.

This problem demands a reconceptualisation of the distinction between epistemology and ontology, a cleavage which monists would anyway view with suspicion. One way to approach this would be to consider the question of 'scale' and 'levels' of present being. Because Marx's abstractions – the departments of social production, circuit of capital and so on – are in both conceptual and more or less directly in geographical terms, large and hugely complex 'societies of enduring objects' (to use Whitehead's (1978) phrase), it is easy from a position within these systems to regard them as somehow less material, less substantive than the physical systems which constitute our own bodies or the material things of our everyday existence. This is a mistake, which hinges on an expectation of direct correspondences between dynamics at different 'levels' of existence. It is true that levels in themselves are problematic, a shorthand for an infinitely multilayered universe of systemic interrelationships, but they are, as Ollman demonstrates, effective operating paradigms, essential to the practice of dialectical thinking. In terms of our understanding of ontology, such 'levels' do not end with the systems of everyday sensible experience, of course. Just as we may abstract unities at 'large' economic, ecosystemic, planetary or cosmic

¹⁹ Dietzgen advocate Ernst Untermann (1914, pp.128-9) proclaims that biology, physiology, chemistry, psychology and physics had all in the last years of the nineteenth-century accepted elements of 'dialectical' method, universally corroborating the achievements of Marx, Engels and Dietzgen. Whilst it is true that the sciences were during this period consistently applying vulgar materialist monism insofar as they no longer considered seriously the possibility of spirit, ether or phlogiston, they nevertheless had little regard (with few exceptions, such as Clifford) for the philosophical monism which Dietzgen propounded (and which Untermann misrepresents), that monism which proposes a single unified material field with no separation of the substantive from 'forces' as traditionally conceived, and no room for any such separate and distinct categories as 'mind'.

scales, we can equally bring into focus abstractions on an atomic or subatomic level. When viewed in terms of the universe as a whole our everyday sense of the relative difference in scale between atomic systems and international financial systems could be regarded as a product of positional overdermination. The philosopher John Cowperthwaite Graves (1971) who furnishes Mathews with much of the ontological underpinning for her ecosophy restates the crucial point in a discussion regarding Descartes' non-monist ontology. Descartes had run into the difficulty of defining the boundary of a figure. If Descartes' particles were to operate as the basic unit of matter they would need to vary either in hardness, toughness or cohesion at the boundary of a body in such a way as to sharply distinguish the body from those bodies on the other side of the boundary; or particles would need to differ in some properties from figure to figure:

The crux of the problem is Descartes' assumption of a single level and single principle of explanation... I must insist that the perceived [object, in this case a] table and the particles of which it is composed, according to some physical theory, *are on two different levels*. Unless we are trying to prove a reduction, *the latter level need not reproduce all the distinctions of the former*.
(Emphases added)(Graves, 1971, p.98)

Any monist ontology, such as that of Joseph Dietzgen, needs to allow for the reading of its infinitely complex interplay of material dynamics at a range of levels which need not see the same categorical distinctions in correspondence at different levels. Žižek (1996a, p.271) makes the point that quantum physicists are correct to say that one cannot 'understand' their science in the conventional sense, for understanding consists in locating their particular abstractions within a meaningful comprehension of 'reality' which is only relevant to a different 'level'. Quantum physics just 'works', just as, on Ollman's account, at the level of everyday life, "according to Dietzgen... the theoretical problem of individuation is successfully resolved by people in their everyday practice" (Ollman, 2003a, p.46). The levels – societal, cosmic, quantum and so on – are not merely conceptual. They represent a particular descriptive focus on an aspect of the real for the purpose of the application of dialectical analysis, of

‘understanding’ in an extended sense which Dietzgen recognises as having to do with abstraction and organisation, and of living. The central criterion for the selection of elements which constitute an abstractive identity is what Engels (1954, p.92) calls “the mode of existence, the inherent attribute of matter”, *motion*: “[t]he principle of the particle level and that of the sensible level are one and the same: division of the one material plenum into figure *by motion*.”(Emphasis added)(Graves, 1971, p.98)

In order to understand the sense in which the epistemological operation of abstraction of dialectical unities in motion has ontological import, we turn to the mysterious world of the quantum. The science which Graves employs to offer a monistic account of the world is also useful in developing a sense of the way in which our recognition or ‘registering’ of a dialectical process at any of the levels from the societal to the atomic within the material world is merely a part of a wider universal ‘registration’ of active processes. Again, one must beware of finding *direct* correspondences between the categories of the quantum and everyday levels. Nevertheless, the radically unpredictable nature of the former must be understood (insofar as understanding is possible) in order to justify the proposed parallelism between abstractive processes at the conscious level and ‘registration’ (in a ‘lower power’) at that level undergirding our material experience²⁰. This parallelism might equate somewhat with Lockwood’s understanding of a “weak reducibility” (Lockwood, 1989, p.18)²¹.

Richey is correct in identifying Dietzgen’s epistemological dialectic as ‘regional’ only if the processes which characterise its particular material dynamic can be shown to be unique to the human sphere; the peculiar motion of the quantum universe would appear to confirm the monist position that this is not the case: “Quantum physics compels us to call into question the most resilient philosophical myth – that of the absolute gap that separates man from nature, e.g., the line of thought which begins with Hegel and proclaims man is ‘nature sick unto death’.” (Žižek, 1996, p.273)

²⁰ See also the discussion on Margenau and Penrose in Chapter 7

²¹ That, given sufficient information regarding activity at one level – say, at the level of intra-class relations – and a sufficiently detailed account of events at a different level – say, the physiological activity of brains; and, given ratiocinative powers beyond the current capacity of living humans, one might be able to deduce what was going on at the higher level from the account offered of the lower level.

One of the basic motifs of the philosophy of self-consciousness is that our (the subject's) awareness of a thing affects and transforms this thing itself: one cannot simply assert that a thing, inclusive of its properties, exists 'out there' irrespective of our awareness of it. (Žižek, 1996, p.277)

Far from asserting a detached idealism, Žižek expresses, more carefully and precisely than Ollman, how a "two-way street" might connect the abstraction with the "out there"²². As we will see, the categories abstracted by Marx at various levels operate in a manner analogous to the flow of matter (at a different – quantum – level, or in a 'lower power'): that is, the dialectical movement of materiality operates in such a manner as to include within itself a play of abstractive possibility immanent within the specific dialectical capacity of its conscious aspect. Though poorly formulated, we see precisely the possibility of this formulation expressed in the extended materiality of the Marxist monists, exemplified by the figure of Dietzgen²³.

'*Registration*' is the important term here, designating the ascription of an object or event into a meaningful externality. The registration by its environment of a process is the effect of a quantum universe that is absolutely internally interrelated in a way more fundamental and complex than traditional understandings of causality will allow for. The use of such an ontology of internal relations will be explored thoroughly later in relation to A.N. Whitehead, who incorporated post-Einsteinian metaphysics into his microcosmology. The interaction between observer and observed is far more interpenetrative than simple cause and effect:

When we try to look at the spread-out electron wave, it collapses into a definite particle, but when we are not looking it keeps its options open... When we detect the electron... it can

²² Let us take as an example, the abstraction "wage slavery". This is both a political conception and a *material* social reality, however within a culture where the capitalist mode of production and exchange is utterly hegemonic, the coercive nature of waged-labour will not be perceived as an act of violence against the labourer, indeed, the worker may welcome with open arms the increase in wage offered her as a symbol of her employer's appreciation, rather than '*registering*' and identifying the wage as a form of confinement central to the operation of the extraction of surplus value and her continuing oppression. To this extent, the abstraction 'wage slavery' *has not existed* until it is registered as *having existed*.

²³ To this we will return in Chapter 7.

only be in one place, and that changes the probability pattern for its future behaviour – for that electron, it is now certain which hole it went through. But unless someone looks, nature herself does not know which hole the electron is going through. (Gribbin, 1984, p.171).

Quantum physicists define ‘actual’ external reality as the ‘collapse’ of the wave function, resorting to metaphorical language to offer an account of quantum events which occur beyond everyday understandings. What is crucial in this ‘collapse’ is the relationship of the abstracted object – the particle – to externality: the event fully ‘becomes’ itself, realises itself only when its surroundings ‘notice’ it, *register* it. This point demands elaboration.

The central mystery of the quantum universe is best illustrated by Feynman’s famous two-hole experiment (Feynman, 1992, pp.129-148) referred to by Gribbin above. The exact operation of the experiment does not use the versions of the equipment necessarily referred to metaphorically to allow a layperson (such as the author) to grasp its essentials, however, the principle remains the same. A wall with two slits or holes in it is set up and behind it a second wall upon which is a recording apparatus designed to register the impact of a flow of electrons as they are fired at it. One has to imagine an electron gun shooting the electrons towards the wall with the two slits in it. They pass through and onto the back wall where the pattern of their distribution is recorded. If one imagines a water wave rather than the wave form of electrons, one can picture it passing through the two slits, ‘spreading out’, and producing the diffraction pattern generated by the interference of the amplitude of the ‘two’ waves passing through the two holes. Passing electrons through the holes, one would naturally believe that they must pass through one slit or the other; however, whilst, when only one hole is open this is the case, when both holes are open, the pattern recorded is one of interference of waves. Even if only one electron is fired at the wall at a time, the picture which builds up over time is of wave interference: “A single electron, or a single photon, on its way through one hole in the wall, obeys the statistical laws which are only appropriate if it “knows” whether or not the other hole is open.” (Gribbin, 1984, p.170). If one were to collect the data from thousands of

separate identical experiments, each with one individual electron allowed to pass through the slits, one would still get an overall distribution pattern in line with diffraction from wave interference, as if thousands of electrons had been let through the two slits at once. Extending this principle to the ‘everyday’ level, Žižek claims, “nature seems to ‘know’ which laws to follow, leaves on a tree ‘know’ the rule that enables them to ramify according to a complex pattern, and so on” (Žižek, 1996a, p. 277)²⁴. If one tries looking to ‘see’ which hole the electron goes through, the result is even stranger. If there is an arrangement which records which hole each electron passes through, letting it continue to the detector screen, the electrons behave like ordinary particles, producing a pattern on the detector screen with no interference of waves. The electrons not only know whether or not both holes are open, they know whether they are being watched. The act of ‘registering’ the process realises it in its reality. Ollman’s and Dietzgen’s acts of ‘abstraction’ operate precisely as ‘registering’ mechanisms, calling into reality an immanent potential left open in the infinitely complex web of interrelating social and natural worlds (the distinction between the two are political abstractions themselves).

Heisenberg’s uncertainty law, according to which, “we *cannot* know as a matter of principle, the present in all its details” (Gribbin, 1984, p.157), shatters the distinction Richey wishes to make between a positivist determinism within the ‘external’ scientific world, and the subjectivity of the mental universe. Whereas Newton held that we would be able to predict the course of events if we knew the position and momentum of every particle, modern physicists view the idea of this kind of predictability as meaningless given that we cannot know the position and momentum of even a single particle. According to Heisenberg’s principle, a particle in itself, in its materiality (the term ‘objective’ becomes problematic), cannot have both fully specified position or mass *and* specified momentum.

The principle is therefore profoundly dialectical – the opposition between mass and momentum defines the very ontological status of the particle. Thereby, an epistemological obstacle becomes an ontological

²⁴ Perhaps even stochastic cell migration and cell death within the brain occur as ‘quantum effects’, Gerald Edelman (1992, p.69) describes the treelike arbors of neurons as ramifying in diverse ways which also somehow ‘know the rules’ – see Chapter 7.

‘impediment’ which prevents the object (particle) from realising the actuality of its total potential qualities (Žižek, 1996a, p.272).

The idea of this ‘*complementarity*’²⁵ is that both wave and particle pictures are necessary to understand the quantum world but that these abstractions form complementary *and* mutually exclusive aspects of reality.

Žižek plays on the theoretical delay within quantum physics between event and ‘registration’, a delay which allows for the possibility of the *retroactive* determination of what occurred (if we were able to decide whether or not to observe the electron after it had passed through the slit but before it hit the measuring apparatus, our decision would retroactively decide what had gone on, just as our ascription of the abstraction ‘wage slavery’ to a material reality creates the dialectic inherent to that reality - a retroactive, historiological qualitative transformation). Žižek’s proposal here bears a striking resemblance to the aleatory materialism of Althusser’s last writings - “everything is determined in aleatory materialism, but determined *après coup*” (original emphasis) (Negri, 1996, p.60). ‘Quantum indeterminacy’ exists in the minimal ‘free space’ between event and its registration: an electron can create a proton out of nothing, thereby violating the most fundamental rule of constant energy, so long as it can reabsorb it in the ‘twinkling of possibility’ before its environment ‘takes notice’ or ‘registers’ its existence. Quantum physics thus creates a potential space for ‘ontological cheating’ – a domain of pure potentiality where events can occur while the universe ‘isn’t looking’. If this principle exists at all, it is necessarily true of the universe as a whole²⁶ which, as matter, is in its totality a collapse of wave function which has yet to notice its coming into being out of nothing. So how does this ‘collapse’ into actuality occur when the event in question is the universe in its entirety if the universe only exists because its existence is ‘registered’? Žižek’s answer is simply that the universe in its entirety *does not exist*, it is a mere ‘quantum

²⁵ See page p.131 on Bohr

²⁶ Gerald Edelman comments, “Relativity and quantum physics certainly do not obey common sense. But neither do events of perception at the macroscopic scale of the observer... The use of the word “illusion” or the adoption of an excessively rationalistic, inferential, or cognitive position hides this strangeness.” (Edelman, 1989, p.269)

fluctuation' without any external boundary that would enable us to conceive it as actual. The absolute universal positive which is the material plenum is at once its own negation in that the conditions of its possibility are also those of its impossibility. The ontological implication is that *something* exists at all only insofar as it is 'out of joint': "the very existence of the universe bears witness to some fundamental disturbance or lost balance: 'something' can emerge out of 'nothing' via a broken symmetry." (Žižek, 1996a, p.280). There is no 'natural balance' or natural law; the universe *is* only insofar as it does not take notice of its non-existence

In the quantum physicists' understanding of nature as an ontological play of possibility, we find an echo of the dialectical processes of abstraction which we have understood to be solely a function of consciousness. Now, rather than the registration of an abstractive identity proving a unique attribute of the aleatory vicissitudes of consciousness, nature too is found to be a cosmological lack of self-recognition allowing, at the quantum level for the possibility of 'registration' of a dynamic movement as a reality. Nature performs its own abstractive acts.

What is to be 'deconstructed' is this very notion of nature: the features we refer to in order to emphasise man's unique status – the constitutive imbalance, the 'out of joint', on account of which man is an 'unnatural' creature, 'nature sick unto death' – must already somehow be at work in nature itself, although... in another lower power (in the mathematical sense of that term). (Žižek, 1996a, p. 275).

Chapter 2: The Ecosophical Universe

Introduction

Freya Mathews has made an important contribution to contemporary ecological philosophy in her attempt to develop an ethic of care directly from a monist ontology. Her project rests on the effort to establish a credibility for monism at all levels – the quantum, the ecological and the cosmological. In this chapter, attention will be focussed principally upon the last of these levels, and upon how such a system might strengthen the Dietzgenian strand within the Marxist tradition, enabling a consideration of the merits of dialectical monism as force for ecosocialism.

Mathews, like Dietzgen, develops an argument for the monist conception based upon the science of her day. This is important not principally in justifying a moment in human scientific progress, but in allowing for an examination of the basic abstractions with which societies operate. Mathews is quite rightly concerned to problematize the crude atomism which reflected early capitalist forms of societal development, and to pose the question – might science be able to offer a basis for a different way of thinking about the human relation with nature? It has been shown that such a possibility is really presented by the propositions of twentieth-century quantum physics, and Mathews intends to extend these possibilities to include a now largely forgotten branch of physics called geometrodynamics as a source to strengthen cosmological claims. It is worth reviewing this position, not because geometrodynamics may or may not be an accurate and ‘true’ means of establishing working abstractions in relation to fundamental ontology, but because it does so at all, and, more importantly, because it demonstrates the possibility of developing scientifically abstractions which challenge anti-monistic assumptions in current political, ecological, and pedagogical thought. Thus, those concepts which are developed here are selected in order to support a retrieval of critical methods associated with the Dietzgenian branch of Marxism as tools for use in building ecosocialism. Mathews herself employs physics in a ‘mythological role’, its hypotheses present only preliminary validations of the cosmology she espouses, but

its method is positioned such as to gain a level of general assent in the contemporary developed world ineffable to ‘non-scientific’ approaches, such as those of particular theisms, shamanism, astrology and the like. Žižek (1996a, pp.282-3), too, endorses a recognition of the importance of quantum physics and its employment in defining the possibility of a strategy to avoid a vulgar-materialist naturalisation of man, or an obscurantist (metaphysical) spiritualization of nature (as, for instance in astrology), and to oppose the deconstructionist version of nature as a discursive construct.

If we are to take seriously Dietzgen’s claims regarding a single, continuous and unbroken material plenum, it is helpful to adopt the formulation proposed by Mathews in relation to the position held by Fritjof Capra. For Capra (1983), our observation of the play of energy at the subatomic level can only lead us to the conclusion that in a fundamental sense material substance is an illusion. At this level, patterns of energy flow are distributed and redistributed, but, whilst there is certainly Engels’ ‘mode of existence’, on Capra’s account, there is nothing actually moving, only motion, “there are no dancers, there is only the dance”(Capra, 1983, p.83). As we saw earlier, it is unwise to expect direct correspondences between levels of abstraction. Assuming that matter exists as a useful abstraction for the purposes of our everyday dealings with objective reality is no basis for presupposing that matter will be a useful explanatory principle at another level. Dietzgen insists that both mind and matter in its traditional sense are first and foremost abstractions. However, what the mental processes of abstraction, and onto-epistemological feats of registration achieve is to make real that which is recognised within a field. The context-dependence of motion demands a context which allows for just such recognition. Motion can only be conceived of as real if the field within which it occurs is also in some sense real. “If the field is merely an abstraction, then the pattern of motion which it manifests is abstract too – it does not belong to the real world” (Mathews, 1991, p.58). In considering the possibility of motion operating as “merely” an abstraction, Mathews recognizes that abstractive processes take place on a “two-way street”.

What Dietzgen calls *matter* (among other things) in its expanded sense, and what Mathews calls *substance* is absolutely necessary to the universe from a position within it, from a position which cannot but fail to register the universe’s own lack of

self-recognition. Why? Because it is the field itself within which the universe occurs which must be conceived of as substantial; whereas motion alone cannot constitute a universe, the field is both necessary and sufficient to furnish a universe. Mathews illustrates this by asking us to imagine a movement, such as a wave pattern. This cannot be conceived except as occurring in some medium, something like a gas or a liquid, we might even conceive of space itself rippling, but, however we conceive of a motion, it has to occur as a disturbance within a field which is of itself substantial. Motion without a substantial field cannot be called motion, indeed it cannot be conceived as anything at all. The universe for Mathews, viewed from within, is just such a continuous material plenum. By the same token, matter cannot be conceived without its mode of existence, namely motion. As was suggested earlier, it will be relative motion which acts as the central criterion of individuation within a monist ontology.

It is worth taking Graves' advice to remind ourselves at this point that "matter is a cross-level term" (Graves, 1971, p.92), and that there are clearly implications of this for the way in which we conceive of the expanded definition of matter within a monistic ontology. At one level of abstraction, the concrete level of everyday experience, an essential characteristic of matter is extension, but to retain extension as the primary attribute of matter at the quantum level would require stretching its definition beyond breaking point. Extension of substance is simply not applicable at this level of abstraction. "Photons and sensible bodies are on different levels, and it is unreasonable to expect one criterion to cover all these levels, though it may work for a particular one. The mistake here again lies in assuming that there is only one legitimate level of explanation." (ibid., p.92)

Whilst it will be necessary to adopt aspects of Mathews' substantialist approach, caution need also be applied in recognition of her scepticism regarding some forms of materialism. In a later work, Mathews moves to criticise 'materialism' in general for its dualistic duplicity. Materialists, she argues (2003, p.28-9), suppose a dead and de-animated nature, a mirror of its missing other half, the vital world of spirit. However, such critique fails to regard the range of 'materialisms' which preceded Mathews'

monism. In fact, in some respects she merely echoes the critique offered by the monist materialists of a previous period to nineteenth-century mechanical materialism:

Our principle is organic, our philosophy materialistic, but our materialism is richer in essence and more positive than any of its predecessors. It absorbed the Idea, the antagonism of matter, it mastered the domain of Reason, and overcame the antagonism between the mechanical and spiritual view of life. The spirit of negation is with us at the same time positive, our element is dialectical. (Dietzgen, 1906b, p.180)

For, following Marx, they too recognised the shortcomings of ‘crude’ materialisms. But, as has been demonstrated in the previous section, the road taken by Dietzgen and his followers was not to abandon the singular and unitary category of matter as the basis of his cosmology, but to posit this substance as dialectic, making it present for itself in the moments of material perturbation we call thoughts. There is such a phenomenon as thought, and thought exists within a field of movement which is undivided and indivisible. As such, thought is as material an event as any other. The dialectical monist materialist postulation is precisely not that materialism and idealism are opposing positions but that both misrecognise the unitary nature of substantive material processes, abstracting from this unitary field conceptual categories which objectively correspond to phenomena and one-sidedly proposing these as basic categories of being. The dialectic is not one of mind and matter, but of matter and matter, riven by its unbalanced nature, its failure of self-recognition. In fact, the ‘panpsychism’ of the later Mathews is surprisingly close to the “cosmic-monistic philosophy” (Dietzgen, E., 2004, p.13) of Dietzgen’s latter-day followers Dauge and Dietzgen Jn²⁷.

In what sense does Mathews understand geometrodynamics as a deep green cosmology, or, at least as a metaphysic supporting a deep green interpretation? In order to establish why this is the case, it is necessary first to outline in summary the

²⁷ For example, “[b]eing a part of the cosmos, the human mind is cosmic, partakes of the eternal and infinite nature of the cosmos, the same as every substance and force” (Dietzgen, E., 1906b, p.67). See Chapter 5.

principles of the geometrodynamics ontology. As in Mathews' writing, there is no intention here of treating GMD as a strongly verifiable account of the underlying principles of material reality²⁸. It is however, essential to recognise that the legacy of post-Einsteinian physics makes possible just such cosmological projects, whether they postulate topological geometrodynamics or superstrings, and this possibility would have been warmly welcomed by the Clifford era monists, both Haeckelian and Dietzgenian.

On the basis of the local equivalence of inertial and gravitational motion, Einstein postulated that the two are in fact identical, that motion as a result of the action of a local gravitational force is in fact an acceleration, due to the curvature of spacetime. Massive bodies stretch spacetime causing curvature within the space-time-frame within which they are embedded. Motion within a gravitational field is non-uniform because the 'object' in motion follows local geodesics, tracing a path through curved spacetime. "The most central conceptual innovation of GTR [General Theory of Relativity] is this treatment of spacetime as a real, dynamic, physical entity, the geometrical structure of which provides the explanatory thrust of the theory" (Mathews, 1991, p.64) It is upon this basis that J.A. Wheeler developed the cosmology of geometrodynamics. These arguments are added to by the physicists' insistence that the expansion of the universe does not entail matter extending into a preexisting void, but that an expanding universe equates to spacetime itself 'expanding' in a manner which may only be thus identified from within.

Principles of geometrodynamics

The first principle of geometrodynamics, then, is that far from being the passive backdrop to the main 'action' of the universe, spacetime is itself the "principal actor" (Mathews, 1991, p.65). This central hypothesis drawn from General Theory of Relativity provides the explanatory thrust for geometrodynamics cosmology. Of equal importance though, is that not only is the universe monistic, but it is holistic in the

²⁸ The numbers of people attempting so to do in the twenty-first century are very small – Matti Pitkänen (2006) is its main advocate.

senses which were revealed previously²⁹. The absolute interpenetrability suggested by the universe's 'registration' (or not) of possibilities immanent within it allows for a wholly intertransformable ontology. In this sense, predicates are abstractions interchangeable with subjects, mass with energy, and mind with non-mind³⁰:

We cannot take the sum of two effects to arrive at a total effect, nor break a total effect down into specifiable individual effects. The total effect of all the sources in the field cannot be analysed down to their individual contributions. Even the different aspects of the 'world-field' are logically interconnected – electromagnetism has gravitational effects in test particles, and gravitation has electromagnetic effects. The different fields are partially conceptually separable but not ontologically so: they are distinct aspects of the curvature of spacetime. Moreover, the other physical variables, such as mass and energy, momentum and stress, are not absolutes but are, likewise, aspects of curvature, and accordingly intertransformable. (Mathews, 1991, p.68)

Aspects of the geometrodynamical universe will be discussed briefly, one at a time, beginning with the question, raised by Dietzgen, of the relation of (geometrodynamical) structure to predication; then moving to consider the identity of spacetime and matter/substance; individuation and motion will then be considered.

In 1887 Dietzgen had made specific reference to the interchangeability of the abstractions of subject and predicate in relation to light. Interestingly in insisting on the materiality of what he understood as predicates, Dietzgen roved into the areas later subject to general relativity. He wanted to eliminate the formal distinction between subjects and predicates. As predicate light is experienced in relation to subjects; as subject it makes the eye or the surface it strikes its attribute or predicate

²⁹ The model of a 'physical monism' provided by geometrodynamics serves the Dietzgenian dialectical materialist monist position well in providing a singularity which, "[u]nlike the 'God-Substance' of Spinoza, [...] is not capable of supporting radically different attributes which parallel but never interact with one another. All its attributes (in whatever 'modes') are essentially geometrical and capable of interacting with one another." (Graves, 1971, p.314) As such it avoids the problematic conceptual dualism which blights Spinoza's substance.

³⁰ Offering intriguing panpsychist possibilities which Mathews takes up in her later work (Mathews, 2003, 2005)

(Dietzgen, 1906b, p., 297). Dialectical materialists understand all predicates as material. In this sense, material subjects are composed entirely of predicates (ibid., p. 295). In geometrodynamics terms, such predicates will at some level reduce to geometrical descriptions – curvatures in spacetime. Whether these relate to (for instance) acceleration, density, mass or intensity, these features are relational effects of matter in motion.

With respect to the identity of subjects and predicates, both Dietzgen (1906, p.381) and Mathews (1991, pp.82-3) look to Spinoza. Whether Spinoza is entirely helpful in this regard is not as clear as the intention of the later monists in drawing on his definitions. For Spinoza, that which is affirmed or denied of a subject, its complexion or constitution, is abstracted under the same category as individuated subjects themselves, both as *modes* of the single substance, God or Nature. Thus, there can be no categorical difference between the ‘redness’ of light, the light itself, the ‘redness’ of the object struck by the light, and the eye which sees these phenomena. All exist only insofar as they are modes of the one substance³¹. On Spinoza’s (1996) account, attributes are neither ways of perceiving, that is they are not related to the intellect, which is, after all defined in terms of the first of these attributes; nor are they emanations, because there is no eminence of substance over attributes. Attributes “express” the essence of substance. All the essences, distinct in their attributes are as one in substance, God. Attributes are distinct, do not depend upon one another and are thus absolutely simple. We only know two attributes, though we know there are an infinity of them. These two are thought and extension. Attributes are strictly identical *to the extent that they constitute the essence of substance*³².

Dietzgen’s universe is closer to being both ontologically and conceptually monistic than Spinoza’s insofar as a reduction of both extension and ‘unextended’ forces to a singular concept (expressed more clearly in later science as geometrical) allows for

³¹ For practical purposes, of course, Spinoza’s modes are as inadequate as Mathews’ geometrodynamics in accounting for the persistence of larger or smaller systems operating in the perceptible world. However, as we have noted in relation to other claims of an ontological kind, one must not expect terms such as ‘attribute’ to operate in such a way that it refers to some concept or ‘thing’ that behaves in the same way at different levels of abstraction.

³² Hence, “[t]he Spinozan immanence is therefore no less opposed to emanation than to creation. An immanence signifies first of all the univocity of all the attributes: the same attributes are affirmed of the substance they compose and of the modes they contain.” (Deleuze, 1988 pp.51-2)

the possibility of eradicating the privileged position of thought as the condition by which extension might be expressed. In this fundamental sense, Dietzgen is closer than Spinoza to the Deep Ecology of a post-Einsteinian world in that, as we noted earlier, extension too becomes far less important as a defining attribute of substance at the sub-atomic level of the dynamics of energy flows³³.

Mathews, then, is pulled towards an unorthodox Spinozism which wants to reread the term ‘expression’ as having less ontological import than previous interpretations had suggested.

The attributes are as they are because they express the logically predetermined nature of substance: The nature of substance is not to be inferred from them. It is in this sense that substance is to be conceived through itself – it is conceptually independent of the attributes, though it is known a posteriori through them. (Mathews, 1991, p.82)

While established understandings of Spinoza’s substance have it characterized exclusively in terms of the (knowable) attributes, these constituting its essence, for Mathews substance is whatever instantiates its formal abstract properties, and these properties are merely made knowable – ‘expressed’ – through the attributes. So what are these formal properties of substance? Mathews infers them from the opening Propositions of the Ethics. They are self-realizability, infinitude, unity and indivisibility.

Moving now to that second principle of geometrodynamics which is both commensurate with, and offers a strengthened ontological articulation for Dietzgenian cosmology, it is necessary to consider briefly the age-old question of the relation of matter to space; specifically the geometrodynamic identification of one with the other. For Graves, this is the central problem of ontology common to Wheeler, Einstein, Descartes & Plato: “if they can be but need not be identified, are there any grounds

³³ Despite Dietzgen’s advocacy of the adoption of a Spinozan approach, significant differences of course exist between Spinoza and Dietzgen, especially in relation to thought. While Spinoza marks the two great abstractions thought and extension as parallel and equivalent attributes of matter, Dietzgen’s “democratic” materialism would not wish to prioritize thought over other “forces”. “Those who assume the forces to be mere properties or predicates of matter are badly informed of the relativity, or the variability of the difference between substance and property” (Dietzgen, 1906b, p.298) he writes, emphasizing at least equivalence if not identity between these abstractions which nineteenth-century science had yet to interpenetrate.

other than conceptual economy for doing so? If they are identified, how rich must the single concept covering them be in order to account for all the features that have traditionally been assigned either to one or to the other?" (Graves, 1971, p.61)

Dietzgen's contemporary, Clifford, suggested far more cogently than does the dialectician, but does not *demonstrate* that the fundamental kinematic phenomena of matter in motion is explicable in terms of a space having the geometrical structure he proposes (Smokler, 1966). If we rule out the Capra position, and take spacetime to have some sort of independent existence we must, asserts Graves, assume the following:

(1) it has definite properties at its various points; 2) these must be geometrical or spatial, such as the various curvatures; 3) they must be independent of any coordinate system since these are just human conveniences.... (3) is quite independent of general covariance – it follows only from the conceptual possibility of identifying physics with geometry, which, in turn, follows from the possibility of identifying matter with space, since geometry is the science of spaces and spatial objects in the same way that physics is the science of matter and material objects. (Graves, 1971, p.151)

This is crucial to the progress of any monistic account of matter. Specific metrics may take epistemological priority in operating with information about the geometry of space, but these are not ontologically fundamental. That is to say, metrics are relative in the sense that they always describe relations between coordinates: they cannot describe an invariant property of the manifold, its curvature at a (theoretical) point. The fascinating challenge for the physicist attempting to develop this equation of space with matter is thus to encrypt formulations which do not specify metrics uniquely, providing information about fundamental geometry without reference to coordinates. It is of vital importance, asserts Graves "to recognize that this identification of space with matter and geometry with physics is the central conceptual feature of G[eneral] R[elativity]." (Graves, 1971, p.152) The mistake made by Grünbaum (1963) and others in their critique of geometrodynamics ontology is that, having maintained a distinction between physics and geometry, they question whether, for instance, physical forces, considered part of the former but not the latter,

are necessary in delimiting the physical laws determined by the misapprehension of preconditional coordinative definitions. For Dietzgen, as we have seen, the abstraction of such forces is merely a convenience at the level of ordinary perception. Dietzgen comes dangerously close to, but does not quite prefigure, Grünbaum's error in drawing the distinction between physical objects and processes which also have the function of determining the geometry of spacetime, and objects at another level which, whilst governed by the physics, do not so influence the geometry. Indeed, it is fair to say, he is not sophisticated enough so to do; however, it is necessary to caution against using the Ollmanian application of Dietzgen's abstractions at different levels mechanically in such a way as to repeat this error and compound it by inventing a pantheon of types of physical objects and processes which are specific to particular levels of abstraction. Similarly, eschewing an attempt to escape this dilemma via a crude reductionism across levels of abstraction, one should recall, instead, the loose correspondences referred to in Chapter 1. More fundamental, however, remains the regulative principle of reciprocity accepted by Einstein, under which dynamic elements both reflect and are reflected by each other. As each element of a physical theory of matter should be influenced by all other elements, it is necessary to eliminate absolute elements, including absolute geometry. Geometry then, also becomes a dynamic element and, as Graves points out "once we have reached this stage of complete reciprocity of dynamic geometry and matter, there is no conceptual reason for requiring a sharp distinction to be made between the two." (Graves, 1971, p.154). Given the impossibility of establishing fixed metrics within such a system, as the data thus made possible would only be allowed by the establishment of boundary conditions and an 'outside' from which to set these, one turns to the requirement

developed by Mathews that “we must always deal with the universe as a whole, as the only legitimate physical system.” (Ibid.)³⁴

The third principle of geometrodynamics has already been referred to: the ontological role of motion in allowing ‘individuation’ – and we return to it here to recall its importance in Mathews’ cosmology. This is perhaps best illustrated by analogy, and Mathews employs a hydrodynamic metaphor to communicate the almost unimaginably rarefied plenic universe. Within a body of water in motion, for instance a river or in the wake of a boat, complex configurations of eddies may sometimes be observed. These are not, of course ‘structures’ which exist independently of their watery context, nor are they distinguishable by differences in their material constitution, their substance. Rather, insofar as these ‘structures’ sustain themselves over the course of, say, a few seconds, they are distinguished by the self-maintaining movement which defines their form. Within larger patterns of ripples, smaller and perhaps shorter lived vortices are formed and pass away, and within these, yet smaller and more transient moments of self-sustaining movement may be discerned. Rather than being completely indistinguishable from the flood of the river or swell of the wake, self-maintaining vortices resist the wider movements of ebb and flow for a greater or lesser period of time and identify themselves against the substantial medium within which they exist. The inference that the registration of ‘bodies’ in movement is dependent upon the depth at which a focus is held is useful in restating the case for ‘levels’ of abstraction, dynamics on one ‘level’ – the ‘atomic’, the ‘quantum’ and so on – moving out of focus as the wider movement is discerned, with concentric identities passing into and out of existence at each ‘level’ of abstraction.

³⁴ John Graves concludes his study of the philosophical implications of Relativity Theory with a restatement of the basic aim of geometrodynamics – the unification of matter and space – and reminds us of the maxim, shared by Dietzgen, that in such a monist universe, all the abstractions traditionally associated with matter but considered conceptually distinct from space must be incorporated into the structure of spacetime, rather than being imported from an imagined ‘outside’: “This program is often summed up in the slogan “X without X”, requiring that we be able to satisfy all the various roles of X, without presupposing a separate existence of X from the start.” (Graves, 1971, p.312) The abstractions which might be substituted for X include gravitation, electromagnetism, charge, measuring rods and clocks, physical constants, equations of motion, mass, transmutations, field equations, boundary conditions, elementary particles and observers (Graves, 1971, pp.312-3). This last is perhaps the most troublesome for the Marxist materialist monist, for, if we recast ‘observer’ as ‘thinker’, or indeed, ‘thought’, the question becomes one of characterising the state of a closed system in such a way as to allow for self-referentiality, and, as we have seen, self-registration: “thought without thought”.

Needless to say, the ‘levels’ are themselves dependent upon the observer who is also dynamically and dialectically interconnected with the ‘objective’ abstraction at every level. Geometrodynamically, motion is, then, the factor which distinguishes the possibility of registrations of systems within systems occurring such that abstractions might be individuated, each abstractive act itself merely another motion responding to and reacting against every other dynamic aspect of the surrounding plenum. Leaving aside for the time being Matthews’ problematic application of ‘causality’³⁵, a subject which will be returned to in Chapter 3, it is worth noting that she also tends to abstract the ‘we’ as if the observer were not, also an effect of an ‘eddy’ within a ‘vortex’. The aim, one should recall, is to achieve ‘we’ without ‘we’, ‘thought’ without ‘thought’. Writing in 1887, in a passage which will be returned to later in this study, Dietzgen also employs something approaching a hydrodynamic analogy, and draws attention precisely to the enaction of consciousness and the internal-observer (the self-registering-self), whilst also employing that problematic ‘we’:

Consciousness arises from its opposite, unconsciousness, and returns to it. In consequence we regard the unconscious as the substance and the conscious as its predicate or attribute. And the fixed conceptions which we make for ourselves of the units or phenomena of the natural substance are recognised by us as necessary means in explaining nature, but at the same time it is necessary to learn from dialectics that *all fixed conceptions are floating in a liquid element*. (Emphases added)(Dietzgen, 1906a, p.390)

It is important to note that Dietzgen clearly intends to problematize the identification of substance – matter – with the ‘unconscious’ (nonconscious), with consciousness as its predicate. ‘Fixed conceptions’ include, of course, Matthews’ ‘self’ or observer. In momentarily resisting the general flux and ontologically expressing a self-other distinction as an effect of the maintenance of a dynamic, the geometrodynamic and ecologically embedded self also denies itself a material existence which is not, at

³⁵ Matthews writes: “even while we observe their relative independence of ‘wild’ causal influences, we are aware that this independence is itself a function of their geometrical dependence on the complex wider structures in which they are embedded... The ‘autonomy’ of the self-maintaining system is thus acquired at the cost of a geometrical or functional dependence of a special environment. This ‘autonomy’ then is not the same as that which attaches to the notion of substance: it is in no way a capacity to ‘stand alone’.” (Matthews, 1991, pp.107-8)

once, everything. Whether this really adequately allows for the possibility of realising all the 'roles' of thought or consciousness without presupposing such an abstraction in the first instance is questionable, and will be a matter to which it will be necessary to return later. Mathews is, again, able to call on Spinoza in defence of her dynamic conceptualisation of 'self' or object: "Bodies are distinguished from one another in respect of motion and rest, quickness and slowness, and not in respect of substance"(Spinoza, in Mathews, 1991, p.83), posited Spinoza, a formulation relatively painlessly translated into geometrodynamics and deep green cosmology as describing perturbations or fluctuations – 'eddies' – in localised geodesics, "wave-knots, or complex dynamic configurations in the substantial medium" (Mathews, 1991, p.83) of topographical geometrodynamics spacetime.

Joseph Dietzgen's cosmos is, quite clearly, a far less developed model than that which has emerged from the materialism of twentieth-century physics at both the quantum and the astral level. But, is it not possible that in his long forgotten ontology, when considered in the light of subsequent science and its more or less successful efforts to construct a Grand Unified Theory, one might find a source for the reconciliation of Marxism with the fundamentally materialist ecology of the age of natural crisis, a reconciliation which would not abandon or radically revise the traditions of Marxist ontology, but revive its lost hopes and retrieve its abandoned experiments from the undergrowth where they have lain unregarded for a century? The task is, perhaps, a rereading of the Marxist dialectical critique of idealism through the lens of this new (and also very old) thoroughly monist view of matter; or, put another way, a recasting of Marx and Engels' critique of the old dualisms for an epoch wherein such binaries are killing us as we continue to pathologically misrecognise the conditions for the possibility of the reproduction of our species.

The following chapter moves to draw out the implications of taking seriously the rehabilitation of a Marxist monist cosmology in respect of the question of causality, a concept which, as Ollman has alluded to, will need to be cast in terms of internal relations. In order to realise this explanatory project, the philosophy of Alfred North Whitehead will be employed, for, as Ollman has commented,

After Dietzgen, the philosophy of internal relations has been largely ignored by Marx's followers and critics alike...As a result, it was left to thinkers as far removed from the Marxist tradition as F.H. Bradley and Alfred North Whitehead (to mention only the major figures) to continue wrestling with the problems posed by this relational conception. (Ollman, 1976, p.286)

Chapter 3: Whitehead's Cosmos

Introduction

Aspects of Anne Fairchild Pomeroy's attempt to synthesize the perspectives of Marx and Alfred North Whitehead take this study some way forward in relation to the central question of causality within a dynamic, dialectical materialist monist ontology. In drawing on Pomeroy's work, it will be necessary to revisit some of the positions adopted in Chapter One, and to consider where it is appropriate or helpful to map Whitehead's terms against those such as 'abstraction' and 'registration' applied in particular ways during the course of that chapter. We then proceed to a more detailed analysis of the writing of Whitehead himself³⁶.

As Pomeroy (2004, p.9) comments, Marx's abstractions (like Dietzgen's and many other Marxists after him) are very explicitly historically contingent. They arise out of

³⁶ This study relies on Sherburne's usefully organised and edited version of Whitehead's *Process and Reality* (Sherburne, 1981)

historical and social reality³⁷. In defence of her use of Whitehead, Pomeroy points out that his metaphysics do not violate Marx's conditions that abstractions must proceed from real, historically specific conditions, and that metaphysics arising from such empirical bases must not be abstractly universalized into transhistorical claims. However, Pomeroy's starting point is different from that envisaged in this study. For her, one cannot 'precritically' believe that there is any access to a "real world" as it is apart from human experience. The subject of our thinking, claims Pomeroy (2004, p. 23) is human experience, yet both Marx's and Whitehead's methods are antithetical to dualisms of subject and object, and to lock thinking into an experiential realm necessarily bifurcates reality and runs the risk of raising the spectre of positivism expunged in chapter 1. The difficulty with dualisms raised by Pomeroy echoes that made earlier in relation to Lenin's 'reflection' thesis, that it becomes a problem of access. Following on from this, such dualisms result either in objectivism which cannot account for the role of the subject in the epistemological process, or subjectivisms unable to support a shared objective world and thus tending inevitably to relativism³⁸. For the Dietzgenian, this notion of 'access' presupposes not simply the privileging of thought over the rest of matter³⁹, but a distance between the 'two' which inevitably arises when a half-hearted attempt a dialectical *materialism* is brought to bear. That having been said, Whitehead (1978) is clear that where consciousness exists, it arises as a more or less important (more or less 'alive') feature of environments (Whitehead in Sherburne, 1981, pp.96-7) and this positioning of abstractive potential within the historically and temporally specific (despite the difficulties this poses for Whitehead – see below) means that he is not prey to the

³⁷ Marx critiqued Proudhon for his transhistoricization of abstracted categories. Economic categories are "theoretical expressions, the abstractions, of social relations of production" (Marx, 1995, p.119). In *The Poverty of Philosophy*, Marx is as clear as we earlier saw Engels to be that "There is nothing immutable but the abstraction of the movement – *mors immortalis*" (Ibid.) It is thus Pomeroy's assertion that a parallel exists between Marx's rejection of the crude metaphysical thinking which leads to the naturalisation of those historical categories arising out of the historical conditions of capitalism, and Whitehead's notion of misplaced concreteness in *Process and Reality*, which neglects "the degree of abstraction involved when an actual entity is considered merely so far as it exemplifies certain categories of thought." (Whitehead, in Pomeroy, 2004, p.10). The false transposition takes place for Marx in the mistaking of the concrete for the abstract, and, for Whitehead, in the mistaking of the abstract for the concrete.

³⁸ See Chapter 7

³⁹ See Schelling's treatment of this question in Chapter 5

charge of transhistoricizing abstractions: it is inevitably of the nature of those categories which arise from scientific bases that they will be subject to a “two-way” process of being informed by the natural and becoming the natural in the moment⁴⁰. Pomeroy’s project is not to reject Hegelian dialectics but to explore the adequate extension of Hegel’s method – the extension required to link in actuality the systematic and lifeworld analyses. The realisation that dialectical thought signals the lack of completion of its project, frees Pomeroy from positioning the moving life of the subject as an abstract objectivity or more particular instantiation. But does this mean there is no totality? “On a Whiteheadian metaphysics, each individual itself is its own achieved totality but because such totality is achieved as the unique relation to all being, the subject is a totality within totalities...” (Pomeroy, 2004, p.18) and, for Whitehead “each subject is absolutely singular and absolutely universal in its very singularity” (ibid.). Such assertions raise questions of an ontological and methodological nature which will need to be explored in this chapter.

Internal Relations and Dialectics

Pomeroy aims to highlight two features of change, dialectic and process. Like Dietzgen, Marx and Engels, she intends to focus on the role of the unity of opposites in generating change from the settled history of past fact. Pomeroy shares with the author a recognition of the importance of the writing of Bertell Ollman (see chapter 1). She turns to Ollman in order to examine how Marx accounts for processes of change and for permanence. On Ollman’s account of Marx, we recall that individual parts or abstractions are viewed as incorporating into themselves all their relations with other abstractions (at several levels delineated by Ollman) up to and including all their relations with the whole.

⁴⁰ For Pomeroy (2004, pp.16-17), thought recognizes in and as its own being that subject and substance are yet to be united. That is to say, Pomeroy implicitly privileges mind over matter: this is a dialectic, but not a thoroughgoing materialist one. For her it is thought’s recognition of its own being that defines the role of philosophical thought. In that subject and substance are yet to be united, thought must leap ahead and lead the creation of the actuality of reunification, and because such reunification has yet to be achieved, thought must be speculative. Pomeroy leaves it to Sartre (ibid.) to remind the reader that what the Marxist is concerned with is a *materialist* dialectic. For Sartre this means that thought must necessarily discover itself as a material object and, insofar as it is a material being, the necessity of its own object. Thus, thought becomes action, or at least a “moment” in an action. This comes close to Dietzgen’s account of thought in *Brainwork* and in his later writings.

[A] philosophy of internal relations is one in which there is real transmission of historical data and a constitution of each “entity” by its particular relational incorporation of that data, yielding process as the organic movement of inheritance and productive relationality to, of, and by that inheritance. It is thus that any part examined can be analysed at the multiple levels of its constitutive relations. (Pomeroy, 2004, p.25)

Pomeroy asks “How do we proceed using abstraction necessary to think about any topic, which appears to require fixing, delineating, categorizing features of generality and permanence, and still retain the features of specific relationality and change necessitated by a philosophy of internal relations?” (ibid, pp.25-6) Unsurprisingly, she suggests that Marx’s answer lies in dialectics. In fact, of course, Ollman makes it clear that the ontology of the form of the dialectics which answers such a question is that devised by Dietzgen: monism. By contrast, Pomeroy is selective in her use of Ollman (just as this study is selective in its use of Whitehead) emphasizing principally those features of his application of dialectics which can be accommodated to the atomistic ontology developed by Whitehead.

Pomeroy’s unacknowledged aim, then, is to seek to understand how to apply something like Dietzgen’s method, via Ollman, to matter at different levels. In this respect her intention is similar to that suggested in the first two chapters of this study:

[I]f the method of thinking adequate to that totality as both relational (involving inheritance) and changing (involving creative novelty) is dialectical, then would not such a pattern of thought be adequate and coherent on a multitude of levels of analysis: from that of human society to that of individuals to that of animals, plants, inorganic “things”, molecules, atoms, subatomic particles... (Pomeroy, 2004, p. 26)

However, rather than drawing the ontological conclusions regarding the nature of a universe which would support such a method, Pomeroy finishes this sentence with a disappointing return to a decidedly atomistic conclusion – “...all the way to the ultimate *microscopic entities* of metaphysical thought” (emphasis added) (ibid.) –

which does no justice to the vision of Dietzgen or of his interlocutor Ollman. Commenting upon Ollman's seven levels of abstraction, Pomeroy again proceeds to a conclusion which, if not undialectical, is decidedly unmaterialistic,

Marx's study of the historical socioeconomic forms of internal relations confined his application of dialectical analysis to at least seven levels of abstractive generality applicable to that analysis: the unique level, modern capitalism, capitalism as such, class society, human beings in general, the animal world, and nature. But it seems that the requirements of adequacy and necessity dictate that such levels be extended to the metaphysical. (Ibid., pp.27-8)

Such a move is neither necessary nor is it required if the manner in which the seventh level is approached is sufficiently universal. No eighth level is required, as 'nature', regarded monistically, includes the conditions for the possibility of all internal relations. Marx and Engels were not deficient in this respect, and, as Dietzgen attempted to illuminate, it is not an eighth "level of the metaphysical [which] ... provide[s] an analysis of the most general features pervading all other levels thus illuminating yet unconsidered characteristics of all the other levels and extending the critique of capitalism into the totality of internal relations" (ibid., p.28), it is *matter* in its extended sense, as identical with 'nature', and coterminous with spacetime, which allows such a conclusion. In her exposition of Whiteheadian atomism, then, Pomeroy, inadvertently comes close to perpetuating the difficulties created by dualisms in proposing her project as a job for a metaphysics which overarches all the levels of matter, rather than as an emergence *within*. Where she is correct is in her assertion that the 'relations' between what, after Ollman, we have called abstractions might best be understood as *internal* relations. To employ the phrase is easy, to communicate the implications of the ontology, as Dietzgen found at the cost of his philosophical reputation, is far more taxing. However, Pomeroy certainly comes close to Dietzgen's dialectical monist project in arguing that "the apparent dualism uncovered and reified in certain forms of analysis, is built into the very fabric of reality – synthesized in the being/becoming of each actual entity. The abstraction is mistaken for the concrete which it presupposes; the abstractive separation dialectically requires the connection

which can be separated.” (Ibid., p.29) She might have added that abstractive possibility requires an infinite material plenum capable of supporting an unending plurality of ‘two-way streets’, mind(s) and substantival abstractions in mutually relative co-creation.

In Whitehead’s philosophy, the process of becoming is not temporal. Whilst an act of becoming begets something with temporality, or temporal extension, the becoming itself is not temporally extensive, in that it is divisible. The ultimate substance – matter, as we identify it, after Dietzgen – is not temporally divisible and thus essentially unchanging⁴¹. For Whitehead, actual objects are ‘occasions’ – a term which fits more comfortably with the ecosophical monist worldview than the specific type of ‘actualities’ he develops – and, crucially, they are simultaneously occasions for experience, occasions of experience, occasions to experience, and thus *actual* occasions. The actual object is

subject of its experience, and object of experience to come,
simultaneously active in its becoming and passive as data for becoming.

The notion of entity as subject expresses the act of becoming... The notion of the actual object as superject expresses that same entity as complete, as ‘perished’, as settled fact for the world. (Ibid., p.31)

From the concrete entity, itself an ‘abstraction’, it is possible and necessary to abstract two distinct ways of being. These abstractive perspectives are both simultaneously true, and are also contradictory. Rather like the impossibility of existing simultaneously as atom and wave, yet always holding the two in immanent reality, matter is able to support both a ‘genetic’ abstraction of its “intensive adventure of becoming” (ibid.), its ‘*concrecence*’, and a ‘morphological or coordinate’ abstraction (in geometrodynamics, the distinction between the two ultimately disappears) of its being as ‘superject’, its concrete completion or ‘satisfaction’. It is worth noting that this second abstraction is expressible both morphologically and geometrically as ‘coordinates’. As in geometrodynamics, such coordinates express fixity only insofar

⁴¹ Abstractions are temporally extensive as superjective (as opposed to subjective, see below) in other acts of becoming. “The synthesis of the subjective and objective roles of the actual entity as its becoming-from, becoming-of, becoming-for, allows for both the repetition and the novelty exhibited in ordinary experience.” (Ibid., p.30)

as they also express change. That is to say, for Whitehead and Pomeroy, as well as for geometrodynamics theory, substance is *dialectical*.

For Whitehead, the concrescence of an actual entity is the integration of various 'feelings' into the final satisfaction, which is the entity as complete. In an echo of Dietzgen's abstractive method in *Brainwork* and elsewhere, and of Ollman's development of this method, Whitehead states that "[a] feeling is the appropriation of some elements in the universe to be components in the real internal constitution of its subject. The elements are the initial; they are what the feeling feels. *But they are felt under an abstraction.*"⁴² (Emphasis added) (Whitehead, in Pomeroy, p.32).

Whitehead goes on to explain in terms similar to those employed by Ollman, that such abstraction is a matter of elimination, effected by "negative prehensions" (see below). "Thus the initial data are felt under a 'perspective' which is the objective datum of the feeling." (Ibid.) And, again, he continues to explain the 'two-way street': that which occasions abstractions and that which abstractions occasion: "In virtue of this elimination the components of the complex objective datum have become 'objects' intervening in the constitution of the subject of the feeling." (Ibid.) To clarify, each process of appropriation of the universe as a foundation for the basis of the organism is termed in Whitehead's philosophy, a prehension. Prehension is the means by which an actual entity affects its concretion of other things. The essence of an actual entity consists in that it is a prehending thing. As a form of relation, prehension has two aspects, positive and negative. An actual entity has a particular bond with each item in the universe: this bond is its 'positive' prehension of that item. A negative prehension is the definite exclusion of that item from contributing to the subject's internal constitution.

'Feeling' is a difficult term, and it is worth examining how it maps onto the concept of registration developed in chapter one. It is difficult to escape the associations of the term 'feeling' not only with consciousness but also with apprehension or perception, however, Whitehead operates with this concept at different levels, on only the higher of which is the term employed in anything like its everyday sense. Regarding the

⁴² data [what are these pre-existing, or presupposed elements, if not the subjects of existing dialectics, the superjective half of previous subjects

activity of ‘feeling’ on the metaphysical-microontological level, Pomeroy explains that

[t]he feeling can only be of that datum which the settled universe is at that moment from the perspective of that actual entity but, in feeling that datum, the actual entity is necessarily feeling that datum under its unique perspective. There is therefore simultaneous inheritance and novelty, repetition and change... There is a manner in which the subject of the feeling is simultaneously decided and decider. And, because of this, the datum itself as datum is dual – it both limits and supplies: it can be no other than that particular datum but that particular datum is the opportunity for the possibility of its being felt from innumerably varied perspectives. (Pomeroy, 2004, p.32)

‘Feeling’, then, occurs as a transfer of data which fuels cosmic change whilst allowing both for stability and for transformation. The simple physical feeling of one entity by another is a causal relationship. It is, Pomeroy states, *nonconscious*, a “direct physical transference of the feeling of the entity that is the initial datum to the feeling of the concrescent entity”⁴³ (Pomeroy, 2004, p.33). This is clearly a very particular sense of the word ‘feeling’ which goes some way to avoiding the privileging of ‘the mental’ in process philosophy. When she states that physical feeling is because it is felt by just that subject, and felt under perspective, she is close to the meaning established earlier of ‘registration’ of event by context, though she wants to develop the sense in which the context is both subject and provides perspective. Thus, the context for event indeed ‘abstracts’ event in so registering it, and does so in a uniquely perspectival manner, and yet also only insofar as it is itself an abstraction within a whole, the universal substance⁴⁴. “[S]o, the activity of the concrescent actuality is a concurrent preservation of the achievement of another actuality and an addition of itself as novel relationality to that achievement. It is a conservation of the past and a present inroad

⁴³ In a note, she clarifies that in the ‘genetic’ abstraction, the ‘prehensive’ phase is necessarily analysed as preceding the additional operations of the conscious pole of the dialectic.

⁴⁴ The reading offered here reflects a monistic ontology rather than Whitehead’s atomism, though the ‘organic’ elements of his thinking about ‘societies’ of being fit fairly well with an ecosophical account of this process.

to the future.” (Ibid.) Here we have an interesting link to panpsychism⁴⁵, because Whitehead also designates each entity as ‘dipolar’ having physical and mental poles. Here we must part company with Whitehead, reassert Dietzgen’s ‘democratic materialism’, and say that the dialectic exists in the contradictions of being and becoming, but that ‘the mental’ represents merely an entity or ‘abstraction’ among abstractions within the universe as present at any moment. A polar account of substance might quite easily slip into the same binary language as a dualistic one, a problem avoided if one insists that the ‘mental’ can be expressed in terms of, or reduced to material forces, without losing sight of dialectical change.

For Whitehead, the difference between *conceptual* and *physical* feelings can be found in what the feelings feel. The data of physical feelings are actual entities whereas the data of conceptual entities are ‘eternal objects’⁴⁶. The *actuality* of actual objects can be contrasted with the *potentiality* of eternal objects as objective data. Whereas that which is actual must be ‘positively prehended’, that which is potential represents the possibility of forms of relatedness, features of the fabric of reality which are universal but regarding which there is no necessity for positive prehension. The unity of that which can be felt and that which must be felt is that which *is* felt, the dipolarity of which accounts both for physical repetition and for individual conceptualisations which include a degree of novelty. Thus the actual entity is a unity in difference, both an inheritance through repetition and novelty through conceptual perspective.

Pomeroy’s case for the authentically dialectical nature of Whitehead’s philosophy, rather than relying on its being merely dualistic, thus rests on the oppositionality of its internal features, that the actual “cannot be anything definite, contributing to the becoming of other entities (extensive), without having attained its own individual status – otherwise it is no contribution at all.” (Pomeroy, 2004, p.36) This dialectical unity in opposition is an expression of the principle of process metaphysics, “no actual entity, then no reason.” In other words, each actual entity, because it can be analysed in myriad ways, is already the synthesis of the indefinite elements of

⁴⁵ See Chapter 5.

⁴⁶ The universal objects, while necessary in Whitehead’s philosophy are problematic for the Marxist rejection of metaphysics.

analysis.” (Ibid.) The ontological principle means that actual entities are the only reasons; to search for a reason is to search for one or more actual entities⁴⁷. “The actual world is built up of actual occasions; and by the ontological principle whatever things there are in any sense of ‘existence’, are derived by abstraction from actual occasions.” (Whitehead in Sherburne, 1981, p.18) If actuality means entry into the concrete oneness, then being is always at some levels something like *emergence into itself*⁴⁸. If we examine a ‘novel thing’ on Whitehead’s account, we find nothing but the concrescence. In a monist universe of internal relations, one might think about this as a possibility for abstraction revealed by the oneness’s registration of itself as emergent. It is not possible to abstract from the notion of ‘entry into the concrete’ because abstraction occurs within the concrete as a ‘feeling’ of actuality, of subjective form, for itself; and to propose a thing which is not an ‘entry into the concrete’ is not to conceive of a thing at all. To some degree, the ontological principle echoes Dietzgen’s (1906b) assertion that predicates and subjects are essentially interchangeable, insofar as because the actual is always “under an abstraction” (Whitehead in Sherburne, 1981, p.11), it is already a synthesis of superject and the infinite indefinite elements of perspectival analysis. Furthermore, “[t]he dualisms found in analyses... could not be possible without their original synthesis. The contradiction can only be emergent from a given standpoint.” (Ibid.) By this one might take Whitehead to mean that it is in the unity in opposites which the individual represents that the contradiction can be thought, and it can only be thought because of its originary unity embodied in the actual individual. To frame this point within a monist ontology, it is the unity in opposites abstracted in the *impossibility of the individual which nevertheless exists* which represents the dialectic of emergence. For Whitehead, “[p]rehension of the world by each entity is the sole reason for the solidarity of the universe” (Pomeroy, 2004, p.37) rather than, on Mathews’ or Dietzgen’s account, a unitary substance. Prehension then operates as a “togetherness” which is “formal” rather than actual, material or substantial. Prehension offers a

⁴⁷ This is a helpful antidote to irrationalist or obscurantist attempts to find metaphysical ‘reasons’ for phenomena such as global climate change, natural disasters, AIDS, human suffering.

⁴⁸ The senses in which emergence into self at the microontological level is mirrored in the sensible world form a part of a focus for Chapter 7.

formal principle of operation rather like, and certainly influenced by those of quantum physics, which avoided filling gaps with a single (dark) matter (as did Dietzgen), favouring instead, a universal explanatory Higgs field. By way of adumbration, Pomeroy writes “The actual entity is the prehension of its physical and conceptual perspectival integration of the universe, and this prehension is the becoming of its being. Its form of relatedness is constitutive of its being. Process philosophy is a *philosophy of internal relations*.” (Emphases added) (Ibid.)

Whitehead and abstraction

If process philosophy is to be of any assistance in developing a rounder picture of internal relations as they might pertain to the monist materialist and ecosophical ontological traditions, some further consideration should be given to the ways in which Whitehead’s thinking is compatible with theories of abstraction in these philosophies. The main issue will be the commensurability of models operating in, on the one hand an atomistic and, on the other, a monistic worldview.

The atomistic position on the bridge between the ‘microcosmic’ world of ‘actual entities’ and the ‘macrocosmic’ or sensible world in which we live, Whitehead calls ‘Transmutation’. This inter-level analysis centres on the operation whereby ‘an aggregate of many occasions’ forming a ‘nexus’ is prehended, not as a multiplicity of parallel occasions, but as a unity. “A nexus is a set of actual entities in the unity of the relatedness constituted by their prehensions of each other, or – what is the same thing conversely expressed – constituted by their objectifications in each other.” (Whitehead in Sherburne, 1981, pp.77-8) No ‘observer’ is required here, for in Whitehead’s ontology, the stuff of the universe prehends itself; it is the set of internal relations within the self-registering nexus which sustains its identity within the wider environment. The degree to which the existent nexus is ‘regarded’ as a unity is, necessarily something which concerns the beginnings of its conceptualisation, and that of the ‘societies’ it constitutes, and this is a subject to which it will be necessary to return later. For now, let us note that, “[f]or some purposes a nexus of many actualities can be treated as though it were one actuality. This is what we habitually do in the case of the span of life of a molecule, or of a piece of rock, or of a human

body.” (Ibid. p.78) Nexūs are normally four dimensional, having generation after generation of occasions succeeding one another⁴⁹.

This account necessarily approaches the question of subject formation, or abstraction from the opposite direction from that of Joseph Dietzgen and monist materialists in the Marxist tradition. Dietzgen’s position was outlined earlier and hinged on the process by which consciousness might abstract actual occasions, objects, forces, processes and even the fundamental building blocks of our experience out of the singularity, the indivisible material plenum. That is to say, for Dietzgen, the one becomes the many in human apprehension of the universe. For Whitehead, by contrast, the infinitely many become the relatively few.

In Whitehead, the complexity of data or feelings are subjected to an analogy constituted by one ‘eternal object’ which is “implicated in the various analogous data of these feelings...[and] by a supervening process of integration, converted into one feeling having for its datum the specific contrast between the nexus as one entity and that eternal object.” (Whitehead, in Sherburne, 1981, p.73) Notwithstanding his definition of internal objects as potentialities, the genetic relation between ‘eternal object’ and actual object or abstraction in the real world, begets as many questions as it answers. Whitehead identifies his dilemma around the construction of ‘macrocosmic’ objects as being the same as that faced by Leibniz and other monadic theorists, and to this extent, his problems in this regard are illustrative of particular contradictions generated by atomistic starting points. However, the matter is worth raising because what common ground there is between Whitehead’s and the monist position inevitably centres on the question of the elimination of extraneous detail or context, what Whitehead terms ‘adversion’ in the way in which data is ‘valued’. Some

⁴⁹ However, Whitehead makes an exception in the case of those nexūs he terms ‘persons’. A purely temporal dimension lacks spacial dimensions and this ‘thread of temporal transition from occasion to occasion’ is a ‘person’. How amenable is such a formulation to materialist reading? Here we part company with Whitehead. For the monist materialist and for the foremost philosophers of Deep Ecology Freya Mathews and Arne Naess alike, a person is nothing but a material movement sustained for a period, is inextricable from spacial dimensions, and is far less ‘permanent’ even than features of the material brain which operates as a fantastically complex network of nexūs. This matter will be returned to in greater depth in Chapter 7.

similarities exist between monadic and monistic traditions on the crucial question of abstraction:

“The examination of the Category of Transmutation shows that the approach to intellectuality consists in the gain of a power of abstraction. The irrelevant multiplicity of detail is eliminated, and emphasis is laid on the elements of systematic order in the actual world.” (Whitehead in Sherburne, 1981, p.77)⁵⁰

Attempting to eliminate Pomeroy’s ‘eighth level’ and regarding this as a question not of metaphysical but of material relations occurring within a plenum wherein the four dimensional geometrical ‘society’ (to use Whitehead’s term – see below) is identical with matter, the prevalent order in question, while dynamic, is also geometrically consistent, and it is the sustained dynamics within and in relation to wider movements which serve the function of supplying the ongoing positional dative conditions for the successive generations of order⁵¹. Whether this is sufficient without a turn to metaphysics as a basis for the dynamic element within a material geometrodynamics ontology is a matter which will require further consideration⁵². Given that Whitehead’s metaphysics, like the system propounded in an Ollmanian reading of Marx and Dietzgen is one of internal relations, the importance of Whitehead for ecosocialist philosophy is revealed in part in the extent to which he illuminates the nature of internal relations, even given the differences in modes of thinking over the extent to which the internality of these relations is material or formal.

⁵⁰ Further, we are told that “Transmutation is the way in which the actual world is felt as a community, and is so felt in virtue of its prevalent order. For it arises by reason of the analogies between the various members of the prehending nexus, and eliminates their differences.” (Whitehead in Sherburne, 1981, p. 77)

⁵¹ The matter of exactly how such data are transferred in this situation cannot but make reference to explanatory principles which stray into the speculative and metaphysical. In this respect Whitehead’s attempt to provide these principles may be regarded as helpful, but as problematic regarding ‘instantaneous cause’ – see later – an important feature of post-Einsteinian ecosophy. The extent to which geometrodynamics-type ontologies operate at a different level to Whitehead’s metaphysics and whether or not these models are really compatible will need to be a focus of future work. Whitehead himself regarded geometrical space as at a level below the “society of pure extension” and this, geometry and all subsequent levels to be transmutations of the absolute principles of process (See Whitehead in Sherburne, 1981, pp.80-83).

⁵² It seems likely that at the least ‘dialectical speculation’ will be required to enable us to utilise a language of internal relations couched in Marxist-Dietzgenian terms in relation to transformation and emergence within a monist order.

Bertell Ollman's (1976) acknowledgement of Whitehead's attempt to explicate the nature of 'the Relation' indicates the former's willingness to look beyond the Marxist milieu in analysing the means by which Marx expands or contracts abstractions to meet his needs, and to acquire the tools necessary to develop some much needed depth to Dietzgen's assertions regarding the underlying structures which determine the logical separateness of categories of thought (Ollman, 1976, p.241). In the same spirit, Pomeroy finds in Whitehead the conceptual apparatus which enables us to think through both the separateness and unity of abstractions at different levels: "there is a continuity or identity between the bonds that unite the prehensive phases of the satisfaction of any given actual entity and the bonds that unite actual entities to one another. In other words the forms of relatedness which make an entity a unity are the same as the forms of relatedness which make a collection of entities as unity." (Pomeroy, 2004, p.39) This acknowledgement of the ability of process philosophy to accommodate unities at different levels is crucial in justifying its relevance to an understanding both of the problem faced by Dietzgen in trying to offer a dialectical account of an ontology able to support Marx's method, and the ecosophical striving after unity in motion represented by Mathews. "The life span of a molecule, or of a piece of rock, the human body, are all what Whitehead calls *enduring societies of actual entities*." (Emphases added) (Pomeroy, 2004, p.39)

Thus an army is a society of regiments, and regiments are societies of men, and men are societies of cells, and of blood, and of bones, together with the dominant society of personal human experience, and cells are societies of small physical entities such as protons, and so on, and so on. (Whitehead in Pomeroy, 2004, p.39)

The phrase 'enduring societies of actual entities' is employed in an all encompassing manner by Whitehead to take in the range of 'things' experienced by humans at the level of everyday perception, and also to allow for more complex conceptual unities and pieces of data from the quantum to the cosmic levels. This is indeed a most flexible formulation! At its most basic, "[t]o constitute a society, the class name has got to apply to each member, by reason of genetic derivation from other members of that same society. The members of the society are alike because, by reason of their

common character, they impose on other members of the society the conditions which lead to that likeness.” (Whitehead in Sherburne, 1981 p.79) That is, there is in the society of enduring entities an aspect which imposes itself upon its environment, determining the inheritance received by its perceivers, receivers and (temporally or not) subsequent forms. But there is also a freedom on the part of the receiving context to regard the society under perspective as having a particular determining character, or not.

As Pomeroy has noted, the societies of enduring entities are conceptually close to the kinds of multi-level categories applied within Marx’s writing, but importantly they are also deeply ecological in character. That is they present themselves as offering to explain or at least describe interrelated systems at a fundamental level in ways which are compatible with the understandings and priorities of ecology. “The point of a ‘society,’ as the term is here used,” writes Whitehead, “is that it is self-sustaining; in other words, that it is its own reason.” (Ibid., pp.78-9) The ‘conative’ system posited has the central feature of a set of internal relations which maintain the functioning of that system through patterns of shifting inheritance within the general flow of matter. Such processes of self-sustenance may be more or less complex, but all contain within them subordinate societies. In a monist context one might describe them, after Mathews, as eddies within the runnels within the flows of the currents of matter. And each society is also contained within another right up to the very highest universal level of generality. As such societies are also environments, sustaining themselves and their members,

[A] society is, for each of its members, an environment with some element of order in it, persisting by reason of the genetic relations between its own members.... But there is no society in isolation. Every society must be considered with its background of a wider environment of actual entities, which also contribute their objectifications to which the members of the society must conform... [T]his means that the environment, together with the society in question, must form a larger society in respect to some more

general characters than those defining the society from which we started. Thus we arrive at the principle that every society requires a social background, of which it is itself a part. (Ibid., p.79)

Clearly, such ‘societies’ constitute ‘nested’ identities of the kind favoured by Mathews. They are dialectically both self-sustaining and internally dependant upon the wider ‘society’. Here Whitehead falls somewhere in between Spinoza and Mathews. His societies in some sense prefigure Mathews’ and Naess’ ‘selves’ but also, perhaps follow from Spinoza’s immanence.

The widest possible ‘society’⁵³ is that of pure extension, which he separates logically from the geometric universe of physics within which the mathematical rules with which we operate and in which we are able to think, come into focus. That is, Whitehead seeks to describe (albeit briefly) a level of existence – even this word may be delimiting here – which could *be* even without basic geometry. So rarefied is this level that we need give it no further consideration here save to note that as a logical possibility, it does indeed go beyond the scope of the geometrodynamical equation of spacetime with matter. Beneath this, Whitehead explains the features of the ‘electromagnetic society’ as a ‘cosmic epoch’ characterised by Maxwell’s electromagnetic field equations by reason of the existence of throngs of ‘societies of electronic occasions’ which we know as electrons and protons. This is the universe of physics, both quantum and classical which constitutes the widest possible field of materially populated spacetime-geometry. It is, of course, necessary to regard such a society as, at one level actual, and at another – that of the quantum – potential or superspositional. Whitehead’s expression of this dialectic is the subject-superject paradox.

While an electron or a proton are ‘societies’ of electronic or protonic occasions, Whitehead uses the term ‘structured societies’ for those larger scale complex societies of enduring entities which incorporate hierarchies of smaller societies, that is all those

⁵³ Or ‘Self’ (with a capital ‘S’) in Naess’ terms (see Chapter 7)

societies above the minima required to distinguish society from mere occasion. At this point the strongly ecological aspect of Whitehead's ontology can begin to emerge, and the distinction between society and nexus become clearer. Whitehead's ecological formulation of the higher functioning of networks of interrelated societies and nexūs into 'structured societies' runs thus: "A structured society as a whole provides a favourable environment for the subordinate societies which it harbours within itself. Also the whole society must be set in a wider environment permissive of its continuance." (Ibid., p.84) Subordinate societies are those groups of occasions which have what one might call a relative autonomy from their wider environment. Their defining characteristic might exist outside of such an environment, though 'abstracted details' of individual subordinate societies may not. The example Whitehead offers is of a molecule: such a subordinate society might exist within the structured society of a living cell, though it also has features which are relatively independent of this environment and could exist in another, quite different structured society, such as a bed of tar sand. Nexūs, on the other hand are those interrelated elements within structured societies which "present no features capable of genetically sustaining themselves apart from the special environment provided by that structured society." (Ibid., p.84) It can exist as an abstraction only theoretically, as *entia rationis*, thus it cannot be a 'society' in itself other than as an abstraction from the wider structured society; Whitehead says such an abstraction "can be assigned no 'social' features" (ibid.), meaning that it has no defining characteristics of a (subordinate) society. The example Whitehead offers is the 'empty space' within a living cell. This represents a positional reality of successive occasions with features which mark it as particular to and dependent upon the cell. Thus "the empty space within a living cell, is called a 'subordinate nexus,' but not a 'subordinate society.'" (Whitehead in Sherburne, 1981, p.85)

An ordinary physical object which enjoys temporal continuity is a structured society of enduring entities: such an object is very complex, but objects vary enormously in the degree of complexity in respect to the multiplicity of associated subordinate societies and subordinate nexūs that they host and to the intricacy of the

interrelationships between these sub-societies and sub-nexūs. Living things are particularly complex structured societies. Whitehead comes close to allowing something like ‘selfhood’ (in the manner of Mathews) to nexūs in his discussion of ‘*persona*’. A nexus which has “‘social’ features’ – i.e., constitutes a society on account of its contextual bound-ness – and whose members are genetically related in such a way that they are ordered ‘serially’, has a ‘*personal order*’. That is, it is an ‘enduring object’, (a society of enduring entities) which ‘sustains a character’; but, in addition, in relation to *persona*, the ‘enduring object’ does more than sustaining a character, because “this sustenance arises out of the special genetic relations among members of the nexus.” (Ibid.) The extent to which the genetic interrelations among constitutive members of a nexus confer personhood or selfhood upon a society of enduring entities is not made clear by Whitehead, but given his acceptance of a ‘dipolar’ order of subjective materiality, one can certainly read him as allowing an almost panpsychic presence for itself to each and every enduring object insofar as it functions as the concrescent satisfaction of the social features of nexūs.

Whether Whitehead might readily allow *persona* to political phenomena such as an economic class remains an open question, but he is certainly happy to admit the ‘social’ character of political interrelations as an expression of a particular form of intellectual feeling, intellection or appetite. “A society may be more or less corpuscular, according to the relative importance of the defining characteristics of the various enduring objects compared to that of the defining characteristic of the whole corpuscular nexus.” (Ibid., p. 86) Interestingly here, in selecting his example of a society of enduring entities, Whitehead moves directly from physics and dynamics into political science, identifying the American colonies under the Articles of Confederation as a more ‘corpuscular society’ than the colonies under the American Constitution, this because “under the Articles the characteristics of the component states were more important relative to the Characteristics of the Central Government than they were under the Constitution.” (Ibid.) We must infer from this that the proletariat, peasantry or bourgeoisie are indeed actual, real societies of enduring entities under the perspective of Marxist political economy, though the selfhood of

such societies remains unresolved. Nevertheless, there is clearly scope here for a useful interplay between process philosophy, Ollmanian Marxism and Naess and Mathews' ecosophy of self-realisation, which can contribute to our understanding of the emergence of subjectivities at different levels within the political cosmos of a greened and deepened Dietzgenian socialism (see Chapter 7).

This argument is added to when one considers Whitehead's exposition of complexity in societies of enduring entities, which enable personae to be regarded under the perspective of self-satisfaction. Here Mathews' reading of Spinoza's conatus is very close to what Whitehead intends⁵⁴. Whitehead's is certainly a very general systems approach which enables one to draw parallels between ecological, political and physical systems which imply a *valuing* of some over others on the basis of their *complexity*. Whitehead expresses the endurance or resilience of systems or societies in terms of the satisfaction of an intensity of diverse concrescent occasions, that is of complexity, such that a "structured society which is highly complex can be correspondingly favourable to intensity of satisfaction for certain sets of its component members" (Whitehead in Sherburne, 1981, p.86) where the contrasting possibilities – one might say potentialities in complex linear superposition – open to satisfaction or realisation in the transmutation of experience by the component members of a complex society enable a gathering intensity from the distinctiveness of the individual feelings they allow: "Thus the growth of a complex structured society [here, this is very close to what Mathews means by a 'self'] exemplifies the *general purpose pervading nature*." (Emphasis added) (Ibid.) In this case, the complicatedness (to borrow Orr's (2004) term) of a mere givenness of incompatibilities is "superseded by the complexity of order which procures contrasts." (Ibid.) If we take one level of complex structured society of enduring entities to be an environment, then as such an environment changes, the complex societies which it contains may be said to be stable, or *resilient* in ecological terms, if they can persist though those changes which are relevant to their experience, meaning their positive

⁵⁴ One might further develop parallels between Whitehead and the self-sustaining, 'conative' systems of the general systems theories which emerged out of the Dietzgen-informed Marxism of Bogdanov (see Chapter 6), and of course that of von Bertalanffy, though such a project falls beyond the scope of this study.

prehension. “A complex society which is stable provided that the environment exhibits certain features, is said to be ‘specialised’ in respect to those features. The notion of ‘specialisation’ seems to include both that of ‘complexity’ and that of a strictly conditioned ‘stability’.” (Ibid.)

Whitehead makes a particular study of ‘specialisation’. The weakness of specialisation is its vulnerability to environmental change. A highly structured and highly complex society is generally deficient in terms of absolute survival across time, whereas an unspecialised society can persist through significant changes in its wider social environment by taking on different functions in respect of the changing environment⁵⁵. Because an unspecialised society is thus likely to be deficient in structural pattern and complexity (as opposed to complicatedness – Orr’s (2004) contrast again), it generally cannot sustain conditions favourable to the intensity of satisfaction of the feelings of its members; “[t]hus the problem for Nature is the production of societies which are ‘structured’ with a high ‘complexity’, and which are at the same time ‘unspecialised.’ In this way, intensity is mated with survival.” (Ibid.) The successfulness of some structured societies in persisting within changing environments is dependent on one of two strategies. One is by massive objectification of the nexus with the elimination of detail and diversity, that is, by eliminating negative prehension across the field of sub-nexūs so as to maintain systematic integrity and solidity. This ‘strategy’ “depends on the fundamental truth that objectification is abstraction.” (Ibid., p.87) Some of the most stable and enduring objects of our experience, such as rocks and crystals, planets and suns employ this ‘strategy’. The second means by which Nature has evolved to solve the problem of systematic resilience is by the development of conceptual prehensions – *appetition*. Here novel forms of the environment are prehended as “explicit feelings with such subjective forms as conciliate them with the complex experiences proper to members of the structured society. Thus in each concrescent occasion its subjective aim originates novelty to match the novelty of the environment.” (Whitehead in

⁵⁵ There is a parallel here with the so called ‘degenerate’ nature of multifunctioning components found in adaptive neurological systems discussed in Chapter 7.

Sherburne, 1981, p.88) This is Whitehead's conceptual basis for the adaptive advantage conferred by consciousness. We will return to this later⁵⁶.

So, societies of enduring entities may certainly be understood to include complex biological structures, including populations across ecosystems which are materially connected in ways which extend across multiple 'bodies'. Human brains are fantastically complex 'societies', which nest within social 'bodies' of humans in particular environments. Applying Ollman's method, Pomeroy asserts that a mode of production could also be defined as a society of enduring entities on the terms described hitherto: "because the forms of unity constitutive of each actual entity are identified with those between nexūs of actual entities, and a society of actual entities in a nexus, a mode of production is such a nexus exhibiting a certain kind of social order". (Whitehead in Pomeroy, 2004, p.39) Whilst she does not acknowledge her debt to Ollman in defining the parameters of the fields she suggests, Pomeroy echoes Ollman's levels of abstraction⁵⁷, and, applying Ollman she states "[t]he philosophy of internal relations provides the unity to Marx's corpus and such a unity can only be adequately grounded by a metaphysics of organic process." (Ibid., p.40)

Ollman (2003b) suggests that the process evident in Marx's method can be conveniently broken into six interrelated moments. These express aspects of a process of addressing change and interactions within capitalism and the broader world, and cosmos. The moments are ontology, epistemology, inquiry, intellectual reconstruction, exposition and praxis. Students of dialectics, he argues, tend to stress one moment over others (Dietzgen, for instance, privileged the ontological in his later work and the epistemological in 1869, Ollman himself favours the epistemological). This, in itself is not a problem, unless the other moments are neglected, because no moment can be

⁵⁶ The matter of the worldview, orientation and associated organisation of human societies is a vitally important one – see chapter 7.

⁵⁷ Pomeroy employs Ollman's levels thus: "It is such interlocking forms of internal relatedness, applicable from the smallest non-temporal droplet of existence to the extensive totality of the universe itself, which make possible the extension of the processive/dialectical analysis from the level of the metaphysical [possibly redundant in a thoroughgoing monist reading of 'levels' of abstraction], to the analyses of the unique individual, modern capitalism, capitalism as such, class society, human beings in general, the animal world, and nature." (Pomeroy, 2004, pp.39-40)

fully understood unless its interconnections with the others are also grasped⁵⁸. In relation to the epistemological moment, Ollman emphasises the importance of the process of abstraction, suggesting that it

would not play such a key role in Marx's method if the units in which nature (and therefore society too) is divided were given as such; that is, as particulars with clear and concise boundaries separating them from each other. Operating with a philosophy of internal relations...Marx considers reality to be an internally related whole whose aspects can be combined mentally in a variety of ways, and therefore into a multiplicity of different parts. (Ollman, 2003b, p.179).

Here, in terms more amenable to the needs of this study, Ollman expresses the dialectic unity of 'actual' and 'potential', or 'physical' and 'conscious' central to Whitehead's philosophy,

where boundaries are drawn is based to some degree on the real similarities and differences found in the world, but equally important in effecting these decisions are the aims, needs and abstractions of the party doing the abstracting. Furthermore, on this view, any part can be expanded or contracted along axes laid down by its relationship to the whole as called for by one's aim in studying or presenting the part in question. (Ibid.)

Ollman (2003a, 2003b) indicates that Marx's abstractions are of three kinds, those of extension, level of generality and vantage point. In relation to the second of these, the degree of temporal generality considered by Marx operates principally epistemologically to exclude or include (value adversely, or aversely) features of the moving inheritance of the immediate, from, for instance, that which affects us and that we affect possessing qualities that are unique to human beings (that is including only *the present for the past hundred thousand or so years, and the past hundred thousand*

⁵⁸ This study emphasizes ontology over the other moments – the moments of intellectual reconstruction, exposition and praxis broadly fall within a process of education, and will be the source of later research.

or so years *in the present*), through the abstraction of the current phase of capitalism (that is including only the present for the past twenty or so years, and the past twenty or so years in the present), up to the immediacy of the here and now. However, noting Ollman's warning not to neglect the other moments of dialectics, one should also recall that the epistemology of dialectics interpenetrates dialectical ontology (as well as dialectical inquiry, reconstruction, exposition and praxis). It is the ontology of the internal relation of pasts, at their various levels of abstraction, to present which Whitehead draws out in the contradiction between novelty and inheritance expressed in the interrelated aporia of concrete and concrecence, actual and potential and universal and particular. Dietzgen and his cothinkers might have articulated this moment in terms of the dialectical materiality of time. The question of time, though, is a particularly thorny one for process philosophy, especially in relation to the nature of 'causality' in any philosophy of internal relations.

Causality

Whitehead's attempt to construct a metaphysics of time is formidable, and his complex theory of causality is instructive for those, materialist or otherwise, attempting to work with a monist universe of total internal relationality. For Whitehead, what he terms a simple physical 'feeling' is what is understood in the world of human experience as a 'causal' relation. An actual entity is the objectification of its subject, namely the data existing in the world and open to prehension. The process of objectification is the 'feeling' representing a unique 'perspective' of the data. "Objectification relegates into irrelevance or subordinate relevance, the full constitution of the objectified entity. Some real component in the objectified entity assumes the rôle of being how that particular entity is a datum in the experience of the subject." (Whitehead, in Sherburne, 1981, p.11) Of interest here is the relation between the 'real', as in "some real component", and the actual. The process of 'feeling' is conditioned rather than being wholly arbitrary, hence its consistency with the real; however, it also permits novelty insofar as some prehensions are negative and others positive, allowing for infinite variability given the

plenitude of objective data. We can thus parallel this model with the process of abstraction taken by Ollman from Dietzgen. For Ollman, contra Richey (2003), “Dietzgen makes a determined assault on the empiricist dogma that perception is passive and that our mind merely registers [not in the active-non-conscious sense established in chapter one⁵⁹] the effect produced upon it by external reality” (Ollman, 1976, p.285) to which, drawing on the conclusions of chapter one, we might add that matter itself, inclusive of ‘mind’, is not passive insofar as it actively ‘registers’ – in the sense established by Žižek – relational contexts in the process of what Whitehead terms concrescence. If we regard ‘conceptual feelings’,⁶⁰ then clearly the parallels with Dietzgen are yet stronger for the ‘realness’ of superjective data and their ‘effect’ upon abstractions, and, on the other hand, the ontogenetic potential of the abstractive process (or process of ‘conceptual feeling’) address precisely the point that

[i]f, as Dietzgen says, we generalize qualities into things on the basis of their real similarity [positively prehending them], may it not be that the similarities which incline us to individuate the same things also incline us to conceive of them as logically independent? (Ollman, 1976, p.241)

This is the Ollmanian “two-way street.”

Whitehead notes regarding the ‘subjective form’ of a ‘feeling’, that this aspect of its constitution, which is how the subject feels its objective datum, may be identified as ‘consciousness’. Consciousness here is the reactive aspect of the relation of universe to subject, or, in monist terms, of universe to itself. What is unique about the subjective form of the actual is precisely its novelty – its “peculiar mode of fusion with the objective datum” (Whitehead, in Sherburne, 1981, p.12). Even in the most “primitive” form of causal relation – the transmission of a form of energy – the cause cannot merely be objectively in the effect, the effect cannot be simply re-enaction because

“[t]he feeling is always novel in reference to its data; since its subjective form, though it must always have reproductive reference to the data, is not

⁵⁹ Rather, in the Leninist sense of ‘reflection’.

⁶⁰See Chapter 7

wholly determined by them... the cause's feeling...cannot, as a feeling, be abstracted from its subject... which is the cause." (Ibid., p.13)

The actual entity has both a momentary and an eternal existence as an abstraction within Whitehead's non-temporal relational nexūs. The actual entity 'terminates its becoming' in a complex feeling involving a completely determinate bond with every item in the universe, the bond being either a positive or a negative prehension. This termination is what Whitehead calls the 'satisfaction' of the actual entity. (Ibid., p.14)

The universe of absolute internal interrelation thus registers the conditions for the possibility of individuated entities as actual and as under abstraction. Having attained a particular definiteness, the actual object passes into objective immortality as a new objective condition whose 'effects' can be felt in concrescent processes other than its own (unless, as in the exceptional case provided by quantum physics and utilised by Žižek, it somehow fails to be 'registered' by its contexts and thus passes back into the plenum, or "winks out of existence" before instantiating any effects). The object acts as object insofar as it intervenes in processes transcending itself, and the "solidarity" of the universe is characterised by the functioning of objects (or, one might say in a monist context, abstractions). Yet, this does not of course mean that the actual object is unchanging, and here Whitehead is entirely amenable to Pomeroy's dialectical reading, for one must recall that the actual is both subject and superject, indeed, in its ordinary usage, Whitehead comments, "subject" should be regarded as an abbreviation of "subject-superject". Thus, the actual entity can legitimately be understood as a profoundly dialectical concept: both an occasion and an occasioner, being and becoming. It is also, of course, both one and all, limited and limitless.

As Dietzgen understood, if one were to take the "subject-predicate" model to be ontologically ultimate, it would be impossible to express either the dialectical principle or an internally relational causal theory. The Whiteheadian relation of feelings and their superject would similarly be made meaningless. "Philosophies of substance"⁶¹ presuppose a matter which then encounters a datum and reacts to that datum. Both Dietzgen and Engels, whilst never explicit on this question, make it fairly clear that the model of matter reacting against data does not fit with an internal

⁶¹ Such as that of Aristotle – see Whitehead in Sherburne, 1981, p.16

dynamic of contradiction, which is far closer in function though not in its application of terminology to Whitehead's "philosophy of the organism" than, say, the 'materialism' of Aristotle, or indeed of Büchner et al. Whiteheadian "philosophy of the organism" starts with a datum which is met with feelings and progressively attains the unity of a superject. "The feelings are inseparable from the ends at which they aim; and this end is the feeler. The feelings aim at the feeler as their final cause." (Whitehead in Sherburne, 1981, p.16) The subject cannot be removed from the scope of feelings as the subject-superject constitutes the unity of the feelings. One might add to this that the process by which an actual entity non-temporally concretizes occurs within what Whitehead regards as 'societies' of actual occasions but which monist Marxists would consider the one single substance. That is, the transference of data occurs with reference to all other such movements within the single universal whole, all aspects of the single universal substance, to a greater or lesser extent, a part of each process of becoming, such that every individual actual occasion is also *every* occasion within itself. Each actual occasion is simply being becoming itself⁶². "An actual entity feels as it does feel in order to be the actual entity which it is. In this way the actual entity satisfies Spinoza's notion of substance; it is *causa sui*." (Ibid.)⁶³

If the process of becoming is one internal to the universal substance, and also takes into account the infinite multitude of other acts of becoming which occur within the plenum, then 'decisions' must be made in each individual act of becoming, about the extent to which all other aspects of the universe are 'valued' within the concrescent entity. The 'valuation', 'upwards' or 'downwards' of conceptual feelings determine their relative importance in establishing the status of the datum to the subjective form of subsequent feelings. That is to say, valuation operates to define the level of an abstraction insofar as it will subsequently operate to, for instance, inform analysis or to reproduce traditional meanings. In his discussion of 'decisions' made regarding

⁶² The problem of ultimate 'final cause' is thus raised, and is a problem that Whitehead, unlike Marxists, answers with God – the manner in which those working in the Marxist tradition might deal with this problem goes beyond the scope of this study.

⁶³ At this point I need to return to Matthews' reading of Spinoza on substance being its own cause.

actuality, Whitehead's analysis of ontological principle turns on a consideration of the central role of the *abstractive behaviour of the universe itself*, very much like that addressed at the end of Chapter one:

The ontological principle asserts the relativity of decision; whereby every decision expresses the relation of the actual thing, for which a decision is made, to an actual thing by which that decision is made. But 'decision' cannot be construed as a casual adjunct of an actual entity. It constitutes the very meaning of actuality. An actual entity arises from decisions for it, and by its very existence provides decisions for other actual entities which supersede it... 'Actuality' is the decision amid 'potentiality'."(Whitehead in Sherburne, 1981, p.19)

Žižek (1996a), the reader will recall, reinserted just such a 'decision-making' capacity into the operation of nature in the act of 'registration', and on both his and Whitehead's account, as applied in a thoroughgoing monist materialist cosmology, the distinction between epistemology and ontology is effectively collapsed as the impossibility of concurrent contradictory 'decisions'⁶⁴ (for instance between particle and wave, mass and momentum) as an epistemological axiom becomes an ontological impediment, or condition for the negative prehensions which disallow the concrescence of the actuality of all possible potentialities in favour of that which *is*. Intriguingly, Whitehead too makes fleeting use of the term employed by Žižek: "[t]he mental pole starts with the conceptual *registration* of the physical pole." (Emphasis added) (Whitehead, in Sherburne, 1981, p.47) Read in such a way that it accommodates the sense of 'registration' established earlier, this sentence offers a view both of the mentality of the physical and the physicality of the mental, and of the capacity of each/both to register itself as conceptually or abstractly mental or physical matter.

The 'dipolarity' of all of the actual universe in Whitehead's ontology – its having both a mental and physical pole, the importance of which varies in localised areas of the whole – raises interesting questions regarding dialectics and causality. In putting

⁶⁴ This point is developed in Chapter 7.

Whitehead's theory to work within a monist cosmology supportive of ecosophical and Marxist materialist thinking, the dialectic in operation in the concrescence or 'emergence' of actual entities is not a physical-material dialectic, but a dialectic of matter in the extended sense, divided against itself. Without wanting to overemphasize the role of 'the mental' within the universe, one might thus assert the materiality of the process to which Whitehead refers: "The integration of the physical and mental side [*of matter*] into a unity of experience is a self-formation which is a process of concrescence." (Whitehead in Sherburne, 1981, p.46)

For Whitehead, the category of subjective harmony is an essential concomitant of the category of subjective unity in the process of abstraction. Together, these categories go a long way towards offering a processual explanation for the harmonic formation of conceptual feelings – impressions or ideas – which represent, as Dietzgen suggested, 'merely' a twenty mile stretch of a piece of road abstracted from the road itself – the wider process of universal change. By these principles of subjective harmony and subjective unity, "all origination of feelings is governed by the subjective imposition of aptitude for final synthesis. In the ... category [of subjective unity] the intrinsic inconsistencies, termed 'logical', are the formative conditions in the preestablished harmony" (Whitehead in Sherburne, 1981, p.52) and here one recalls Ollman's comment regarding Dietzgen's expectation of an element of logical determinateness about ontological abstractive processes (Ollman, 1976, p.241); while, under the category of subjective harmony, "aesthetic adaptation for an end is the formative condition for the pre-established harmony"(Whitehead, in Sherburne, 1981, p.52), and, here Ollman's insistence on the 'moments' of dialectical abstraction is pertinent in bringing to mind the phase of intellectual reconstruction. Abstractions, then, are always particular, for the 'superject', to use Whitehead's term, which is their outcome is also the subject operative in their production – a "two way street" which is, in dialectical fashion, both free and determinative, being and becoming. Whitehead put it thus, "the process constitutes the character of the product, and... conversely the analysis of the product discloses the process. The point to be noticed is that the actual entity, in a state of process during which it is not fully definite, determines its own ultimate definiteness." (Whitehead in Sherburne, 1981, p.52) To the extent that

malleable reality is determinate and determining, it expresses the satisfaction of harmonic relations as “so far as the immediate present subject is concerned, the origination of conceptual valuation... is devoted to such a disposition of emphasis as to maximize the integral intensity derivable from the most favourable balance. The subjective aim is the selection of the balance amid the given materials.” (Whitehead in Sherburne, 1981, p.54) This, though, must only be part of the story. Anne Fairchild Pomeroy, for one, would not have chosen to utilise Whitehead’s philosophy in conjunction with Marx’s if the former did not also allow for the manner in which abstracted unities contribute to the material-conceptual emergence of new patterns of thought and praxis. That is to say, concrescence, if considered dialectically, must have regard to the future, and in order to do so must express disharmonious and antinomic relations between emergent parts and wholes, between novelties and established verity⁶⁵. Leaving aside for the time being Whitehead’s unnecessary intromission into his schema of God at this point, it should be noted that one element in the immediate feelings of the concrescent subject is comprised of the anticipatory feelings of the transcendent future in its relation to immediate fact. This is the feeling of the objective immortality inherent in the nature of the actuality. By means of the establishment of a ‘balance’ in the “adjustment of identities and diversities for the introduction of contrast with the avoidance of inhibitions and incompatibilities” (ibid.), Whitehead intends to ensure that forward thinking, ‘reverted’ (novel) conceptual feelings have their data largely identical with that of correlate primary feelings, and thus promote readiness for synthesis. Such synthesis need not, of course, preclude revolutionary realignments of abstractions, or re-balancing of positive and negative prehensions.

Cause and time

Just as this study has sought to investigate the substantial basis of matter, it is necessary also to consider the temporal aspect of matter as identical with spacetime at more than one level, especially as this question pertains to ‘cause’, which, whilst a problematic concept within a monistic ontology is one which it will be crucial to

⁶⁵ Classical Marxist dialectics as the algebra of revolutionary change would indeed be an interesting notion to apply at the microcosmic level, but unfortunately require examination in a further study.

grasp if this study is to be successful in exploring the concept of ‘emergence’ of the individual human subject. That the act of becoming of an actual entity is not temporally extended is a consequence of Whitehead’s atomism in that to admit temporal extension in the process of becoming would also admit temporal divisibility, thereby shattering the essential atom. However, in a sense the same basic problem is also true of a monistic universe, in that to concede temporal divisibility in any part of the becoming of the totality of the dynamic universe would be to rend the material fabric of the plenum. However, Whitehead’s other central claim regarding the metaphysics of time does not hold up in a non-atomistic universe. Whitehead holds that two contemporary occasions cannotprehend each other. This is a consequence of the features of concrescence which are premised on a problematically ‘historically’-informed set of ‘decisions’ about prehension. Contemporaneous sources of feeling are ruled out because neither belongs to the prehensible ‘past’ of the other. Rather, the most it is possible to say about the appearance of concurrent effects is that actualities might be indirectly related to one another by way of their shared prehension of antecedent occasions. The result is Whitehead’s atomistic parallelism. However, in the monistic universe revealed by, for instance, geometrodynamics ontology, ‘instantaneous cause’ is allowed in the type of thought experiment envisioned by Einstein. Matthews’ account explains that physicists have been forced, on the basis of such experiments, to infer that measurement on one half of a quantum system which has decayed into two particles induces a change in the other half, though the systems are ‘separate’, and that this ‘effect’ is not the result of conventional causality or of ‘action at a distance’⁶⁶,

[i]t is rather a case of the two systems remaining qualitatively connected although spatially separated. It is an inference to non-localizability, or non-separability; there is more to the so called particle than meets the eye: its true identity cannot be given purely in terms of properties manifested at a given point in space and time, for

⁶⁶ In measuring the momentum of one particle, one can say for sure the value of the momentum of the other without measuring. However, to do so either breaks Heisenberg’s indeterminacy principle or suggests that the first particle has instantaneous effect on the second, violating traditionally understood principles of causality.

its identity may take in or reflect the properties of an indefinite number of other particles. (Mathews, 1991, pp.53-4)

Whitehead's actual entities are not sufficiently simultaneously coterminous to allow for this 'effect'. For the purposes of ecosophy, and for a project which aims at the marrying of Marxist dialects (whether informed by process philosophy or not) with neo-Spinozist deep-green monism, a cosmology within which "[e]ach entity in its act of concrescence is really alone" (Pomeroy, 2004, p.109) really will not do.

For Pomeroy, as for this study, there are problems with aspects of Whitehead's philosophy of time. Even Whitehead's editor and strongest supporter, Donald Sherburne (Sherburne, 1981, p.38) identifies apparent inconsistencies in the way in which Whitehead applies temporal language to what he claims to be atemporal entities. Pomeroy asks: "[c]an we have this a-temporality of the act of becoming without jeopardizing the relationality of entities, and if we jeopardize the status of real internal relationality, do we not risk falling right back into the same kind of substantial atomism that process was designed to eliminate?" (Pomeroy, 2004, pp. 109-110). The primary concern for this study, if Whitehead's account of 'causative' 'process' is to be of any value, is to avoid any compromise on the principle of interrelatedness. Ultimately, it is interrelatedness within a substantively indivisible and interconnected universe that admits the malleability required to allow for the drawing of abstractions which at once encompass the macroontological nexūs that appear in time as 'enduring societies of actual entities' (such as ecosystems or economic classes) and provide the cosmological basis for a praxis of 'dialectical world consciousness' (Untermann, 1906, p.243). In this respect, Whitehead's atomism is greatly preferable to Newtonian models in which atoms are causally linked with one another only contingently and from without, with these atoms imaginable independently of their relations (Mathews, 1991, pp.9-10). Whitehead's fundamental units, the actual entities of his metaphysics, are inherently relational insofar as they are realised out of the mass of pre-existing data and in their satisfaction become dative potential for future generations of actual entities. However whilst this cosmos describes a system of internally connected nexūs of relationships of prehension, these interrelations are not of the essence of substance, but remain formal and, in some

senses, external to the actual occasion. We are required to believe that the relations between ‘atoms’ are genetic, and yet occurred not in the past, but in a non-temporal ‘epoch’, and yet that real interrelatedness in the here and now is impossible because actual entities are logically separate and thus unable to communicate ‘causally’ in the moment; there is in Whitehead, as in other atomistic visions, no continuousness of material being which provides for a seamless and totally related becoming of all for all.

Pomeroy’s proposed solution to the problems of atemporality rests on an appeal to the difficulty of expressing within the limitations of the language and understanding of alienated social relations, the dialectic of subject-superject. Subject *qua* subject is *for* itself, whereas, subject *qua* superject is *for* other subjects, indeed, as superject, the entity is *in* other entities. The dialectical subject-superject is both unique and indivisible atom, and at once, also in all other atoms. The difficulty with this elision is that despite Whitehead’s insistence that subject and superject are one, superject is consistently presented as the satisfaction of a process. Even if, like Pomeroy, we take this satisfaction to be not an end in itself but an achievement of the universe to this point which makes possible new occasions of experience, we are still operating very much within a temporal framework. Whitehead appears to be attempting to offer an atemporal account of what remains a temporal process of causality and in doing so necessarily needs to fall back again and again on the language of time, just as we saw Dietzgen and geometrodynamics theory fall back on the language of abstractions such as ‘gravity’ and ‘acceleration’, which cannot exist, at least in the same way as they do in the sensible world, at the level of the identity of matter with spacetime. How then might one frame the problem? Whitehead wants to allow for an interrelatedness of entities insofar as they share a common past, yet to insist on their particularity in the now, because “[i]t is the definition of contemporary events that they happen in causal independence of each other. Thus two contemporary occasions are such that neither belongs to the past of the other.” (Whitehead, in Pomeroy, 2004, p.109). Yet, to make this distinction between contemporary and prior prehension surely cannot be allowed if concrescence is non-temporal. Rather we need Dietzgenian “dialectical relations between simultaneously existing things” (Untermann, 1906, p.245). If these internal

relations exist in such a way that they cannot be divided temporally then on what grounds are contemporary prehensions ruled out and other prehensions to be admitted, unless on the grounds that it is categorically true of prehensions that they *have happened*? This would be to reintroduce a 'past' which cannot but be temporally precedent, even given the vicissitudes of language. If, on the other hand, the subject-superject is always also now, rendering the creative subject the unity of its dative past and subjective experience which is *for* and *in* the experience of entities beyond it, how is it possible to avoid a determinative and pre-established universe in which process is indeed a string of "beads on a necklace", or infinite numbers of necklaces, unless we admit an interrelated universe in the now, a cosmos of the 'instantaneous cause' allowed for by the monistic single substance?

It is unclear, and will need to be a source of further study, whether the very particular form of atomism promoted by Anne Fairchild Pomeroy is as amenable to the concerns both of (strands of) Marxist and Deep Green philosophy as some form of retrieved monism. There are certainly suggestions of a reading of Whitehead in Pomeroy's work which would grant it a sympathetic hearing among ecosocialists. The forms of relatedness and interrelatedness inscribed in the ecosophical monist model might not be as explicitly a basis for human thought and action in process philosophy, but, in attempting to find a way through the problem of temporality, Pomeroy offers hints of the way in which a wholeness and 'value' might be read into Whitehead's universe:

Because the superjective role of any actual entity is an operative part of its subjective aim, its act of becoming as a self-enfolding into just this definiteness is simultaneously a self-unfolding and opening out and an offering up. This specific achievement of *value*, because it "cares" about its beyond, becomes as an offering and acts as an enticement goading the next act(ualitie)s to their concrescence. (Emphasis added) (Pomeroy, 2004, p.111)

The interrelatedness achieved here is not fundamental, nor is it ultimately ontological, because, as has been seen, it can only be achieved retrospectively, or possibly in relation to future ends. Whether dialectical or not, it is a processual rather than a material interrelation. However, there is a desire on the part of Pomeroy to read into

this relation a valuing which has regard for possibility. This is not developed with the depth or clarity of Mathews' (1991) consideration of conatus, or ecosocialists like Kovel's (2007) 'ecosystemic integrity' (albeit operating at an exclusively macroontological level), but nevertheless signals a willingness to write *value* into the operation of nature as a whole which is often alien to atomistic accounts.

Part 2: The Subject in Nature

Chapter 4: The Radical Romantic

Introduction

It may seem quite a set of paradigmatic jolts to leap from Dietzgen to Whitehead and, now, suddenly to Schelling and the Romantic tradition. Perhaps the reader will extend to this study a little more patience and permit these slightly eccentric moves in the hope and expectation that connections will continue to emerge across and between these strands of thought, such that they might begin to be woven into a red-green synthesis capable of supporting a cosmopolitics and pedagogics of ecosocialist re-orientation.

A number of claims have been made for the influence of Schelling on Marx and the Marxist tradition. Some (for instance Dussel, 2006) argue a direct influence, others (such as Wood, 1981; Ilyenkov, 1977) are more cautious. To these we will return briefly, later. However, the reader will, by now have become aware that resonances of Romanticism have begun to be heard in the discussion hitherto, in the advancement of monism as a basis for red-green rapprochement, and in the place of 'nature' and of 'consciousness'. At issue here is not the degree or explicitness of Schelling's particular influence on the Marxist tradition, which is probably slight. Rather, there are two central questions; first, is Schelling's thinking both amenable to aspects of the methodology applied in this study hitherto, and to the 'adapted' version of Dietzgen's ontology which has been taken to suggest possible meeting points between the Marxist monist position and ecosophy? We might offer some substantive connections between the philosopher and theorists discussed in this study, but these are marginal

to the thinking of each. Whilst Schelling is an acknowledged source for ideas later developed by Freya Mathews⁶⁷ (Mathews, 2003, p.172), he plays little significant role in her writing. Dietzgen himself clearly knew little if anything of the early radical, materialist Schelling of whom Marx writes approvingly, rather dismissing Schelling perfunctorily as a peddler of “idealist perversity” (Dietzgen, 1906a, p.293)⁶⁸. So, second, if Schelling remains a bit-part player in writings at the intersection of red-green thought, can he nevertheless enrich our understanding of the difficulties inherent in this project? Here, the answer is affirmative. There is, however, perhaps a particular irony in that, in reviving the Romantic spirit of the Marx who, alone amongst nineteenth-century thinkers recognised both the liberating and oppressive aspects of capitalist development (Löwy & Sayre, 2001, p.94), we do so in the cause of a retrieval of the work of Dietzgen, who was for Benjamin (1968) a high-representative of a profoundly anti-Romantic Marxism current out of which came Plekhanov, and ultimately Stalin. It is this ‘promethean’ trend associated principally with Plekhanov which sees off the vestiges of Romanticism⁶⁹. Yet, it is back to Dietzgen – variously used, read and misread by anarcho-syndicalists (Gambone, 1996) and Leninists, Marxists from Stalin (Van Ree, 1993, pp.49-50) to Ollman (1976) – that this study turns to add another layer of complexity, in attributing to Dietzgen some deeper connection with Romanticism in his materialist monism⁷⁰. Libertarian readings of Dietzgen contra Plekhanov and Kautsky clearly chime more closely with this project than do positivist ones. In this chapter, Marx’s early dalliance with Romanticism, and his engagement with the Fichte-influenced Schelling of the

⁶⁷ “Romanticism prefigured the current ecological view of nature in its general organicism. Its emphasis was on relationality and the interconnectedness of all things, on holistic forms of organization and explanation in both biology and physics, and on dynamism at every level of such organization. But more important in the present connection was the Romantic imputation of spirit to matter: philosophers in Germany such as... Schelling... rejected Cartesian dualism and the mechanistic view of matter to which it led, and made it their business to restore mind to matter.” (Mathews, 2003, p.172) This quotation from Mathews takes us to the relation between Schelling, monism and *panpsychism* explored in slightly more depth in Chapter 5.

⁶⁸ Dietzgen did, however, acknowledge Schelling’s role in developing a dogmatic alternative to the Kantian metaphysical separation of phenomena from things in themselves (Dietzgen, 1906a, p.280).

⁶⁹ Dietzgen, is acknowledged by Plekhanov (Plekhanov, 1969, p.22) who, especially as viewed through the lens of Untermann (1914), was reductively evolutionist and opposed to backward-looking romanticism. Later we will witness Plekhanov’s gathering assault on Dietzgen and Dietzgenism (see also Appendix 2).

⁷⁰ A connection which Bogdanov, for one, was able to note (Jensen, 1978, p.108).

1790s, will be worked through themes, some now more familiar than others, of monism, activity and creativity, and dogmatism, in order to re-strengthen the claim to a largely forgotten monist materialist ontology within Marxism, and indeed, maybe even within Marx's own thought, which can be connected productively with ecosophy not only through the heavy, often laboured neo-physicalism of Dietzgenism and through common precursors in Spinozism, but also via Schelling and a Romantic legacy recognised more or less explicitly by both traditions.

The Appeal of Romanticism, Fichte & Schelling in the Young Marx

Ecological thinkers such as Freya Mathews are deeply sympathetic to the postulated poetic affinity between nature and the human. This is nature "as seen as animated by the same primordial impulse that animates ourselves, where this impulse might be identified as will or aspiration or creative force." (Mathews, 2003, p.172) Here, creation⁷¹ is a term used to describe activity at a number of levels⁷². Humans' essential creativity, what Marx would in early 1844 describe as their "*free manifestation of life*" (original emphasis)(Marx, 1967, p.281) is, for Mathews, like the Romantics, an abstraction from the dynamic creativity of the cosmos:

According to Schelling, who achieved the quintessential expression of the Romantic view of the natural world, nature is a manifestation of a creative power that is in a continuous process of evolution towards higher and higher forms of consciousness. This creative impulse, which Schelling describes as an "unconscious intelligence" in matter, finds its purest expression in the human self: the world fulfils itself by coming to self-consciousness through us. (Mathews, 2003, p.172)

Whilst the idiom may seem very distant from the hard-nosed materialist evolutionism of the Marxian Dietzgenites, especially in their most deterministic moments, there are fundamental underlying themes of creativity and unity in the twin monistic visions. It behoves us well to remember that the 'proletarian philosophy' of Dietzgen and those such as Fred Casey (1922, 1949) who took the tanner-philosopher as a basis for

⁷¹ See Appendix 1

⁷² See Chapter 7 for consideration of the implications of this position for ecosocialism

working-class self-education most often understood creativity and its structural limitations under capitalist relations through the lens of manual labour rather than poetics⁷³. The creativity of the artisan, the poet and the machinist may take different forms, but, for Dietzgen himself each were merely material forms of expression of the dynamic creativity of the cosmos, or, one might say, rather than of our species-being, of our cosmic-being.

We find Schelling's naturalisation of subjective idealism upended in the materialist cosmology of Dietzgenism (in, for instance Untermann's evolutionist materialism, (Untermann, 1914, pp.127-153)) as well as in Mathews' ecosophy. Marx's early Romantic onto-poetics represent a glimpse of a mode of thought, itself a product of a particular social milieu, which locates the aspiring poet's cosmogony within the evolving German intellectual tradition at a point when poetry itself could be imagined as a means to unlock the philosophy of being. The clearest surviving expression of the philosophical development of the young Marx to 1837 can be found in his poetic experiments, such as the piece entitled simply *Poetry*, and that called *Awakening*. In the former, in increasingly impassioned verse, Marx endeavours with some success to achieve a shifting and blurring of subject and object, "I" and "it"; poetry binds the listener Marx into the song of nature, an awareness of the divinity of which evinces in him an erotic dissolution of finitude into the cosmic oneness of the "creator's breast":

"I heard rustling, I saw it gleam,

⁷³ 'Idealist perversity' is the mirror of Dietzgen's substantivalism, the world as poetry (as opposed to, perhaps, poetry as material labour): the Fichtean influence on early Schelling, as on Romantic ontology ('onto-poetics') more generally, is, of course, deeply significant. Wessell explains Fichte's position thus, "Mind, spirit, I-ness... underlies, generates and penetrates nature, objectivity, or the apparent non-I... All apparent exteriority, dead matter, or opaque objectivity is accordingly not but "congealed" or objectified subjectivity." (Wessell, 1979, p.26) For Fichte, then, ontological priority rests in the primordial unity or 'I', termed the "Ur-Ich". The conscious self is only a part of the true divine infinite self, the collective unconscious. Such an account of the ultimately subjective act of creation, in its human and divine aspects, is that reflected in Marx's creator-spirit. One might reasonably suppose that all traces of such subjective idealism were expunged from Marx's later thought, but Wessell wants to play on the Fichtean transmutation of the originary "I" or 'cosmogonic energy' into "form and poetic word" (Marx, 1979, p. 227) to argue that this represents for Marx a 'congealing' of primordial thought into concrete objects, very obviously recalling the mature theorist's use of the term (all that is airy congeals into solidity!). Whether a rather laboured parallel resting on the semantics of 'congealization' has much legitimacy is open to question. However, what is clear is that the malleable monism evident in Romantic onto-poetics finds echoes in the capacity in the later materialist Marx to treat phenomena at different levels of abstraction, to, for instance, examine the real subsumption of labour into circuits of capital through the commodity form.

Distant heavens moved onward,
Rose up, to sink down,
Sunk down, to fly ever higher.
As the inner battle now quieted itself,
I saw pain and joy condensed in song.

Nestling next to the mildness of the forms,
The soul stands firmly bound;
Image swelled out of me,
Out of you they were kindled.”

(Marx, 1979, p.229)

It is in the realisation of poetry itself that the poet achieves the Aeolian rippling together in harmony of human and infinite tones. The theme is developed in *Awakening*,

“Like the undulating tone of strings,
Which, bound to the lyre,
Musingly has slumbered,
Upward through the veil,
Of primeval night,
Then flash from above
Eternal stars
Lovingly inwards.”

(Marx, 1979, p.231)

The awakening of the poet is the awakening of all Creation into a divine and erotic unity, represented at once as a swelling expansion of the self and as a sinking interpenetration into the “World-All”. The poetics of human and natural harmony carry the poet into a sensuous “abyss” of self-negating orgasm as with “quivering lips/ Reddened by ether,” nature opens to the “Flaming, eternal/ Lovekiss of divinity.” (Ibid.) The keening eroticism of the young poet’s desire for absorption into the trembling divine may suggest to us nothing so much as his adolescent frame of mind, rather than his nascent theory of being, but, nevertheless, allows us another means of tentatively connecting the ancestral shadows of the imaginative attempts within forgotten corners of the Marxist tradition to think a universe made whole, with later ecological yearnings, and does so by virtue of an ontology of creativity, of poetry. It should be remembered that in both ecosophy and in numerous latterday strands of Marxism⁷⁴, it is creativity which plays a central role in mediating the dialectic of matter against itself. So too in the Marxism of the new physics outlined by Žižek in chapter one⁷⁵.

In 1837, Marx underwent his conversion to Hegelianism, but not before engaging more thoroughly with Schelling. “Whereas to the Romantic, subjectivist Marx, the highest form of being was to separate from earthly reality, under Schelling’s influence, he began to see the Idea as immanent in the real.” (McLellan, 1970, p.48) Sadly, Marx’s twenty-four page dialogue *Cleanthes, or the Starting Point and Necessary Progress of Philosophy*, written at this time has not survived, but the influence of Schelling on this work is evident in Marx’s description of it in a letter as a “philosophical-dialectical account of divinity, as it manifests itself as the idea-in-itself, as religion, as nature, and as history.” (Marx, 1975b, p.18) For Marx, it was Schelling who led him to Hegel. The young Schelling’s influence was still felt, and acknowledged four years later when Marx added a note to his doctoral thesis which was directed in large part at the ideas which Schelling was by this time espousing in his ‘Philosophy of Revelation’, and which were also the target of Engels’ first

⁷⁴ From activity theory to its bastard child Juche (or ‘Kimilsungism’).

⁷⁵ It may even be possible to postulate an *ontopoetics* of green-Marxist reunification, but such a project remains beyond the scope of this study.

published work, in that year. Marx draws approvingly on Schelling's own earlier radical writing of 1795 to attack the bloated claims of the Philosophy of Revelation. To this note, we shall return. McLellan argues that, in common with other young Hegelians, Marx draws on his (Romantic's) knowledge of the pre-Hegelian heritage of Fichteanism to radicalise his thinking, and it is in this tradition that the Schelling of 1795 can be placed⁷⁶. Given that we know that the young Marx was greatly influenced by Fichtean thought, (Marx, 1975b, p.12) and, taken that it is in this tradition that we should locate the radical young Schelling, Marx's admiration for Schelling's *Philosophical Letters on Dogmatism and Criticism* of forty years before should therefore be no surprise. For Garaudy, Marx borrowed from the Fichtean tradition "the unity of intellectual and material reality and their reciprocal action, the fundamental immanence of intelligence in history, the idea of becoming, contradiction as the motive force of becoming." (Garaudy, 1967, p.33) Garaudy proposes that it was Fichte who enabled the transition from a philosophy of speculation to one of action⁷⁷, but as McLellan's claim suggests, it might also be argued that in Marx's regard for Schelling's 1795 work, we find an equally compelling source for his development of

⁷⁶ See Garaudy, 1967, pp. 33-43.

⁷⁷ In his attempt to place Fichte and Marx in continuum within the German philosophical tradition, Rockmore (1980) puts an emphasis on the important role of activity in the thought of the former. Fichte's acknowledged aim was to base the possibility of knowledge on human activity. 'Positing', and 'striving' are, for Fichte, those categories of activity associated with the finite self. Positing may be thought of as akin to a particular kind of imagining, and calls forth from the infinite self – encompassing all of human and non-human reality – the possibility both of self and of knowledge. For Fichte, this spontaneously occurs as a result of interaction between man and world, and, through positing the individual, realises consciousness of environment. The non-self, the result of positing, opposes the self by which it has been brought into being. There is a parallel here with Spinoza's concept of emanation: Fichte identified his epistemology as "Spinozism made systematic; save only that any given self is itself the one ultimate substance." (Fichte, in Rockmore, 1980, p.57) If one were to read this ontologically, rather than epistemologically (with all the solipsistic implications conjured thereby), one finds in Fichte the basis for a particular idealist version of monism, bridging Spinoza and Schelling. Rockmore, comments, however, that Fichte never explains the occurrence of positing. One can only note that it is spontaneous and nonvoluntary and occurs as a necessary condition of knowledge. Moreover, a certain circularity is evident in the dualistic basis for the realisation of that activity which is supposed to cleave the oneness of the infinite self. Fichte's other category of activity, Striving, closely parallels Spinoza's conatus (a concept much used in Mathews' ecosophy) – a drive or force directed on the part of an individual. The difference is that whereas for Spinoza, conatus is about self-preservation or the maintenance of individual integrity, for Fichte, striving is about self-development. Striving is not itself causal, but is a need and yearning for causality. Striving and positing, then, might be regarded as in a dialectical relationship. The effect of positing is the attribution of the subject-object relationship solely to the self, the interiorization of surroundings, and hence the reduction of self and non-self to mere distinctions within the unity of the infinite self; striving, on the other hand, leads the individual outside of himself. Striving calls forth positing through its 'recognition' of external reality, positing makes striving possible through its 'generation' of that reality.

the idea of “praxis” first proposed by Cieszkowski⁷⁸. Schelling’s earliest writings, were clearly adumbrated by the position of Fichte, and published during 1794. It is not clear whether these formulations regarding activity came to Marx directly from Fichte, or via Schelling’s 1794-6 essays, with which we know he was familiar. What is clear is that both Fichte and the later Marx distinguish activity and its result only to emphasize that on a deeper level the distinction is overcome (Rockmore, 1980, p. 67)⁷⁹.

Having gained some sense of the significance of Fichte’s ideas as a backdrop to Schelling’s writing of the 1790s, we move now to focus on the manner in which the younger Schelling himself is represented both in Marx and the wider Marxist tradition. To restate the case, the aim here is to establish whether the forms of monism evident in some of Schelling’s neo-Fichtean work can deepen an understanding of the ontology and process philosophy underpinning Dietzgenian Marxism as this relates to ecosophy. As noted earlier, Schelling’s legacy for Marx and Marxism is not well

⁷⁸ Cieszkowski was charged with “crypto-Schellingianism” in 1841 (Liebich, 1979, p.18) and it has been suggested that his *Prolegomena* “owed something to Schelling” (ibid., p.11).

⁷⁹ On one level, activity generates a result which is separate from it; on another level the result is merely the activity. In Fichte there is no more than a distinction in unity between self and not-self, since from the perspective of the self, the not-self is nothing but the activity through which it is generated. In Marx, the product is the ‘concretion’ or ‘congealing’ of the activity which brings it about. In each case activity is inseparable from its result. This is unequivocally a philosophy of process, and concretion (or ‘congealization’) applies as well to Whitehead, in different terms, as to Marx, as has been noted earlier. If the metaphysical identity of activity and object is to hold, it needs to be demonstrated that the subject as potential is in a sense identical with the object, or subject as actual: the distinction is the one wrestled with by Whitehead and captured in the subject-superject distinction discussed earlier. This special form of ‘identity’ in continuity or inheritance is not of the normal observably quantitative or qualitative kind; it is fundamentally dialectical, a non-numerical, non-qualitative identity in difference brought about by the subject between the subject and object that it calls forth through its activity. Rockmore (1980, p.69) illustrates this point by reference to Schiller’s Romantic account of artistic creation, though he might have drawn on similar accounts of Schelling’s. Since an artist has an idea which is a potentiality, the realisation of this potentiality and its potentiality can in one sense be said to be the same thing. There is a unity in diversity in the artist and her art. One might press the point and recall the twin themes expressed in Marx’s poems of divine and poetic creation: the activity of the creator-spirit is contiguous and identical with the forms into which it “burns itself” (Marx, 1979, p.227); similarly the will and activity of the poet is identical with the image which swells out of him and is itself ‘kindled’ by the forms of nature. There is certainly scope here to frame the activity of the artist and her creation in terms which parallel at a higher, macroontological level of abstraction, Whitehead’s dialectical unity in opposition between the process of prehension and their satisfaction in the superject, which is nothing other than this process taken as a datum for further such processes. Fichte describes the self as “at once the agent and the product of the action; the active, and what the activity brings about” (Fichte in Rockmore, 1980, p.70). In acting, then, the self generates a product to which she stands in a relation of identity in a fundamental sense, thus she develops in her activity in the relation between herself and her object. So, in the earlier Marx too, the activity of the worker as an expression of the relation of worker to product, is necessary for the worker’s self-development as the objectified form of her potentiality, or species being.

documented, less so than is Fichte's. For Cornu (1957), locating Schelling amongst Marx's precursors, his achievement lay in allowing more reality to the external world than had Fichte. Schelling is presented as marking a step away from absolute idealism and towards objective idealism. However, Schelling's Romantic cosmogony has also been represented in contrast with Fichte, as lending a reactionary rather than a revolutionary character to the world's evolution. For Cornu, Schelling stressed the overall origin or source of development of world history, finding the essential element of the present in a past towards which we should reascend to attain truth and freedom. Whilst there is some validity in this assessment, other writers on the development of the dialectical materialist worldview, notably Ilyenkov (1977), have, on balance assigned a more progressive role to Schelling.

As has been mentioned, Marx himself did not entirely forget his youthful engagement with Schelling. He was clearly sufficiently impressed by the argument in the 1795 *Philosophical Letters on Dogmatism and Criticism* that even after his adoption of Hegelianism, he quotes approvingly from them in the 1841 appendix to his doctoral dissertation. Set against the backdrop of the bitter battle of the Hegelians against the growing influence of the, by then, elderly Schelling's reactionary mysticism in his *Philosophy of Revelation*, Marx's willingness to employ the philosopher's own first writings against Hegel himself is telling⁸⁰. The context of Marx's remarks is a discussion of man's relation to God. Specifically, he is concerned with the use of the notion of providence in furnishing the basis for Hegelian justifications for the ontological proof of God's existence. This is an early example of Marx turning Hegel "the right way up", for on Marx's account, Hegel has performed a conjuring trick in attempting to present the validity of notorious, if not discredited demonstrations of the proof of God's existence, "Hegel has turned all these theological demonstrations upside-down, that is, he has rejected them in order to justify them. What kind of

⁸⁰ Two years later still in October 1843, Marx writes to Ludwig Feuerbach encouraging him to attack Schelling in print as the arch-reactionary embodiment of Prussian policy – "Schelling's philosophy is Prussian policy *sub specie philosophiae*" (Marx 1975e, p.350) – but, even here, Marx still recalls the qualities to be found in the younger Schelling, likening these with the radicalism he perceives in his correspondent: "The *sincere thought* – we may believe the best of our opponent – of the *young* Schelling for the realisation of which he did not possess the necessary qualities except imagination... this sincere thought of his youth, which in his case remained a fantastic youthful dream, has become truth, reality, manly seriousness in your case." (Original emphasis) (Ibid., pp.350-351)

clients are those whom the defending lawyer can only save from conviction by killing them himself?" (Marx, 1975c, p.103) ⁸¹

So how does Schelling support Marx contra Hegel and Kant here? The *revolutionary* Schelling is a dogmatist. In demonstrating his increasing rejection of the value of speculative philosophy, in favour of a method grounded in worldly relations, Marx is calling upon a dogmatic application of reason – reason whose starting point is not “I” but “it”. For Marx, concluding his critique, “*That which a particular country is for particular alien gods, the country of reason is for God in general, a region in which he ceases to exist.*” (Original emphasis) (Ibid.) On this basis, Marx ironically suggests, the only proofs for God’s existence would be products of a land of unreason,

““Since nature has been badly constructed, God exists”, "Because the world is without reason, therefore God exists", "Because there is no

⁸¹ Here we have Marx employing Schelling in support of his critique of Hegel, just as he did in 1837 in his lost pre-Hegelian essay (Löwy & Sayre, 2001, p.89). Marx wants to attack the idealist notion that, formally, anything could exist, including God, and does so by employing conditions limiting existence in the real world. This represents a significant step in Marx’s development. In opposing formal possibility with real possibility, Marx takes a dogmatic stance, insisting on the employment of the ‘it’ as the starting point for consideration of matters of ontology. Proofs of the existence of God, he claims are “mere hollow tautologies” (ibid.) proclaiming only “that which I conceive for myself in a real way (*realiter*), is a real concept for me” (ibid.). In a formal sense, then, all the spooks of ancient mythology are real, “Did not the ancient Moloch reign? Was not the Delphic Apollo a real power in the life of the Greeks?” (Ibid.) These, thinks Marx, are wholly inadequate bases upon which to develop proofs of existence. In a surprisingly little analysed passage (Baranovitch, 1978, is a rare example of a slight reading), Marx argues his point regarding the phantasmagorical creation of gods out of human experience. He does so by drawing a parallel between the existences of, on the one hand, gods and “imagined money” (that is, value) and, on the other, of ‘real’ money. Marx derides Kant’s attribution of equivalence to the relation between an imagined or possible quantity of money, one hundred talers, and one hundred *real* talers. He does so by means of quantitative consideration of value. Kant had stated that “[a] hundred real talers do not contain the least coin more than a hundred possible talers. For as the latter signify the concept, and the former the object and the positing of the object, should the former contain more than the latter, my concept would not, in that case, express the whole object, and would not therefore be an adequate concept of it.” (Kant, in Marx, 1975a, p.738). Marx mocks the notion of the debt which might thereby be incurred on an imaginary quantity of talers “*in the same way as all humanity has incurred debts on its gods.*” (Original emphasis) (Marx, 1975a, p.104) The notion there might exist some sort of quantitative parallel between the noumenal and phenomenal talers is absurd, yet, Marx believes, had Kant employed Hegel’s reversal-trick here, he might at least have been more consistent in ‘demonstrating’ the ontological proof – a proof which Marx has also dismissed. Marx wishes to demonstrate the fictional nature of the value not of possible or imagined money, but of real money, and in doing so, he draws a parallel between this fiction, deriving from a set of definable social relations characteristic of particular societies at particular times, and the fictions which are transcendent values, and gods. Both the ontological proof and the value of money are thus revealed as equivalent illusions. “Real talers have the same existence that the imagined gods have. Has a real taler any existence except in the imagination, if only in the general or rather common imagination of man?” (Ibid.) Hammering the point home, Marx illustrates the absurdity of the attribution of real value to the physical promissory note: such ‘value’ is the effect of specific, culturally and historically contingent *human relations*: “Bring paper money into a country where this use of paper is unknown, and everyone will laugh at your subjective imagination. Come with your gods into a country where other gods are worshipped, and you will be shown to suffer from fantasies and abstractions. And justly so.” (Ibid.)

thought, there is God". But what does that say, except that, for *whom the world appears without reason, hence who is without reason himself*, for him *God exists? Or lack of reason is the existence of God.*" (Original emphasis) (Ibid., p.105)

It would represent a rather over-enthusiastic application of hindsight to argue that this formulation foreshadows Marx's later development in the Preface to *A Contribution to the Critique of Political Economy* of a model of consciousness which arises out of social and economic conditions. Nevertheless, some similarity with Marx's mature vision might certainly be claimed to exist in his connection between the lands of unreason and the gods created therein. Just such a land is that inhabited by Kant and Hegel. Who should Marx call to his defence in offering such a claim? None but the young Schelling, the Schelling for whom "[t]he time has come to proclaim to the better part of humanity the freedom of minds, and not to tolerate any longer that they deplore the loss of their fetters." (Schelling, in Marx, 1975c, p.103) Schelling's partial defence of dogmatism is important for this study insofar as it brings to the Marxist tradition, as it did to Marx himself in 1841, a material basis for the prioritisation of the "not-I" over the "I", in Fichtean terms. That is, in Schelling's application of dogmatism, we have both the foundations of a form of monism derived from the "it" rather than the "I", and a method of working with reality which is broadly dialectical. It will now be necessary to begin to work through some of the detail of this position in the work of Schelling himself in order to assess the bearing of the legacy of this Romantic ontology on later Dietzgenite Marxism and on ecological cosmology.

Dogmatism and Activity

Dogmatism, as advocated in Ilyenkov's (1977) reading of Schelling clearly cannot be merely dogmatism in the ordinary everyday sense of an appeal to an unquestioned authority. Marti (1980) helpfully draws the distinction between on the one hand, the learning and teaching of doctrine, or dogma, that is didacticism, and on the other, insight derived from understanding *for oneself*. In everyday terms, the former involves dogmatic teaching, the latter, its opposite, critical learning. In the related Kantian sense of dogmatism employed by Schelling, the dogmatist believes it is right

to start with the thing, as a given thing, without critical enquiry into the provenance or logic of its authority. He begins with the presupposed 'it': this may, for instance, be mind, or matter. The 'it' can only ever be conditional – *if* this is real, then all else follows. In contrast, criticism, in Kant's sense, begins with 'I', and discovers that agency has the form of self-certainty, the unconditional guarantee that 'I' am 'I'. Kant's 1787 definition of dogmatism was as "the presumption that it is possible to make progress from concepts alone without having first investigated in what way and by what right reason has come into possession of these concepts" (Kant, in Marti, 1980, p. 153). A Kantian ontological prioritisation of the 'I' as the measure by which it is possible to ensure the legitimacy of reason's possession of concepts and knowledge of things is characteristic of forms of both dualism and idealism. However, such a method is irreconcilable with a thoroughgoing materialism. The 'it' and the 'I' of materialist monism, of ecosophy and of post-Einsteinian quantum physics are not and cannot be mutually exclusive. The question of the subsumption of the 'I' into the 'it' is, of course, also central in idealist ontology, in later Schelling, and in Hegel, but if developed critically, such a theme can only ever reproduce, at best, a dialectic of mind and matter. For Dietzgen, the aim is to establish a matter divided within itself, a unity of opposition within the material – dialectical *materialism*. Such a result cannot be obtained via the ontological, or epistemological prioritisation of 'I' as in critical method. For Schelling, Kant has not abolished dogmatism; rather, his Critique has made possible a justifiable choice between the two systems, dogmatism and criticism. It is Ilyenkov's (1977) contention that the Schelling of the 1790s sided with dogmatism and thus ultimately with materialism. Although, at this time, still highly influenced by his contemporary, Fichte, Schelling "sees a relative right of dogmatism which Fichte would deny, and he has a more positive view of nature." (Marti, 1980, p. 155) Indeed, Schelling's increasing naturalism would lead him to further irreconcilable differences with the subjective idealism of Fichte in the early 1800s. It will be necessary to consider some of the implications of the position of the early Schelling, as expressed in the *Philosophical Letters on Dogmatism and Criticism* quoted by Marx in 1841, and then to work through the relation of action in the world to the ontological prioritisation of 'it' or 'nature'.

We recall that Marx draws upon Schelling in support of his turn away from formal possibility and towards real conditions of possibility within the world. Yet in doing so, Marx also supports philosophy's turning against the world, that is, turning to criticism. (Baranovitch, 1978, p.232) How can this position be commensurable with a method of dogmatism in relation to ontology? The difficulty here is in trying to reconcile the point Marx is attempting to make with Ilyenkov's reading of Schelling as siding with 'dogmatism' in his Second & Tenth Letters in particular (those quoted by Marx), and also in attempting to relate this to Ilyenkov's further claim that Schelling turns to materialism, and the more general point that 'dogmatism' – as starting with the thing – is amenable both to the methodology employed in this study and to the adapted version of Dietzgen's ontology. We proceed, first by considering Schelling's 1795 text.

It is clear to see how the early philosophy of Schelling seeped into the consciousness of the young poet Marx discussed earlier, the tenor of the following passage almost defines the Romantic mode: "dogmatism, if consistent, is bent not upon contest but upon surrender, not upon enforced but upon voluntary annihilation, upon quiet abandonment of oneself to the absolute object." (Schelling, 1980, p.157) What is intriguing here is that in Schelling's early radicalism, we appear, at first sight, to find a prescription for inactivity, a relinquishment of the field of struggle. Here we have the deeply Romantic '[q]uiet abandonment to the immeasurable, to rest in the arms of the world" (ibid.) that so appealed to the student Marx before his conversion to Hegelianism in 1837. However, Schelling's vision is, in truth anything but passive. In "abandoning himself to the youthful world" the dogmatist quenches "his thirst for life and existence as such. To be, to be! Is the cry that resounds within him; he would rather fall into the arms of the world than into the arms of death." (Ibid.) In so falling in to the world, and becoming of the world, the dogmatist –the Romantic – identifies with the struggles of the organic world and endeavours, as Cornu (1957) suggested, to realise the goal of transformation in the world, going beyond egotistic individuality in

⁸² This impulse so closely parallels that of the Bogdanovite will to collectivism that it deserves a mention here: we will return in Chapter 6 to the way in which collectivist dogmatism represents a similar overcoming of individualism.

a prioritisation of action and of being over thinking, and the ‘I’⁸². Schelling insists that society awakens to this reality of dogmatism, that it is

irrefutable for him that is able to realize it practically, for him who can bear the thought of working at his own annihilation, in doing away with all free causality in himself, and of being the modification of an object in whose infinity he will find, sooner or later, his own (moral) extinction. (Schelling, 1980, p.194)

Here we understand dogmatism as the ontological priority of the object as unassailable actuality, after which the ‘I’ of critique follows.

Insofar as consciousness exists at all in this early Schelling, it does so as an abandonment of itself. “The farther the world is from me, the more I put between it and myself, the more my intuition of it becomes restricted and the less possible is that abandonment to the world, that mutual approach, that reciprocal yielding in contest”. (Ibid.) Again, ‘abandonment’ here should not be read as passive. This *becoming* the world can and does inform an organicist Marxism prefigured in the early pre-Marxist Marx and echoed in Dietzgenist monism which takes us beyond the crude characterisation of ‘cosmic socialist’ panpsychism as ‘world-consciousness’ (Untermann, 1906, p.243.) to a parallel with Marx’s 1848 understanding of the State. Just as the proletariat are to become the state and in so doing abolish both it and themselves, humanity in the Romantic vision of the young Schelling must become the world, and in so doing abandon the old dualisms which divide man and nature. There are close parallels here, too, with the ideal of the realization of a greater ‘Self’ in Naess’ writing⁸³. So, whilst we must admit that, for Schelling, in a sense, consciousness is all, it is only such insofar as preconscious or unconscious creativity is always already all, human consciousness merely reflecting this back upon itself.

⁸³ This theme is developed in Chapter 7.

In his second letter, Schelling states “I shall not appeal to the fascination which dogmatism exercises, at least insofar as it proceeds not from abstraction or dead principles but (if perfect) from an existence that beggars all our words.” (Schelling, 1980, p.161) However, he then goes on to traduce dogmatism into his argument to blow away the false objectivity of criticism. Reason is weak that does not allow one to admit of an absolute objectivity, but rather only an idea of the objective world. “A breath of dogmatism would overthrow ... [this] house of cards.” (Ibid.) In the passage which Marx quotes, and endorses, Schelling writes,

weak reason is not a reason which *cannot* know an objective God, but a reason which *desires* to know one. Just because you believed you could not act without an objective God and without an absolutely objective world, it was necessary to keep you in suspense and to evoke the weakness of your reason; it was necessary to console you with the promise that you would get back that toy of your reason later on. And this had to be done to you in the hope that meanwhile you would have learned to act by yourselves and that you would become men after all. But when will this hope be fulfilled? (Schelling, 1980, p.161)

In a sense here, Schelling’s broadside against the lie of an enlightenment rationality which relies upon the moral argument for God’s existence as a precondition for the legitimacy of critical judgement again pre-empts later Marxist attacks on speculative principles. Dietzgen’s own inductive material moral philosophy provides a good example of this approach⁸⁴. Kant’s assertion that the division between subject and object might be dissolved by God is the specific target of Schelling’s attack here. “For at all times you regarded the cognitive faculty as a wrap or garment which a higher hand could take off at its pleasure should it go out of fashion” (ibid., p.162). This results in the nourishing of superstition. Marx explicitly endorsed Schelling’s protest that humanity could not wait for God to lift the veil between weak reason and the objective world. “The time has come to make the freedom of minds known to the better kind of men and to stop man from deploring the loss of his fetters.” (Ibid., pp.

⁸⁴ Dietzgen’s ethics fall beyond the scope of this project, the most full and thorough consideration of this area of his work can be found in Loyd Easton’s 1958 study (see especially Easton, 1958, pp. 80-90)

162-3) For a set of reasons discussed elsewhere, Dietzgen, after Marx of course, held that the ‘better kind of men’ who alone might exercise this freedom of mind to throw off its ‘radical chains’ is the proletariat (Rée, 1984, pp.25-7). The key point here is that the will to action expressed by the insurgent working class, whilst it appears to be shot through with critical judgement, relies on an organic ontological privileging not of the critical ‘I’ but of the collective ‘it’, the class⁸⁵. It can only be in activity, movement in a sense prior to thought that the prolepsis of ‘blind dogmatism’ becomes the materially grounded dogmatism of the internally related dialectic of freedom and inheritance. Out of this, both truth and ‘I’ emerge. Schelling puts the point thus:

The theoretical assertions which we put forth absolutely will not coerce our freedom to decide this way or that (that would be blind dogmatism) but, as soon as we are in the contest, those very principles as set up in the beginning are no longer valid in and by themselves; now only is it to be decided, practically and by our freedom, whether they are valid or not ... We should not establish those principles unless our freedom had already decided about them; at the beginning of our knowledge they are nothing but proleptic assertions... *original insuperable prejudices*.
(Original emphasis)(Schelling, 1980, p.176)

Interestingly, such a passage lends itself quite easily to Ilyenkov’s interpretation (Ilyenkov, 1977, p.137) that activity is creative of truth, and can be bent to a Leninist assertion of the primacy of struggle, out of which the vanguard representation of universal interest must triumph; but it could also support a spontaneist or autonomist reading, closer to the left-communism of the Dutch Dietzgenites.

Schelling is concerned to unite subject and object, mind and matter not, as Ilyenkov puts it, “on the plane of logically consistent constructing of determinations but in the practical realisation of the system that presented itself to the human mind as most worthy of it... most in accord with its innate strivings.” (Ilyenvov, 1977, p.135) Such a system must be open ended whilst self-referential. It is a system that could never be completed, once and for all, but is always becoming in all its new and interrelated

⁸⁵ The significance of this point for ecosocialist (and ecosophical) strategy is developed further in Chapter 6.

differences, differentiations and peculiarities. On Ilyenkov's reading, the abstractive and critical capacity of humans must embrace "dogmatism as its own moment, because it confirmed the thesis that the whole edifice of man's spiritual culture must henceforth be built on a clear and categorically established foundation" (Ilyenkov, 1977, p.136)⁸⁶. If Ilyenkov is right that this early radical "Schelling stood for a new, critical, 'enlightened' dogmatism" (ibid.), this must take account of Schelling's Romantic advocacy of the freedom to be found in the abandonment of the individual self to *creative nature*, and should register the locus of dogmatic force 'out there' in the natural world⁸⁷.

It was noted that for Fichte, as for Dietzgen, there is no more than a distinction in unity between activity and the outcome of activity, the self and not-self; though, for Fichte, unlike Dietzgen, such a perspective derives from the ontological primacy of

⁸⁶ However, this foundation Ilyenkov understands to be that "sole subject of all possible predicates... the Ego." (Ibid.) The difficulty here is obvious: dogmatically positing the ego as the principle of creative novelty and freedom returns ontological privilege to the subjective 'I', and probably represents a reading of 1790's Schelling which underplays his growing separation from Fichteanism, even while he remained broadly within the Fichtean fold.

⁸⁷ Ilyenkov takes as a starting point for his development of the theme of dogmatism a passage drawn from Schelling's Tenth Letter, rendered thus in Marti's translation: "Dogmatism is irrefutable theoretically because, on its own account, it leaves the theoretical realm in order to complete its system practically. Hence it is practically confutable if one realises in oneself an absolutely opposite system." (Schelling, 1980, p.194) It is thereby refutable *in practice* for us to realise a system in ourselves absolutely opposed to dogmatism, *yet* such practice would rely on individual agency of a monadic kind, 'unhampered' by the internal relations of a set of social and economic conditions, not to say a nested set of ecological conditions which, on a monist materialist account, whilst seeming to rule out freedom, would, in fact, open out to the creative free play of a universal dialectic of novelty and inheritance, exploding the ego as the basis for dogma's force. Ego here is permitted as a material phenomenon, with no objective reality beyond itself, but allowing the absolute inherence of the object which prevents itself from attaining identity with itself. Ilyenkov's presentation of Schelling no doubt owes a great deal to the political needs and requirements of his society. A Leninist Schelling is, perhaps, a most unexpected beast. Nevertheless, Ilyenkov's analysis remains a credible attempt to situate Schelling within a lineage which connects late eighteenth century philosophy with Marx. In a passage which feels a little uncomfortable even within Ilyenkov's broader Marxist reading he hails a Schelling for whom activity was the "thing on which all mutually contradictory systems came together as on common soil. It was there, and not in the abstractions of pure reason, that the real battle raged that could and must be won. That was where the proof lay that one party, unswervingly following its principle, defended not only its own, egoistic private interest, but also an interest coinciding with the universal tendencies of the universe, i.e., with absolute and unconditional objectivity." (Ilyenkov, 1977, p.137) On one level, this is merely a restatement of classic the Marxist-Leninist position on the universal class and its realisation for itself in the form of the vanguard party. However, Ilyenkov, like Untermann in a quite different non-Leninist (Dietzgenist) paradigm, lifts the rhetoric beyond the solely concrete and lends an ontological (one dare not suggest metaphysical) import to the concept of the universal here. For, heretical though this might seem within the context of Ilyenkov's milieu, this is not merely a question of a class, or indeed even of a species – humanity – but of activity commensurate with the 'tendencies of the universe'. It is true that, for Schelling, human action cannot hang indefinitely on a balance between criticism and dogmatism. Humans have, in practice, to act and to live, and it will be necessary ultimately to adhere to a set of principles which can be tested against the tendencies of nature.

the ur-Ich. In Marx, too, the product is the ‘congealing’ of the activity which brings it about, and for Whitehead, comparable internal relations have been discussed in terms of ‘concrecence’⁸⁸. In each case activity is inseparable from its result. In the young Schelling, something of the same dialectic of being and becoming is evident. Schelling wishes to develop the notion of activity as the means by which the possibility of deciding between the competing systems of dogmatism and criticism might be realised in such a way as to accord with the innate strivings of humanity in creative nature. The open-ended principle of activity is itself dialectical and reflects the antinomy of the ‘simultaneity’ of fixed, finished ‘selfness’ – superject – and the ‘unconditional freedom’ of becoming – subject. Activity is the absolute unconditional that can never be completed by the creation of a system, yet its ‘atomic’ moment appears to be just such a satisfaction, under a given perspective. Schelling writes: “[e]ither of the opposed systems, dogmatism and criticism, is just as possible as the other, and both will coexist as long as finite beings do not all stand on the same level of freedom.” (Schelling, 1980, p.173) Exercising freedom in action is ultimately the only way in which the choice between the two competing systems of dogmatism and criticism can be overcome, the systems can ‘meet’ in activity. “[T]his problem cannot be solved theoretically, but only practically, that is, through freedom.” (Ibid.) The problem in question is not concerned with metaphysical ‘absolutes’ about which nothing can be argued, for in this realm only the laws of identity pertain. Furthermore, any claims regarding such absolutes *within human knowledge* must be groundless for no further ground can be offered for such propositions. The critical philosopher, proposes Schelling, is not troubled by absolutes, but by the world, by “the question of how the absolute could come out of itself and oppose to itself a world?” (Ibid., p.174) For the critical philosopher – starting with the ‘I’ of identity – the absolute within, and without, and thus the ‘all’ is the most intelligible thing. By contrast, that which is least intelligible is how we determine anything beyond ourselves, that is, how synthetic propositions are possible. Criticism cannot answer the question why there is a realm

⁸⁸ The dialectic of inheritance and novelty, rather as established in Whitehead also appears as a theme for Schelling as expressed in terms of the contradiction between dogma – i.e., fixed, established knowledge about the world – and new knowledge which formally contradicts it because it is not analytically included in the old. It must be united with the old despite contradicting it.

of experience without presupposing such a realm. Posing the question necessitates the critical philosopher transcending experience, and, in so leaving this realm, invalidates the question which rests on its presupposition. The question of the possibility of a universe turned in upon itself is answerable, says Schelling, only by abandoning it. As it can only be answered in such a way that it can never be asked, its dissolution becomes a question of practice, of activity in the world. This problem leads us beyond the question of knowledge into a region where there cannot be a ground for such knowledge, rather, where one must ‘produce’ the ground “in order to stand firmly upon it.” (Ibid., p.175) The *creative* principle is thus uppermost in the realisation of both the reality which is given, and the giving of reality to propositions. This is, in short, a close approximation of Dietzgen’s ‘two-way street’. The creative principle at work ‘out there’ in worldly activity is the means by which human creativity is enabled to forge abstractions out of the whole which both ‘reflect’ (in a non Leninist sense) and re-delineate reality. Whilst not strictly dogmatic in the Kantian sense, Schelling’s solution is certainly not ‘critical’ either, in that he assiduously denies the possibility of starting with the critical ‘I’. Ilyenkov’s reading is thus, perhaps, unsurprisingly, a little reductive, though correctly foregrounds the role of activity in forcing philosophy’s engagement in the world as part of the world.

In the early Schelling we see human agency both freed and abandoned to nature, this abandonment an act of supreme will. Just such a position is the one adopted by Marx in 1841, for whom “[p]hilosophy had either to end with the *mind* or enter the world as *will*, as a practical activity” (original emphasis) (Baranovitch, 1978, p.232). His recollection of the young Schelling’s rejection of formal possibility in favour of a possibility tested in action marks a decisive shift towards a dogmatic assertion of socio-historical reality as the start point for philosophical activity⁸⁹. The internal

⁸⁹ Features of dogmatism continued to run through the later Marx’s assertion of the ‘scientific’ nature of his analysis of emancipatory consciousness, and its ‘inevitability’ under particular structural conditions. (Sherover-Marcuse, 1986, p.123-135) This subject has been widely debated, usually, as in Sherover-Marcuse, in such a way that the dogmatic Marx is regarded critically as portending the reductive scientism of Marxism-Leninism and Stalinism. However, without consideration of an ontological underpinning for the dogmatic method, such a reading neglects its humanistic side in the radical Romanticism which informs it. This issue of competing critical and dogmatic readings is just as pertinent (though, far less analysed) in relation to Dietzgen, who has been variously read as both the first ‘scientific’ Marxist dialectical materialist and the first Western Marxist (Burns, 2002, p.223), and this question will be returned to later.

debate within the writing of the early Schelling, though ostensibly an unlikely aid in casting light on this matter, can, it is argued here, reveal something of the value of thinking through a dogmatic approach to activity, as much as ‘emancipatory consciousness’, as the measure of a post-Romantic dogmatic ontology of creative nature and of internal relations both in Marx and in Dietzgen’s monism. Let it be restated, though, that this exercise is immeasurably enriched by regarding the world, or material nature to which Schelling, Marx and Dietzgen turn, as in itself dynamic and creative. We see something of this in Schelling’s Tenth Letter on Dogmatism and Criticism, presaging his wholehearted turn to nature, his *naturphilosophie* of the following few years, and his discovery in the natural world of the basis for action. “We feel freer in our spirit if we now return from the state of speculation to the enjoyment and exploration of nature.” (Schelling, 1980, p.195) Nature is the source of wisdom, though Schelling seems to avoid the reality which Marx later made so clear, that this ‘external’ or dogmatically present ‘given’ also includes human ‘nature’ even if only insofar as human *enduring societies of actual entities* (Pomeroy, 2004, p.39) constitute inextricable natural systems. In a typically enthusiastic passage, Schelling concludes:

Henceforth, the wise man will never have recourse to mysteries wherein to hide principles which are universally communicable. But nature herself has set bounds to this communicability. For the worthy she has reserved a philosophy that becomes esoteric by itself because it cannot be learned, recited like a litany, feigned nor contained in dead words which secret enemies or spies might pick up. This philosophy is a symbol for the unity of free spirits, a symbol by which they all recognize each other, and one that they need not hide, since for them alone it is intelligible, whereas for others it will be an eternal riddle. (Schelling, 1980,p.196)

For Schelling, this philosophy contained *in* nature, this natural science, this presumption of the real is the freedom of human creativity as the echo of the one Creation.

Schelling’s Monism

Kantian dualism was deeply problematic for Schelling and for him, as for Hegel and others, the recovery of self-knowledge depended upon the possibility of access to the single unconditional absolute. In search of this knowledge Schelling's *naturphilosophie* was pathbreaking. Having detected in Fichte the danger of one sided subjectivism in claims to the constructive role of humans in creating experience, Schelling shifted from the 'man-centred' philosophy of Kant and Fichte to a 'spirit-centred' philosophy in which both nature and man are participants in a universal spiritual activity – the self-realisation of god. Schelling's route to this position took him through various iterations of both monist and materialist ontology. The 'world-positing' activity of absolute subjectivity was expressed in Schelling's important identity thesis, "Nature should be Mind made visible, Mind the invisible Nature." (Schelling, 1988, p.42). Nevertheless, his shift to spirit remained anthropocentric in that it rested on the identity of divine and human subjectivity established through *intuition* rather than through the unfolding of human history, as in Hegel. The nature of this intuition is a problem to which it will be necessary to turn as part of an examination of Schellingian monism.

As an ontological starting point Schelling's *naturphilosophie* is not in itself adequate to the needs of wholly monist ecosophy. However, the purpose of examining Schelling's monism (or indeed Whitehead's or Dietzgen's) is to question whether this work might get us any further forward in understanding how a unified substantial universe might be turned in on itself, recognise or register itself as an effect of material movement – thought – within and through *all* of itself. In this regard, Schelling like Whitehead offers us some useful insights. The extent to which Schelling's early *naturphilosophie* itself might be regarded as a species of materialist monism depends both upon one's selection of passages and the period given attention. If one looks at the turn of the eighteenth century, with the emergence of Schelling's Philosophy of Identity, and the early development of his interest in natural science which would later flourish into the full bloomed Philosophy of Nature, there is certainly scope for identifying both a materialism and a monism which are of interest to Dietzgenist Marxism, and presage elements of Dietzgen's materialist dialectics. It is to this period in Schelling's development, rather than to the very earliest writings

preferred by Marx, that Ilyenkov for instance looks in that rather teleological way characteristic of Soviet philosophy and historiography which retrospectively traces a line of ‘progress’ from the eighteenth century towards the realisation of Marxism-Leninism⁹⁰.

On Ilyenkov’s reading, for Schelling,

[t]he difficulty lay exclusively in representing in a logically systematic way the fact (directly apparent (intuitive) to every thinking being) that the world is one, and that thought striving for its own systematic presentation, was also one in itself. But the rules of logic and laws of the activity of the intellect were such that the single world, refracted through them, was split into two in the eyes of reason. And each of the halves so formed claimed the role of the sole true, absolute and unconditional, logically systematic representation of the whole world. (Ilyenkov, 1977, p.134)

What needs analysis here is the relation of the ‘intuitive’ obviousness of oneness to the monist materialist educational project and to Dietzgen’s position. For Schelling, original cognition of absolute identity *is* (Schelling, 2001, §17), but, not to put too fine a point on it, this tells us little about the actual particularity or universality of the experience of this cognition. The cognition is of identity as such, however, since this identity absolutely precludes an ‘outside’, “this cognition is within absolute identity itself.” (Ibid.) This cognition is not of the essence of identity – *it is not inevitable or necessary* – but of the *form* of its being. The question arises whether the cognition of absolute identity precedes or follows from the cognition of difference, and the means by which such a transformation in cognitive process might be effected given that it is not inevitable. Dietzgen, as we have seen, is also unclear on this; abstractions are operations on a presupposed identity, yet the thrust of his philosophy was to convince the reader of the reality of the one, the universe, the all, and, as such to enable such cognition. On one reading, then, this ‘original consciousness’ paradoxically both precedes and follows from cognition of difference. Here is opened up the possibility

⁹⁰ And as has been noted, Soviet writers were far from unique in this – Unterman, for example providing a similarly linear evolutionist model which advances the line from Marx, not to Lenin but to Dietzgen.

of different levels of cognition of oneness, the question of whether ‘original consciousness’ constitutes a theory of the unconscious or of the intuitive, a genetic epistemology. We will return to this⁹¹. For Schelling, the cognition of absolute identity is the uniquely *unconditioned* cognition which alone expresses the essence of reason (ibid., §7). Indeed, absolute identity *is* by virtue of being thought (which, as he will demonstrate, is not to claim that it is not material), and it belongs to the essence of absolute identity to *be*, hence the cognition of identity is its ontological ground, and in this moment, cognition and identity are one. Schelling proceeds to assert that “[e]ach thing that is, considered absolutely and in itself, is in essence absolute identity, but in its form of being, it is a cognizing of absolute identity.” (Ibid. §18) So, cognition of any thing insofar as it is considered in itself is cognition of identity (A=A). Furthermore, Schelling (2001, §26) argues that absolute identity is identical with absolute totality because it is everything which is, for itself and cannot be conceived apart from the absolute totality of all things, and he designates absolute totality as “the universe”; there is no individual thing or being in itself as distinct from totality which is absolute identity itself (ibid. §28). Thus, perhaps to pose the question of which comes first, the particular or the ‘universal’ cognition, is to forcibly abstract as an effect of the operation of the ‘rules’ which govern our logic, but nevertheless to ask the wrong question. Cognition of absolute identity/totality belongs to the form of being of absolute identity; this form is inseparable from its being, and since everything that is, is of the form of being of absolute identity, cognition of any thing is, with respect to the cognition of the form of its being a cognition of absolute identity. Yet, this description does not and cannot operate at the level of everyday conscious experience, wherein substance organises itself in thought as if ‘things’ were discrete elements – this is Dietzgen’s point about the pragmatics of abstraction and the ‘two-way’ relation of ‘mental’ and material abstractions. So, what of the relative status of these differentiated ‘things’? Schelling’s formulation of the ontological status of differentiated entities is relational, but not in a monadic sense, because “nothing individual has the ground of its existence in itself” (ibid., §35); rather, the *internality* of this relational nature springs from the determination of individual beings

⁹¹ See Chapter 7.

through all other such beings. Nevertheless, there is the danger of something like a parallelism between oneness and plenitude here. If the individual being is neither “determined through itself, since it does not subsist in itself and does not contain the ground of its being”, nor yet is it determined “through absolute identity, since this contains only the ground of totality”, the individual as “determined only through another individual being, which again is determined through another, and so on without end” (ibid.) seems always only to be expanding in an asymptotic relation to the plenum rather than partaking wholly in the oneness of absolute identity.

Even if Ilyenkov is correct that for Schelling the evident oneness of the world is apparent at some level to all thinking beings, one must operate with the political and ecological reality that, for the most part, humans act and think (the two need not be separated except to make a specific point about rationalisation) as if the universe were bifurcated, and further, as if the internal relations of one abstracted part to another were nothing other than the impactions of fundamentally separate entities. If, for Schelling an account of the “rules of logic and laws of the activity of the intellect” are sufficient to explain this human failing, then the matter turns to the possibility of the campaign to overturn such rules and laws as historically contingent phenomena, not ‘reflective’ of the stage of development of human consciousness and human connectedness within broader ecologies of being. Such a utopian project is surely that taken up by the ‘cosmic socialists’.

Whilst Wessel is sure that “[i]n their pursuit of the infinite poetry of life Romantics developed a philosophical monism, All is One and One is All” (Wessell, 1979, p.28), his description of the methodology of the Romantics, makes it clear that this is very different from that of Dietzgen. For the Marxist, one at first assumes a universal substance, and then operates on that substance to abstract unities at various levels. Rather, for the Romantics, a stone, for instance “is only in this world system a stone

and different from plants and animals” (Novalis, in Wessell, 1979, p.29)⁹². In a ‘poetic’ world, stone and not-stone merge; it is the appearance of their disunity which deceives the workaday observer. Whilst for Dietzgen some form of retrieval of oneness into consciousness precedes abstraction, for the Romantics, abstracted singularities give way to universal oneness under conditions of artistic revelation. In neither case are we yet clear on the role of the unconscious in this becoming aware of oneness and of one’s absolute identity with the universe, this great act of learning. Nor yet can we claim to have offered an account of the utopian ecosophical pedagogical project aimed at realising it.

To turn, first, to the question of the unconscious, we are aware of the retrogressive nature of Schelling’s quest – his search for origins as a source of return and redemption. This feature of Schelling’s thought has often been criticised by Marxists as anti-progressive, but actually reveals a possibly useful way of thinking about the role of unconscious activity in the emergence of conscious matter for itself. When Ilyenkov writes, “[Schelling’s] turn to natural science was an attempt to investigate the sphere of *unconscious activity* in more detail” (original; emphasis) (Ilyenkov, 1977, p.148), he has in mind material processes, biochemical and physical; yet the form of the unconscious *knowledge* of the One has a bearing here too. Indeed, he quite rightly goes on to qualify his statement, noting that the unconscious is

– the mode of vital activity man had followed before and irrespective of his conversion of himself into a special object of investigation.

Unconscious activity was nothing more than life, the mode of existence of

⁹² We are reminded of Dietzgen’s well known analogy of the ‘leathern lady’. Dietzgen chooses this rather eccentric illustration of his defense of monism to his son Eugene as it agreeably accords with his world of labour in the tanning workshop. In fact, his leather universe works rather like his and Mathews hydrodynamic analogy to show that the single united cosmos is but one indivisible substance – matter in its expanded sense – which is as much leather as it is water as it is gravity. His point is that language, reason and everyday classification breaks down and becomes meaningless in the face of this absolute. All is ‘reasonable’, and it is entirely reasonable to understand ladies or coach-drivers or hills as, at some level, identical with leather. “Of course, the idea of a leathern lady is only a youthful prank... It shows indirectly that according to common sense thought, reason has its home only in the brain of man, and that this reason is nevertheless unsound when it does not know and remember that the individual human brain is connected with all brains, and reasons with the whole world, so that all existence and the entire universe is reasonable in the highest meaning of the word. In order to be able to use your reason in all research and on all objects in a reasonable manner, you must know that the whole world has one nature, even leather and your sister.” (Dietzgen, 1906a, pp. 303-4)

organic nature. The life of the organism was mechanical chemical and electrical. (Ibid.)

The lived activity of oneness with the universe constitutes the unconscious awareness of the whole, both before and within the educational process of becoming cognisant of this ‘original’ state. There is a terminological difficulty here arising from the conception of a bifurcated universe. Ilyenkov’s ‘unconscious activity’ here is, in truth, ontologically prior both to the abstractions of consciousness and unconsciousness, consisting in what Žižek, in characteristically Lacanian terms describes thus:

According to Schelling... Prior to the Word there is the chaotic psychotic universe of blind drives, their rotary motion, their undifferentiated pulsating; and the Beginning occurs when the Word is pronounced which ‘represses’, rejects into the eternal Past, this self-enclosed circuit of drives. (Žižek, 1996b, p.13)

Ilyenkov suggests that the young Schelling asserted that the two sides of the ego described by Kant & Fichte – the unconscious and the consciously free – had to be understood as branches from a common trunk, it being necessary to discover the trunk in order to reconcile those two halves which had fallen into “dispute, discussion and antimony.”⁹³ (Ilyenkov, 1977, p.146)

Another possible way in to looking at the question of the cognition of the absolute might be to suggest both that it is possible freely to recognise this Oneness (or not to), *and* that one has always already *chosen* whether to do so. Here, the distinction should clearly be made between freedom and consciousness. Far from consciousness representing freedom in rationality, consciousness marks the collapse into a becoming which whilst formally free cannot be freedom as such. Žižek (1996b, p.16) asserts that, for Schelling, the fundamental act of choice was the one freely taken in the unconscious action of coming to be, with all other conscious ‘choices’ a mere echo of

⁹³ As Žižek reads the somewhat later Schelling of the *Weltalter*, even the association between consciousness and freedom is a positional misapprehension of a set of more fundamental relations. The original state, prior to the emergence of ego is, for the Schelling of the *Weltalter*, the state of true freedom. This is an assertion on Schelling’s part which we might characterise using our earlier definition, as ‘dogmatic’. This is freedom as fact, “a fact which can in no way be accounted for” (Žižek, 1996b, p.16), this absolute freedom is the presupposed condition for everything, anything, and is thus “bound by nothing... in a sense, *is* nothing.” (Ibid.)

what was already unconsciously determined. In the temporal process of becoming, man becomes what he always already was. Schelling thereby inverts the ‘evolutionary’ subordination of being to becoming whereby the truth of being is to be located in its origins. As far as finite beings are concerned there is good reason to prioritise becoming: one can render visible a finite identity by laying open the network of conditions which allowed it to become. This is the everyday sense of causality. However, from the perspective of eternity, humans as free beings can only be understood by reference to their eternal being, to the transtemporal choice to be, the once-for-ever act of unconsciousness into consciousness. As in Whitehead, absolute being trumps becoming, for objects ‘satisfied’ in their abstracted particularity as ‘superjects’, are not merely outcomes but also the subjects operative in their production – and again we repeat the analogy, a “two way street” which is, in dialectical fashion, both free and determinative. For Schelling, in the experience of freedom, then, we re-join the Absolute. In contrast with other parts of the universe, humans have the capacity to live possibility as such, a possibility which does not collapse into actuality; the actualisation of a possibility betrays its ontological significance. A free being can never be reduced to what it is; the essence of its being is what it is not, the undecidable opening of what it could be.

Does this take us any closer to the question of how humans come to know the infinite, the one material universe from which they emerge? It follows from Schelling’s narrative that such learning is not *consciously* possible, though it may be possible consciously to bring to mind that which is always already known. The condition of such knowing is its absence in the absolute lack which lies at the heart of freedom. Possibility as such, once enacted unconsciously in the choice to be, trails its anti-presence through human conscious experience. Matter *qua* matter is contiguous and invariable: we recall here Whitehead’s atemporal account of novelty and inheritance, which, viewed as a totality implies changelessness, a resolute and shudderingly awful stasis, the interminable revolution of Žižek’s rotary vortex. Yet *possibility as such* breaks this cycle. Possibility as such is at once material in its collapse, and, as the possibility of possibility, it is neither material, nor immaterial. The radically

transformative potential of human freedom⁹⁴, freedom to create the universe in abstractions through mental-material action, in itself is the truth of possibility as such, as the trailing of the oneness of undifferentiated ego and non-ego.

Materialism in Schelling's monism

An understanding of the role and significance of matter, as Schelling presents it, is crucial in justifying the relevance of his early philosophy to the legacy of monist materialism for ecosocialist intellectual reconstruction. Indeed, if Schelling cannot be read in, at least primarily materialist terms, his youthful politics and the methodological manoeuvres examined earlier might yet prove unworthy of the admiration they garnered from the student Marx. A necessarily brief turn to the young Schelling's materialism is thus required here.

In most versions of the philosophical distinction between subject and object, materiality resides in the object by virtue of its opacity and inertness, as opposed to the transparency, the 'obviousness' of thought. However, on Schelling's account, it is, in a sense the subject which is 'more material' than the object. The *material subject* is fundamentally *more* impenetrable because she is free. This is because it is impossible to know the *who* she is, the "what she wants" (Žižek, 1996b, p.71) of a free being; making one's encounters with freedom the experience of greater density, greater opacity, and paradoxically, greater 'inertness'. Freya Mathews echoes Žižek's point in relation to Schelling. Mathews 'imagines' objects as imbued with "an interiority analogous to ours, where our interiority is a subjective form of self-presence that can never be externalized, never exposed to the outside no matter to what degree we are physically dissected." (Mathews, 2003, p.25. See next chapter) Importantly, such interiority cannot be distributed among objects, each concealing its own unique interior. Rather all objects partake "in an interiority in matter per se." (Mathews, 2003, p.26)

In the identity philosophy of 1801, Schelling makes plain his assertion that "the first relative totality is matter." (Schelling, 2001, §51) As Ilyenkov suggests, Schelling is drawn ineluctably to the positing of matter. He has discussed at length the extent to

⁹⁴ The operation of freedom at different levels is taken up as a theme in Chapter 7.

which $A=B$, subject=predicate, can be taken to signify a being, concluding that this is only true insofar as A and B are posited as subsisting, that is, as equally real. In Schelling's formulation, A and B are taken as relative totality. Identity is only through totality. If A and B, though, are taken as in some sense separate from one another, as relatively double dimensionally – as length and breadth – this is only possible given the identity of the line C representing an 'indifference point' which can be suspended to allow AC and CB to be posited as different lines; yet since AC and CB are each, for themselves, the whole, each presuppose relative totality; if they are, it is only through totality that they can be. In fact, within totality, relative doubles do not actually exist, though they are contained in potentiality. $A=B$ is posited under two abstractions which are contradictory: it is impossible simultaneously to be AC and CB, just as it is impossible to be at once wave and particle.

The two dimensions must therefore mutually resolve themselves in a third (which here is revealed to be the condition under which A and B can be posited in relative totality). The third dimension must be of the sort that through it length and breadth are completely suspended, but nonetheless A and B come to relative difference, since otherwise the infinite would be produced... So the third dimension must be produced in a way that A and B remain in quantitative difference. But exactly this situation occurs *only in matter* since it represents the third dimension under the form of individual being. (Emphasis added) (Ibid.)

Schelling is thereby led to conclude that "*matter is relative totality as such.*" (original emphasis) (ibid., §51) Matter, then, is 'primordial', in that it is the first presupposed existent. To the extent that reality is, it subsists as totality and nothing else is, and, given that A and B are to be identified not ideally, but really, the demands of such identity are met only in matter. Furthermore, Schelling (ibid., §52) extends his grounding of identity with the assertion that, since the immanent cause of reality is designated a power (or force), the essence of absolute identity insofar as it is the ground of reality is designated a force. The essence of the first existence (materiality)

of A and B is therefore force⁹⁵. Since absolute identity is each A and B as their essence, both of them appear as forces. As the immediate ground of material existence, it is gravitational force which is posited as the power by which it is realised. Schelling's dense and complicated sequence culminates in the identity of force and matter, matter as the 'first existent', gravitation its imminent cause. Remembering that the Einsteinian project was to reduce to spacetime curvature that which is understood as matter at the perceptible level and those phenomena which we ordinarily describe as forces, in post-Einsteinian terms, then, this is a universe in itself and for itself if it is allowed material registration of its own materiality. However, as we saw in Chapter 1, such a possibility may be disallowed in favour of the great cosmic conjuring trick – the illusion of a universe which has not yet registered its own presence.

For radical monist materialism, the significance of Schelling's epically poetic cosmogony lies less in what it tells us about the 'uniqueness' of humanity, and more in what it reminds us about the possibility of a material universe which is itself rent by the lack which lies at its heart. The collapse of possibility into actuality is precisely the point of material self-'registration', the satisfaction of wave or particle form under the unique perspective afforded by its context. That is to say that the 'world consciousness' of which the Dietzgenities speak is and can only be a total rather than an individual act of relearning or recognition, yet one which at the level of human volition is localised around the moments of 'self'-emergence which characterise the progressive insight of the world of itself *for* itself. Microcosmic enactments of such events may be abstracted at subatomic levels in the flickering recognition of matter for itself, and at the macroontological level (though still microcosmic, *sub specie aeternitatis*), in human solidarity. This latter, of course, has been coded in forms of religious and nationalistic communitarianism, yet, cosmic socialism proclaims, only truly expressed in the coming into conscious being of the universal class for itself. From Schellingian onto-poetics to materialist dialectical monism may seem an unlikely journey, but it is a (little told) narrative of the

⁹⁵ That is to say, the immanence of matter in existence relies not upon a god, but upon the logical necessity of matter itself. Schelling, like Kant denied an external supernatural power guiding the processes of organic nature. There is no 'intelligent design'.

nineteenth-century (in an expanded sense, 1790s – 1900s) precisely because of the material transformation in the conditions which birth consciousness that were effected with the emergence of the proletarian *possibility* during this era. Rather than dismissing Schelling as a wholly backward-looking figure, we therefore follow Žižek (1996b) in locating within some of Schelling's thought, much which presages later revolutionary progress.

It is true that what grew out of Schelling's early philosophy of identity was a quest for origins, for the source of phenomena occurring in the world, and in this sense Schelling was retrogressive. For Schelling, the act of deconstructing an organism could never reveal it. True comprehension does not derive from the separate study of mechanics, chemistry, physics and optics, because organic systems – human and ecological – do not come about as a result of the piecing together of already complete components. If, as Schelling thought, the universe is just such a system, then the emerging sciences were profoundly mistaken in their crude mechanical materialism. The ontogenesis of the organism proceeds from the undifferentiated whole to the interrelated parts, each functioning in relation to the whole. But this cosmogonic vision need not be regarded as reactionary. If one regards relations of part to whole as simultaneous rather than (solely) successive, in the manner of Joseph Dietzgen or of quantum physics, Schelling's narrative can be read precisely as a dialectical corrective to mechanical materialism. It is a vision which, read socialistically, presents a hope for a reintegrated humanity; and it is also a profoundly ecosophical vision demanding that nature cannot be understood except as expressive of a primordial whole. Echoing the concerns of Spinoza, Schelling resolves "as soon as our investigation ascends to the idea of Nature as an entity the opposition between mechanism and organism disappears immediately, an opposition that has long hampered the progress of natural science." (Schelling in Ilyenkov, 1977, p.152) Indeed, such a distinction has also subsequently hampered much Marxist 'science', which has too often failed to take the task of intellectual reconstruction to the level of universal materiality, and to understand the mechanisms of capital and organic functioning of nature as inseparable. Hence, the retrieval and reconstruction of the ecosocialist impulse is vital.

Chapter 5: Panpsychism, Ecology & Quantum Physics

Introduction

The aim of this chapter is to explore the relevance and role of the idea of panpsychism to the philosophy laid out to this point. The main exponent of a revitalised panpsychist current in ecological thinking, and our central reference point and guide in this chapter is Freya Mathews, whose cosmological writing in *Deep Ecology* has proved so instructive hitherto in relation to the materialist monist tradition⁹⁶. For Mathews (2003, p.1), it is a love of the world which had the potential to sustain and unite us in the face of “economic invasion”. In this context, the ontological is political. To make a claim to panpsychism is not merely a matter of esoteric speculation, but a charge against the political values of abstract idealism, mechanical materialism and indeed post-Leninist dialectical materialism. After Mathews, panpsychism will here be regarded expansively as encompassing a wide field of philosophical positions; she writes,

“[t]o characterize a metaphysic in which mentality in some sense is restored to materiality, I resort, in these pages, to the old but little-used term *panpsychism*. This term is often associated with the view that every material object is also a subject, a centre of subjectivity. But I do not restrict the term in this way. I characterize any view that reunites mentality with materiality, and thereby dismantles the foundational dualism of Western thought, as panpsychist, inasmuch as it attributes a psychical dimension to all physicality.” (Mathews, 2003, p.4)

⁹⁶ As we know, *Deep Ecology* has found little favour among leftists (for many good reasons), but among its less likely sympathisers, Slavoj Žižek has identified ecological thinking as “the only serious contender against postmodern relativism: it offers nature itself, the fragile balance of the Earth’s ecosystem, as the point of reference providing the proper Measure, the unsurpassable Limit, for our acts” (Žižek, 1996b, pp. 67-8).

On this definition, the greater part of the writing of Joseph Dietzgen – at his most consistent and monist – and, certainly, the shortlived ‘cosmic socialist’ movement were ‘panpsychist’. To this subject we shall return later in the chapter. Whilst Mathews indicates that she has no intention of dwelling on those philosophers who anticipated or espoused panpsychism; in a note she identifies some of those whom she feels best exemplify this trend. Perhaps, unsurprisingly, the list contains no mention of Marxist or socialist thinkers of the Dietzgenite tradition, instead including ecosophers such as Arne Naess and Baird Callicott alongside Leibniz and Spinoza, “several of the Romantics, particularly Schelling; the more recent school of process philosophy, including Whitehead” (Mathews, 2003, p.185) and contemporary ecotheologians, systems thinkers, and physicists. Some reference will be made here to the last of this list, as helpfully illustrating continuities across traditions which bring out some of the difficulties evident in panpsychist approaches, difficulties which need addressing in any serious attempt to rehabilitate forgotten theory connecting red and green philosophising. A point worth making here is that differences in terminology between schools of thought cloud common patterns of theory. For example, whilst the term panpsychism does not occur within Marxist monism, the related set of terms around internal relations do⁹⁷.

As we will see, Mathews argues that “space and time and the existence of a universe at all can only be explained if subjectivity is taken as fundamental to the nature of reality.” (Mathews, 2003, p.7) She identifies exactly the underlying problem with materialist and idealist philosophies (traditionally conceived) as Dietzgen had done a century and a quarter earlier. Dualistic theories may be contrasted with materialist theory, but “materialism and idealism are in fact just flip sides of dualism itself, since materiality is dualistically conceived from the perspective of materialism and ideality is dualistically conceived from the perspective of idealism.” (Ibid., pp.26-7) This is precisely the trap that much Marxism falls into too, in its attempt to ‘do dialectics’, it retains a ‘dialectical’ – ie., dualistic – ontology, thereby undermining the consistency

⁹⁷ Few, perhaps none bar Bertell Ollman (1976, p.286), have noticed the continuity between Dietzgen and some on this list of the more ‘obvious’ predecessors, forefathers and proponents of shades of ‘green’ philosophising, including Mathews’ later panpsychism. How strange given the growth of interest in ecosocialism that such a connection should have gone unremarked upon.

of its materialism. Let it be restated, post-Leninist dialectical materialism is not actually materialist. The only materialism consistently worthy of the name in the dialectical tradition is the monist materialism of Joseph Dietzgen. As Mathews states, “[t]he true converse of mind-matter dualism is neither [mechanical] materialism nor idealism but a position that posits some form of nonduality or mind-matter unity, implicating mentality in the definition of matter and materiality in the definition of mind. Yet there is not even a well-established name, in the history of philosophy, for such a view.”⁹⁸(Mathews, 2003, p.27)

It will be argued in this chapter that this useful term panpsychism employed by Mathews operates as an effective device for the moment of intellectual reconstruction⁹⁹ of philosophy for ecological renewal, but falls short of encapsulating the differently focussed political project which flows from materialist monism; that is ‘world consciousness’ and ‘cosmic socialism’. As has been argued from the outset, this project, first tentatively and clumsily outlined by Joseph Dietzgen philosophically underpins both an ecological and a communistic transformation of natural (encompassing human political) relations. Panpsychism can be understood as a vitally important facet of this radical Spinozist-Marxist-ecosocialist onto-political recovery¹⁰⁰. Because, in the twenty first century, the struggle for a sustainable cosmology is fought in the path of an oncoming ecosystemic meltdown, the task of orientating ourselves to our world in a way which is not driven by atomism, individualism and acquisitiveness becomes more pressing than ever; and the once arcane ontological questions of the relation of value and of subjectivity to ‘the objective’ – nature – take on a special significance. For Mathews,

[m]aterialism and idealism are equally retrograde from an environmental point of view: the materialist regards the world as an inert lump of putty

⁹⁸ Dietzgen, of course, calls it variously (and in different writings) ‘monist materialism’, ‘socialist’ or ‘social democratic materialism’, and even ‘dialectical materialism’. Had Engels, writing at the same time, not used this term somewhat differently (and dualistically) and had history (and Lenin) taken a different turn, then perhaps Freya Mathews might have her “well-established name”. Instead, she has recourse to ‘panpsychism’.

⁹⁹ In Ollman’s sense, the type of activity green socialists and Marxists might engage in to synthesize the findings of recent theorising into a meaningful exposition (Ollman, 2003b, p.178)

¹⁰⁰ A project greatly enriched, as we have seen by the contributions of, among others, Schelling, Dietzgen, Whitehead, Ollman and quantum physics.

for his own designs; for the idealist it is an inconsequential mirage of appearances, knowable and hence for practical purposes nonexistent in its own right. (Mathews, 2003, p.27)

We proceed in cogniscence of possible implications of retaining the crude and exploitative dualist relations which have marked the period of the rise and rise of ecodestructive capitalism.

Panpsychism and Romanticism

The politics of panpsychism are complicated by their relationship with the Romantic tradition already alluded to. It is worth a few words at this point to draw out something of the complexities of this relationship, particularly as they pertain to Schelling. Mathews writes:

panpsychism, as it has been adumbrated here, may be located within the Romantic tradition of nature philosophy. However, the Romantic view of nature was, in its emphasis on humanity as the telos of the World Soul, still perhaps partly in the grip of the anthropocentrism that has been so definitive a hallmark of the modern era. (Ibid., p.172)

However, Mathews perhaps underestimates the radicalism of the early Schelling in this respect. His locus may have been more human than pan-speciesist, but his dogmatism dispelled the privileged status ‘subject’ which Mathews seems to believe lingers in Romantic panpsychism. If, as Mathews claims, for Romantics, “the meaning of the world exists only in potential until it is brought to consciousness in human knowledge,” (Ibid.) only relatively minor rethinking must be applied before we reach a position shared by both quantum physicists and Dietzgenites, that sees undifferentiated material Unity abstracted at different levels, but only becoming superject for itself – that is, realised potential – in the consciousness of the universe of itself in those localised centres of complex dialectical movement which we have identified hitherto only in human subjectivities. In one of Mathews’ few forays into politics she seeks to distinguish her ecological panpsychism from what she takes to be

the politically reactionary legacy of Romanticism¹⁰¹. For Mathews, “[t]he reasons for such a legacy are complex, but... is largely attributable to the fact that Romanticism was literally a reaction to Enlightenment thought.” (Ibid., p.173) Mathews’ charge is that in political terms, Enlightenment and Romantic thinkers were essentially locked in a battle of reversal, each privileging alternate sides of a dualistic epistemology. Each side was reactive rather than dialectical. This, as we have seen in Schelling, is at best a simplification. Whilst it may be true that enlightenment values of rationality were reversed in the later Philosophy of Revelation, the young Schelling’s dogmatism, and his somewhat later historical dialectics opened lines of thinking both for Hegel and Marx. This is not to detract from Mathews’ argument regarding the dangers of a rightist reading of the later Schelling.¹⁰²

A possibly more enduring critique of the political legacy of the earlier Schelling’s reliance on the intuitive and affective as sources of guidance beyond the rational, perhaps more specifically beyond the critical, is that they offer no defence against reactionary ideology. “Appealing exclusively to the heart for understanding, particularly in matters of morality, politics and religion, is treacherous as those on the political left have always known, because the heart is likely to cherish beliefs and prejudice, such as racism, xenophobia and sexism, implanted in people’s minds in early life.” (Mathews, 2003, p.174) Whilst this critique holds for major figures in the Romantic tradition associated with panpsychism, the challenge for this chapter, as for Freya Mathews, is for contemporary panpsychism to be disentangled from Romanticism’s political legacy in order that it can “find its own wider social and political correlates in the context of the entirely new global situation of the early twenty first century.” (Mathews, 2003, p.174)

Mathews’ Panpsychism

In chapter 1, the arguments over the unbridgeable gap between perceived and perceiver within dualistic ontologies were rehearsed. These will not be revisited in any depth here. Freya Mathews’ stand on these questions is best expressed in the title

¹⁰¹ This has been discussed elsewhere in relation to Schelling, and was certainly a view regarding his later writings shared by Engels, Marx and Dietzgen.

¹⁰² The Schelling who earned Engels’ ire in 1843 (Engels, 1975).

of a chapter in *For Love of Matter*, as an *argument from realism* (Mathews, 2003, p. 25) and summarised with an objection to dualistic conclusions of the kind discussed in relation to Lenin's 'reflection theory':

“When the world is understood in terms of pure externality, then its reality cannot be grasped either conceptually or epistemologically. In other words, when dualistic premises are assumed, the reality of the world can neither be conceived nor known: only by adopting a nondualistic perspective can we provide a conceptual and epistemological account of the reality of things.” (Mathews, 2003, p.29)

Mathews' starting point is experiential, phenomenologically grounded in the “palpable sense of the world from within, a sense that everything that exists in the realm of extension... partakes of some kind of presence to itself that is intrinsic to matter per se.” (Mathews, 2003, p.31) A possible objection to this premise is that such experiences are particular to some individuals, are often interpreted in distinctive, possibly religious ways, and might, anyway, be understood as mere projections into the inanimate of a uniquely human subjective sense of self¹⁰³. But let us proceed for the time being on this basis.

There may be a distinction to be made between subjectivity and consciousness. Whether this is a legitimate or merely a semantic distinction is a difficult question. For Mathews, subjectivity may be regarded as subtending thoughts, feelings and sensations.

In this case, subjectivity would constitute that deeper level of self-presence out of which thoughts and feelings arise. It is arguable, contra

¹⁰³ The starting point for this study is no easier to justify but relies on somewhat different premises. These pertain to the necessity of a monistic (possibly though not necessarily panpsychist) ontology for the exercise of dialectical analysis, or true understanding of the abstractions, from singular objects through to complex systems and circuits of capital, which we use to make sense of our everyday lives. It might be just as legitimate a starting place to consider the sense of shared subjectivity experienced in the forms of human solidarity we call class consciousness, though as the Dietzgenites recognised, such class consciousness is a necessary but not sufficient step to world consciousness which requires as part of the form of its being, action for global ecological justice as well as human emancipation. Does not class consciousness also call up a sense of the collective presence to itself? Though the experience of this being for itself is so often elusive, its historical arising, its intense presence in moments of collective action, industrial labour or urban habitation, are perhaps no less real or powerful than that expansion of subjectivity into the natural material world encountered in spiritual or naturalistic mystical experience of the type which provides Mathews with her starting point.

Descartes, that we are alive to our own corporeality even when we are not thinking at all: our flesh is present to itself whether we are conscious or unconscious, awake or asleep. (Mathews, 2003, pp.31-2)

Here, Mathews has made the connection with the dialectical nature of matter, rent in such a way as to be self-registering, though, her phrasing in the following sentence, though interestingly employing the term 'registration' continues to do so in such a way that this process is associated at some level with consciousness, rather than being allowed as a movement of matter itself at some absolute and unfathomable level; she writes "[t]hat is to say, our bodies go on existing for themselves even when they are not being registered by our conscious minds." (Mathews, 2003, p.32) The point which has consistently been made in previous chapters is that registration does not require consciousness, and, in fact, there is no fundamental contradiction with Mathews' position in this. It is simply the case that Mathews' sense of the term 'registration' here does not encompass the range of self-realising processes which express the subjectivity of systems from the complex macroontological communities of feeling through to the subatomic, which, in fact, her reference to bodies' existence for themselves alludes to.

[A]ll matter can be imagined as occupying space from within in this way. Extension is thus imagined as having an inner as well as an outer, visible and otherwise sensible dimension. And just as it is our subjectivity, the innerness or presence-to-itself of our own body, that assures us that we are really here, that we really do occupy the space that our body appears to occupy, so we could say, it is this innerness, this presence-to-itself of matter generally that renders the world at large real as opposed to mere externalised husk or insubstantial phantom. (Ibid., p.32)

Mathews thus makes a distinction which may be useful if taken only to mean the distinction between reality and illusion, but which should not be taken to confuse appearance and thing-in-itself in any Kantian sense. Another problem is that the proprioception which individuals exercise with more or less acuity can quite reasonably be identified as a phenomenon isolatable to the nervous system. Damage to that system, or for instance, amputation of a limb, may result in loss of

proprioceptive sense or ‘phantom’ effects. It would be difficult to argue that concomitant phenomena might arise in the case of a tree whose limb had been removed, never mind a broken plastic toy. The issue here again is the extent to which subjectivity or material self-presence is conflated with consciousness. Consciousness as an instance of material self-registration may be universal in the sense that it is an experienced fact within a single and unbroken material plenum, and thus a phenomenon of the plenum as a whole, and inseparably interrelated with all other material events occurring across the plenum, but its presence nevertheless persists as a perturbation of that plenum only under certain very distinct and localised conditions within the universe – those associated with brains¹⁰⁴. For Mathews, by contrast with consciousness,

“subjectivity,” in an extended or analogical sense, is the illusive property that distinguishes a thing itself from its mere appearance: it is the fact that matter is present-to-itself, that it occupies space from within as well as from without, which ensures that bodies are really there. (Mathews, 2003, p.32)

So, that which actually exists possesses presence-to-itself, or subjectivity, whereas that which does not has no such property. That is to say, taking a monist materialist reading, all that is material is present to itself. Such an interpretation of Mathews is not at odds with assertions made previously in this study. Neither is the following statement:

“subject” is here understood not in the sense of a mere logical subject, or subject of predication; the question at issue is not one about individuation generally, but about individuation into centres of subjectivity. Although all material objects can be said, from a panpsychist perspective, to have a subjectival dimension, it is not true to say of all objects that they are subjects. (Ibid., p.33)

¹⁰⁴ See Chapter 7 for a discussion.

For here, as we know, “subjects” are equated with “selves”, which persist as dynamic self-realising systems, holding entropy at bay for a longer or shorter period according to physical law.

Mathews’ theory of self, the subject of her earlier work (Mathews, 1991) finds in selves the impulse to preservation, the stubborn self-referentiality of self-becoming. A couple of issues arise in this regard in relation to panpsychism. The first is the degree of consciousness required in that self-referentiality to allow the tag of ‘self’ to be attached to a unity abstracted from the whole. Given that some of the most persistent unities we know of – stars for example – are not usually ascribed consciousness at any level, is it consistent to permit conatus, the will to self-realisation, only to living systems? A second, related question, is the one regarding the means by which one would determine the degree of awareness characteristic of the subjectival presence-to-itself of any patch of spacetime such as to allow the categorisation of ‘subject’ to be applied. If there is a gradation of active self referentiality from rock and gas through primordial single-cell organisms to sentient life, and at what point do we draw the cut off line? And, anyway, within this schema, how do we regard the ‘constitutive’ elements of these communities of feeling, the subatomic abstractions from the plenum? To revisit Mathews’ solution to these problems, whilst she is clear that in order for some dynamic configuration of the plenum to be allowed the designation of self or subject it must fulfil the criterion of self-realizing (as defined in terms of homeostasis, self-regulation, goal-directedness and equifinality), we remain unclear on whether we are expected to interpret the ‘causal’ activity of self-referentiality, of looping back on itself (Mathews, 2003, pp.50-51), as a process of subjective self-awareness (which begs the question as to why all parts of a self-realizing universe might not reach this measure) or of some ontological ‘looping’ which defies the normal processes of, in Whitehead’s terms, positive or negative prehension, in favour of a sort of self-prehension or derivation from its own concrescence (probably something of a nonsense in Whiteheadian process). For Mathews, “while (relatively individual) subjects or self-realising systems need not be fully self-conscious or even significantly sentient, they may be so” (ibid., p55). Self-realizing systems may be attributed with conatus, that is, conatus defines self-realizing systems, but the slippage

around consciousness continues to render the nature of the self-referentiality at the heart of conatus ambiguous. We are also reminded that such selves need not define single loci of consciousness, but may include ecosystems which whilst self-realizing and self-preserving, contain very many individuated and interrelated (more or less) conscious subsystems. “This unity is defined by function rather than by spatiotemporal boundaries or geometric form, the form itself being mapped by the function.” (Ibid., pp. 50-51) Mathews correctly anticipates the objection that defining ‘mind’ as a function of self-realising systems – that is, appearing to allow consciousness a status secondary to matter under certain conditions – could allow dualism to creep back in. In this schema self-realisation appears to ontologically precede mind. However, as has been insisted here, consciousness is not subjectivity, and matter is always already allowed a subjective aspect, a *self-registering* as well as a *self-perpetuating*. Before moving on, it is also worth noting that selfhood, though not subjectivity, requires a necessary relationship between self-realizing activity and *material continuity*:

[Self-realising] activity cannot take place in the absence of matter. Nor can such activity be identified with a particular morphological form or configuration. For morphology is only the expression of particular strategies of self-realization adopted by the self in question in the environment in which it finds itself... Moreover, self-realising activity cannot be maintained across a hiatus of either material constitution or form, so a certain continuity, at both these levels, is required, if self-identity is to be assured. (Mathews, 2003, p.54-5)

We leave open for the moment the question of the extent to which self-realising activity and therefore selfhood is independent of morphology, and, more specifically, of brains¹⁰⁵. Mathews’ point is perhaps a consequence of her admittance of open systems into the realm of selves, such ecosystems exhibiting distinct evolutionary change over time. In this sense, particular individual morphologies are indeed not required for the self-realisation of such systems, but at the level of what we would

¹⁰⁵ An important issue, to which we will return in Chapter 7.

ordinarily identify as lifeforms, from bacteria to humans, there can be little doubt, when it comes to self-realisation, that morphology matters.

We return briefly to the question of causality within the context of panpsychism. Traditional accounts on cause rely on some notion of causal power or force which marks real relations as distinct from imagined or dreamt relations, and enables us to ascribe to causal relations that of effect. One thing is *moved by* another as a consequence of this particular form of relation, rather than merely moving successively in any number of empirically given cases. However, Mathews (2003, p. 35) argues, such accounts of causal power or force are mere reifications of empirical data unless supported by an idea of agency which derives from our subjective experience of intentionality, of willing and causing. We understand one thing causing another because we have experienced our agency and ascribe to objects a similar though less conscious or unconscious potential to affect other objects. It is not difficult to read such arguments as Mathews does, as lending some weight to the panpsychist case that what distinguishes cause from succession and repetition is some quality in matter analogous to our own subjectivity, a sense of its presence-to-itself. As we have seen in Žižek, and fed through Dietzgen, it would appear hopeless to attempt a monist account of material self-presence which includes a material account of subjectivity whilst restricting the scope of agency to that variety exercised within human brains. The argument from causal power then becomes an important one in favour of Mathews' version of panpsychism. However, matters are not as straightforward as Mathews' account here would appear to suggest. As Whitehead has shown, in the post-Einsteinian universe of profound interconnectivity there can be no discrete 'effect' which is not simultaneously a universal event, each 'subject' in principle 'subject-superject'. Each and every movement of the material plenum¹⁰⁶ is related in a unique and novel way with all the initial data which serve its realisation. We recall that Whitehead uses the term 'feelings' to describe the appropriation of some elements of the universe to the realisation – the 'concrecence' – of the subject. Despite the terminology, here 'cause' is less about an analogy with complex (for example human) agency, and more to do with a universal process of either

¹⁰⁶ Except those 'unregistered' subatomic disappearances referred to by Žižek

‘elimination’ or appropriation of data towards the ‘satisfaction’ of an operation. Human agency, whilst an interesting variety of abstractive, or ‘prehending’ process does not serve as the model for the wider, universal process of novelty and inheritance, experienced subjectively as ‘cause’. Whitehead’s is not a universe where subject meets datum and duly reacts, rather where presupposed data are felt and aim at the feeler as final ‘cause’ – the ‘cause’ here being what we might more normally describe as the ‘effect’. The nontemporal nature of Whitehead’s account is most evident here in his insistence upon the dialectical nature of being and becoming: “[t]he feelings are what they are in order that their subject may be what it is.” (Whitehead in Sherburne, 1966, p.16) In this sense cause presupposes effect (as final cause). The question then is does Mathews’ case for panpsychism as a basis for a meaningful account of causality complement or contradict a philosophy of internal relations such as Whitehead’s? At least in the passages mentioned here, Mathews’ argument would appear to overlook the consequences of quantum physics for cause ‘at a distance’ and universal interconnectedness. However, elsewhere, as we have seen, such factors serve as cornerstones for her ontology. If what we subjectively experience as causality is taken as Whitehead proposes to be a process of ‘feeling’, then we might say that this ‘feeling’ by the subject – even the simplest subject such as a packet of energy – represents a being of the universe for itself, the means by which the universe evaporates indeterminateness into the satisfaction of ‘something’. This registration of a novel subject(ivity) requires a ‘feeler’. Without wishing to confuse matters with the (re-)introduction of ‘consciousness’, it should still be possible to read the process of the ‘satisfaction’ of feelings as the activity of the internality of matter (in Mathews’ terms), or the presence of matter for itself. So, even if Mathews’

account¹⁰⁷ of cause seems rather traditional in this case, it still allows for a panpsychist reading of Whiteheadian internal relations. After all, in his fundamental ontology of concrescence, Whitehead can and does make no distinction between the satisfaction of material subjects, and ‘mental’ ones – such a duality simply has no place in this process. Thus the ‘feeling’ of the micro and macrocosmic subjects differ only in ‘level’ or order.

We return now to the theme of registration. The Cartesian proof of real matter outside the mind relies on the assumption that what reflexive subjectivity identifies for itself is the activity of a discrete atopic mind. Mathews’ panpsychist argument (2003, p.37) is that Descartes simply does not allow for the possibility that what is ‘registered’ in self-reflection might be merely a point of activity within a wider field of subjectivity. This is crucially important, as it allows registration to mean that of matter for itself, rather than referring to some strictly localizable phenomenon which may be ontologically isolated. Registration occurs at different levels, and insofar as it is conscious it is not unique, indeed there is very probably a continuum both within human and non-human animals of degrees of self-presence, self-awareness or registration. “our own immediate experience cannot reveal to us who the real subject of our subjectivity is, whether it is a global or a finite individual subject. Hence the

¹⁰⁷ Another way to look at the question of cause within panpsychist ontology is via the idea of communication. For Mathews, a universe imbued with mind is also one which is generative of meaning. That is, it is capable of communicating ‘at a distance’ something of the nature of itself to the reflexive subjectivity conscious of itself as an abstracted part of the undifferentiated whole. A communicative order pervades the material order. Something of the nature of the intercommunicative subject derives from systems theory, a highly productive body of ideas which whilst potentially of great use both to Mathews and to this study, and to which we will return briefly in Chapter 6. There is a very real danger here that allowing material movement to be defined in communicative terms permits widespread violation of those patterns of causality as circumscribed the laws of physics with which we operate at the everyday level. If communications are defined as real material movements between ‘minds’, then at one level the absorption of the subject into this order would seem to free her from any of the usual constraints associated with temporality, distance and such like. Mathews therefore rightly asks, “Can the communicative order coexist with the causal order?” Given that the possibility of communication presupposes receptiveness to communication, then the answer must be ‘yes’ – at a number of levels, from the strange ramifications of the slit experiment through to the contextual, material receptiveness to novelty at the subatomic level, as described by A.N. Whitehead (see Chapter 3). When Mathews writes of ‘communication’ she must surely intend something which does not imply *specific* meaning of the kind which might be carried in language. The example she offers of a landscape which reaches out to the observer, suggesting something ‘beyond’ appearance, something which is conveyed through appearance but remains irreducible to it. The classic works of Romanticism come to mind so readily in Mathews’ metaphor of the lighthouse (Mathews, 2003, pp.40-41). If what Mathews has in mind is some form of macroontological registration of the self as inseparable from a wider field of self presence, then the process in question, ‘communicating’, might perhaps be expressed more accurately by the verb ‘communing’ as suggestive of a receptivity or subsumption within an order.

individual mind, and self, that Descartes purports to infer from his cogito argument is in fact presupposed.” (Mathews, 2003, p.37)

Mathews’ panpsychism demands a reconceptualisation of the method of Cartesian metaphysics: she seeks to expose what she takes to be the undeclared dualistic bias in Descartes’ thought, a structuring presumption which blinds him to the unjustified leap which occurs in connecting thought per se with *individual* existence. We recall that when Schelling opens out a post-Kantian dilemma around the ontological prioritisation of the ‘I’, he does so to raise the vision of an I-it unity, the ur-Ich of Romantic panpsychism. Whilst not as methodologically rigorous, Mathews echoes this anti-critical rallying cry: “[S]uppose an alternative metaphysical presupposition is adopted – suppose that we do regard ostensibly individual minds as points of reflexivity in a wider field of “mind,” a field which is manifest to us, externally, so to speak, as the manifold of physical reality, physical reality is thus seen as a continuum that is possessed of a mental as well as a physical dimension.” (Mathews, 2003, p. 38) Perhaps this is an opportunity to dispel any lingering doubts regarding the adoption of a Schellingian dogmatic approach to epistemology of panpsychism. The “it is, therefore I think” of dogmatic method works only if the universe’s presence for itself allows ‘mind’ to be democratically distributed as an illimitable and irreducible aspect of all spacetime. Where critical method must presuppose the possibility of the separation of ‘I’ from ‘it’ on the basis of the privileging of subjective experience, Mathews’ dogmatism like Schelling’s, takes absolute oneness as prior to the subjective partaking of, for instance, the emergent human mind in this indivisible manifold. Mathews is close to Schelling in asserting “to be aware even of my own mind, let alone of its contents, is already to be aware of the existence of a wider world, a world endowed with an interior, or subjectival, dimension as well as a physical one.” (Ibid., p.38) Mathews’ dogmatically realist monism allows for no discontinuity, which the individuation of minds would necessitate.

“In this case there would be no discrete individuals in the world, and no categorically or metaphysically distinct substances, so mind-body dualism would dissolve, and with it the “problem of knowledge,” in the sense of how the problem of mind, once severed from the world, can reestablish

contact with that world... All parts of the continuum may be considered as sharing in an underlying subjectival condition, and every part already participates in all other parts, since subjectivity, like space, is intrinsically indivisible.” (Ibid., p.38)

Of course, if solutions to the intractable problems of epistemology were so neat, Mathews’ cosmological speculations would have been far more widely adopted as providing a philosophical basis for ethical and ecological action. The limits of Mathews’ panpsychism, like Dietzgenite ‘cosmic socialism’ before it are plainly marked by the political consequences of socially enacting the ethics that flow from it, and again the uncomfortable assertion that the truth of its claims are proved by their rejection within the pathological individualist order engendered by the capitalist mode.

The subject’s presence to itself lends it a unity which, whilst not eternal, exists at least in the now as indivisible. Consciousness exists for itself; however, everyday experience of the physical universe would not appear to correspond with the ontological indivisibility of subjects, conceived either as discrete atomic selves, or as points of reflexivity within a field of consciousness. This, of course, is why panpsychism and monism have been so closely connected both by Mathews and within this study. A reading which did not take seriously the absolute ineluctability of monism in Mathews’ panpsychism might mistakenly interpret her schema as requiring the ascription of subjectivities to ‘animated’ objects (particulate things) – ‘animism’. There would certainly be sense in attempting to marry the world of appearances with the experience of subjectivity in this way. However, as we have seen over and over again, the abstraction of the whole into conceptual packages, whilst guided by common patterns of movement, does not have the effect of actually dividing the bare reality of matter. Ontologically matter remains one, but the effect of conscious co-creation of its interrelated patterns of movement brings into focus systems which are to some extent observer-dependent. Under these conditions,

[i]f physical reality as a whole, under both its material [as traditionally conceived] and nonmaterial aspects, is seen as constituting a genuine, indivisible unity, then it could itself perhaps be regarded as a subject, or

field of subjectivity, to which the entire differentiated physical manifold is subjectively present. (Ibid., p.47)

Panpsychism and quantum mechanics

When Freya Mathews says of spacetime that there would be no seen-extension if perceivers did not exist, she forgets the truly indivisible universe can only be described as *self*-perceiving or *self*-registering; so, the idea of an ‘unseen universe’ simply does not make any sense. The easy notion of an ‘external’ observer, quite intuitive and comfortable from the perspective of ordinary experience, continues to dog the world of physics. The possibility that the panpsychism associated with interpreting spacetime as indivisible and co-extensive with matter in its extended sense might escape this difficulty is a complex question requiring the kind of analysis which would fall well beyond this study. It is however, worth making a brief foray into the implications of panpsychist monism for possible interpretations of quantum physics.

The term ‘registration’ has been employed here to offer a shorthand for the process by which an emergent identity, or subjectivity might be recognised and acknowledged as a unique manifestation of subjectivity’s reflective presence for itself. The extent to which this is an act of negation, a registration that what lies between subject and already existing greater subject is the negativity at the heart of existence, has been discussed elsewhere. Here the question is whether the moment of registration is also the collapse of indeterminacy – variously describable as the decoherence of superposition into position, or the satisfaction of the process of concrescence. The subject’s becoming one for itself is, at the macroontological level, a process identifiable in the move from unselfconsciousness to self-consciousness of the child, or, in terms of a community of being, the recognition of a class in itself for itself. Or, indeed, the moment that Mathews, Schelling, and the Romantic young Marx envisaged in their onto-poetics of absorption – the communing of the subject with nature, something which approaches a ‘world consciousness’ of the kind advocated in different ways both by deep greens and Dietzgenites. In quantum terms the question is what would trigger the collapse of the waveform? Chalmers (1996) argues

persuasively that the most plausible catalyst is consciousness. As we will examine hereafter, the act of measurement in and of itself, the presence of measuring equipment, or indeed of classical or macroontological systems as ‘cause’ of collapse all fall short as convincing candidates because they appear to violate the rather basic rule that if quantum theory is to have any application at all, it must be universal, applying evenly at least across all phenomena at the microontological level, and with unavoidable consequences at the macroontological as well. As the notorious Schrödinger’s cat example suggests, the superpositional phenomena at the everyday level are counterintuitive to say the least, but flow almost unavoidably from a thoroughgoing application of the general agreed principles of the science.

Since the advent of quantum mechanics, it has been indisputable that the relation of observer to observed in the scientific field has become more complex than was assumed within classical models. Interpretations vary, but the widely held Copenhagen position infers from both mathematical and experimental results that the world is, to some extent, inextricable from the (human) mind. This entanglement might offer another way into conceptualising the possibility of panpsychism. It is important to begin by reassuring ourselves that Neils Bohr and others who developed this position were not Berkeleyans – the post-quantum world is not a mere idea¹⁰⁸, it is not *in* the mind, in a solipsistic sense, but nor is it independent of the mind¹⁰⁹. On the standard Copenhagen Interpretation, the universe exists *in potential*; furthermore, it is our particular interactions with it which determine which of its potentials are realised. Even if one were to leave arguments about panpsychism to one side, there are clearly many philosophical difficulties with this position, but there are also clear parallels with aspects of the ecosophical and Marxist traditions outlined hitherto, and

¹⁰⁸ It is, nevertheless, worth noting that Mathews borrows and adapts the phrase a “Great Thought” to describe the Universe, endorsing A.S. Eddington’s “remark early in the twentieth-century, that the universe was starting to look more like a Great Thought than a Great machine... According to this theory, the universe is a great, infinitely modulated field of impulsion, impulsion that is necessarily felt but not reducible to feeling, and of which physics is the study from the outside [sic] – from the vantage point of an observer.” (Mathews, 2003, p.50) The debt to Whitehead’s use of the term ‘feeling,’ explored earlier, is evident here.

¹⁰⁹ A reading of this interpretation which could be termed *strongly anthropic* suggests that the universe as it exists could not be so without our presence (or possibly *my* presence). The more *weakly anthropic* reading tells us that we should not be surprised that the universe is how it is, because, given our presence within it, it could not have been other than to have given rise to us (or *me*): we will return to this.

it is thus worth considering in a little more depth the implications of the Copenhagen interpretation for the panpsychist position under discussion.

At the heart of the Copenhagen interpretation is Niels Bohr's notion of complementarity as a 'replacement' for causality (Bohr, 1998, p.68) and indeed for Neo-Platonic logics¹¹⁰. What this notion really amounts to is a positive contradiction. The two pictures of reality – wave and particle – are complementary, whilst *in fact* they cannot co-exist. For Bohr, complementarity has an ontological meaning: it refers to the mutual exclusivity of wave and particle, but also to the proposition that only by oscillating between these two 'complementary' descriptions can one establish the "right impression of the strange kind of reality behind our atomic experiments." (Heisenberg, 1990, p.18) Bohr warns against a vulgar reduction of Heisenberg's uncertainty principle to an 'either or'. Rather, in quantum physics, the 'uniformities' in question are of a 'both and' type which allow inherent contradictions which would be disbarred in classical physics. Žižek, the reader will recall, highlighted just this antinomy – an ontological paradox requiring a rewriting of the fundamentals of logic. Bohr names the syllogistic logics of classical physics as 'idealizations'. "On the contrary," he claims "the proper role of the indeterminacy relations consists in assuring quantitatively the logical compatibility of apparently contradictory laws which appear when we use two different experimental arrangements, of which only one permits an unambiguous use of the concept of position, while only the other permits the application of the concept of momentum defined as it is, solely by the law of conservation." (Bohr, 1998, p.86) In the universe of quantum mechanics, nothing is certain or predictable until after the event. Whilst in mathematics, probability means a statement about our degree of *knowledge* about a situation, in physics, the probability wave of Bohr, Kramers and Slater has an ontic as

¹¹⁰ Here again we recall Joseph Dietzgen for whom 'cause and effect' were historical products of transient human understanding which would, accordingly give way, in time, to new understandings about the relations between things. Causes are not creators, but, themselves, effects: "the category of cause and effect is a good help in explanation, so long as it is accompanied by the philosophical consciousness that the whole of nature is an infinite sea of transformations, which are not created by one great or many small creators, but which create themselves." (Dietzgen, 1906a,p.405) The 'sea of transformations' model, compatible with the monistic explanation of cause given by Mathews in her hydrodynamic analogy, also allows for the interrelatedness implied by entanglements inherent in Bohr's explanatory mechanisms.

well as an epistemological sense¹¹¹, “it meant a tendency for something. It was a quantitative version of the old concept of ‘potentia’ in Aristotelian philosophy. It introduced something standing in the middle between the idea of an event and the actual event, a strange kind of physical reality just in the middle between possibility and reality.” (Heisenberg, 1990, p.11) At the level of the particles which constitute the building blocks of macroontological reality, each particle does not have a single path or history in spacetime, but conducts its orbit by every possible path. The probability of going from one point to another is calculated by adding the waves’ frequencies for all the paths. For some sets of waves, the peaks and troughs of neighbouring pathways cancel each other out, whilst some sets of neighbouring paths will not cancel each other – these paths correspond to Bohr’s ‘allowed orbits’ – and suggest to the physicist with a good deal of success the more probable of the various realities in play: but reality remains a matter of statistical probability, potential, until fixed by the intervention of the observer. This reality in potentia is described as *sum over histories*. Though our experience of the passage of time and the linear causality of events runs counter to such a state of affairs, what is true for each subatomic particle must necessarily be true of the way the universe as a whole really unfolds. That is to say, each of an infinite number of possible histories in the sum of the universe must allow for the possibility of everything within that universe, to include the emergence of the observer capable of asking the question about the conditions for the possibility of

¹¹¹ At the quantum level, amplitude replaces probability. To pass from amplitude to probability, from the quantum to the classical level, one must take the squared modulus of the amplitude. Where standard practice in physics is to call the wavefunction ψ (‘psi’), “[f]or each position x , this wavefunction has a specific value, denoted $\psi(x)$, which is the amplitude for the particle to be at x .” (Penrose, 1989,p.243)

their own existence¹¹². Alternatives to the Copenhagen interpretation proliferate. It is worth mentioning at this point one offered by Roger Penrose, whose theory will be developed further in a later chapter¹¹³. In order to understand something of Penrose's position, it is helpful to note another of the counterintuitive findings of quantum level experimentation. Penrose (1989, p. 255) describes an experiment where a photon's energy is 'split' along two paths by a half silvered mirror placed in its path. One would expect equal probabilities of the photon's energy arriving at one of two detectors, each placed in one of the alternative paths. In fact, over several metres, if the detectors are at exactly equal distances from the half silvered mirror, the photon always arrives at its *original* destination as if it were not partially deflected by the mirror. However, if deflected back together, the two 'halves' of the photon interfere with one another in a double peaked wavefunction. Penrose argues, the photon was wave *and* particle at the same time and simultaneously took both paths. The positive *reality* of the photon is that it occupied two routes at once, it was two possibilities simultaneously. However, blocking one of the two routes means the particle is equally likely to appear at the blockage as not. "Blocking off one route actually *allows* B [the blockage] to be reached! With both routes open, the photon somehow 'knows' that it is *not* permitted to reach B, so it must have actually felt out both routes." (Ibid.)

Whilst Bohr's interpretation of this is that no 'meaning' can be attached to the

¹¹² As such, we human observers should not be surprised that at least in our region of the universe, the course of actual history realised probabilities for the building blocks of physical existence which fell within parameters that could have allowed for the possibility of our existence. After all, we are here. Stephen Hawking mentions that "if the electric charge of the electron had been only slightly different, stars would have either been unable to burn hydrogen and helium, or else they would not have exploded. There are relatively few ranges in the values of the numbers which could have given rise to intelligent life." (Hawking, 2008, p.142) Similarly, the universe started with "so nearly the critical rate of expansion that separates models that recollapse from those that go on expanding forever, that even now, ten thousand million years later, it is still expanding at near the critical rate...If the rate of expansion one second after the big bang had been smaller by even one part in a hundred thousand million million, the universe would have recollapsed before it reached its present size." (Hawkins, 2008, p.138) Some would infer from the apparent unlikelihood of stars and planets capable of supporting life that a creator should be introduced to rig the dice. Of course no such additional player need be involved, and the thrust of this study along with all the work of contemporary physicists excludes such extraneous supernaturalism as quite contrary to reasonable explanation. A chaotic inflationary model of the early universe (Hawking, 2008, pp. 150-151) fits with the weak anthropic principle, and shows that no special care was needed in the construction of the universe, rather that a region such as ours capable of supporting the development of galaxies, stars, planets and life could have arisen from a large number of initial configurations. This is not to deny that some will interpret panpsychism as a mode of pantheism – Mathews herself seems to come close to this at times, and, as we will see, even Dietzgen's materialism and militant atheism did not prevent him from slipping close to a religionist position.

¹¹³ See Chapter 7.

photon's existence between points of observation, Penrose wants to reassert his more positive stance that the wavefunction is a 'reality'. This implies a reality, ψ ('psi'), which is distributed across space, a connected particle-as-plane moving in time. This being-in-more-than-one-place-at-a-time of a particle is its *quantum linear superposition*. The relationship between superposition at quantum and classical levels is a very problematic one. Penrose opposes Bohr and the Copenhagen interpretation in order to posit a set of *positive* attributes to reality at the quantum level. If, for Bohr and Heisenberg, the dialectic of emergence is between the positivity of actuality and the negativity of potential; then for Penrose, the relationship – we still maintain, the dialectic – is between the positive *something* yet to be, and the positive *this* thing of actuality. An absolute positivity of the universe offers a non-Hegelian dialectic commensurate with Whitehead's subject-superject, with Dietzgen's monism, and with Naess and Mathews' interrelatedness and selfhood. Rather than reality *emerging* simply in response to 'measurements', Penrose wants to talk about *quantum states* as an objective and physical (material) reality. This offers us a helpful way of thinking about the absolute positivity of the Dietzgenite-ecosophical positing of universal panpsychic materiality.

The panpsychist possibilities under discussion flow from models of a universe undivided at the fundamental level. Whilst the Copenhagen interpretation enriches our understanding of the physical conditions for the possibility of interpenetrative orders, observer and observed, in turn allowing a reading of panpsychist implications into the physical models, problems clearly remain in such an approach for a thoroughgoing monist ontology of the type espoused by Dietzgen or by deep ecologists. For example, for Freya Mathews, Copenhagen physics still harbours dualistic legacies in that, whilst it denies categorical independence to mind, it sees subjectivity as emergent from non-subjective matter. There is something like a kind of base-superstructure frame in Mathews' account of the quantum mechanical mind-matter relation:

Mentalistic attributes may, from this point of view, emerge from complex material configurations (such as organisms), but are not in any way essential to the nature of matter. Although postclassical physics no longer subscribes to a narrow view of mechanism, in that it has admitted

additional, nonmechanical forces and indeterministic laws into its cosmology, it is still dualistic in the sense that mentalistic attributes, such as subjectivity, self-presence, awareness, intentionality, purpose, and meaning, are regarded as emergent phenomena, that do not belong to the fundamental nature of physical reality. (Mathews, 2003, p.26)

A central weakness of the Copenhagen interpretation¹¹⁴ is that it requires some element to be present at the point of the collapse of potentiality into actuality, an ontological category the introduction of which into the equation, triggers the collapse. Here we move to the strangest consequence of the Copenhagen interpretation of quantum mechanics, the transition from possible to actual which occurs during the act of observation. In marked contrast with the later Penrose, Heisenberg suggests,

[i]f we want to describe what ‘happens’ in an atomic event, we have to realise that the word ‘happens’ can apply only to observation, not to the state of affairs between two observations... and we may say that the transition from the ‘possible’ to the ‘actual’ takes place as soon as the interaction of the object with the measuring device, and thereby the rest of the world, has come into play. (Heisenberg, 1990, p.22).

For Heisenberg, the change “is not connected with the act of registration of the result by the mind of the observer. The discontinuous change in the probability function, however, takes place with the act of registration, because it is the discontinuous change of our knowledge in the instant of registration that has its image in the discontinuous change of the probability function.” (Ibid.) The connection between the change in (observer’s) consciousness and the change in (non-conscious) reality is temporally ‘connected’ only in the sense that it is coincident: it is not the registration which occasions the wave collapse, but rather the ‘rest of the world’ interacting with the object. But, here again, the difficulty is in the false division between a quantum event – the wave collapse, and a classical ‘rest of the world’ which remains somehow exempt for practical purposes from the fundamentally uncertain ontology which besets the experimental subject. It only makes sense to mark the ‘quantum jump’ as

¹¹⁴ One that Penrose cannot help us with for the moment, though he will support further suggestions towards solving this issue in Chapter 7.

significant if, as a realisation of potential, it occurs within a consistently quantum universe. The problem is to some extent acknowledged, though effectively glossed over in Heisenberg's explanation of method in relation to quantum physics:

Certainly quantum theory does not contain genuine subjective features, it does not introduce the mind of the physicist as part of the atomic event [this as a result of Heisenberg's ascribing cause to the 'measuring apparatus' rather than 'mind' per se]. But it starts from the division of the world into the [quantum] 'object' and the rest of the world, and from the fact that at least for the rest of the world we use classical concepts in our description. This division is arbitrary and historically a direct consequence of our scientific method. (Heisenberg, 1990 p.23)

For Bohr himself, "In this region it is no longer possible sharply to distinguish between the autonomous behaviour of a physical object and its inevitable interaction with other bodies serving as measuring instruments." (Bohr, 1998, p.84) It is difficult to see how 'measuring apparatus' as the catalytic point of contact with the 'rest of the world' might be considered as a fundamental category at the level of basic microontology given that the underlying structure of such apparatus could not on any 'universal' theory differ from the potential matter under measurement; that is to say, the fundamental characteristics of both elements in this reaction are not differentiable. Contrary to Heisenberg's claim, a far stronger candidate for the occasioning of the realisation of potential, or collapse of the wavefunction is indeed *mind*. It is not the act of measuring, nor the measuring apparatus which settles the probabilistic nature of basic phenomena, it is the fact that the observer *experiences* this collapse; it is the subjectivity and positionality of this event. However, as Mathews notes, such a proposition identifies mind as necessarily absent from that which is not observed. It is only in the point of contact between two ontological orders – the potential, probabilistic world of the quantum and the fixity of the experience of the actual as it is – that actualisation is occasioned. Whilst this is clearly a dialectical account of the unfolding of reality, and close to the dualism of Hegelian logic, it is not adequate to the needs of a consistent materialism. The implications of this reading of the Copenhagen interpretation allow mind-matter problems to creep back in. However, as

we have seen from Žižek, this understanding of quantum physics may not be quite fair. We need to return to the sense in which nature – or matter – operates in a manner not unlike consciousness ‘at a lower order’. As has been consistently argued by Whitehead, and in this study, in order for this to make sense, the expansion of matter to encompass all the phenomena in the universe, and indeed to include spacetime itself, must make of matter something which registers itself, something capable of ‘feeling’ the universe for itself, positively or negatively prehending, or abstracting unities through a process of concrescence¹¹⁵.

The *panpsychist* implication of the monist universe is that the spacetime-matter unity is itself *subjectively* material. The moment of registration of the universe for itself is occasioned by humans, it occurs at a spacetime point because of the presence of humans. It is an anthropic event in this regard. However, we have no reason to suggest that it is a uniquely anthropic event, rather, only that because we as humans have been able to occasion the registration of the universe for itself, we associate this type of event with our own experience. The self-consciousness of the nature of the event is, as far as we know, not a phenomenon shared by other species; but, in regions of the universe where self-registration has been made possible by the operation of the laws of the universe such as have allowed solar systems, planets, ecosystems, complex life forms, advanced ratiocination and self-consciousness to emerge, self-registration can occur. All this relies on the basic monist proposition that beyond the quantum, across the ‘gaps’ between the smallest possible subatomic quanta of force lies not complete nothingness, but a field of possibility which we are calling matter, in its expanded sense, which, however understood contains itself within itself as the subject of itself. We recall that in Schelling’s philosophy of identity, any single thing –

¹¹⁵ We know that at the base of the accounts of the universe offered by monists of whatever stripe – red or green – spacetime-matter is not divisible. That is to say that it does not allow a ‘gap’ or ‘empty space’ to exist in between subatomic particles, nor will it admit a wave to pass through nothingness. The physicist will argue that “[f]rom our modern point of view we would say that the empty space between the atoms in the philosophy of Democritus was not nothing; it was the carrier for geometry and kinematics, making possible the various arrangements and movements of atoms.” (Heisenberg, 1990, p.31) But what does a carrier consist in? It may be that it is nothing without that which is borne by it, but, given that something exists rather than nothing, in what sense does it carry anything if it does not exist? Bare extension without anything extended is no sort of extension at all: nothingness is not synonymous with space and time. Spacetime is *something*. The standard answer in physics is that what the emptiness between atoms consists in is not nothing, but geometry, and “that geometry is produced by matter or matter by geometry.” (Ibid.) This takes us back to the starting block.

even the quantum of light or the graviton – must be *everything*, fundamentally interconnected across the universe.

The greatest difficulty at this point remains how one accounts for the moment of collapse of potentiality into actuality in a universe with no impact, no reaction between contrasting orders, merely internal relations. The credibility with which a single material plenum can be posited as dialectically opposed to itself as a feeling, registering presence is the measure of the success of dialectical materialist monism. Of course, such a project need not accommodate the post-Romantic or neo-Romantic panpsychism adopted by Mathews. However, as has now rather often been suggested, to preclude the possibility of expansive subjectivity also severely delimits the potential for a non-anthropocentric and inclusive ontology. One way of thinking about this is to say that the spatiotemporal locations at which registration occurs are associated with a higher occurrence of certain types of perturbation – this activity representing a more dense concentration of the mentality which is unevenly distributed across all of spacetime. To make such a claim is not in itself problematic from a materialist position, requiring merely a refocusing on movement at the level of the relatively large scale weak electromagnetic energy and electrochemical activity present in neurobiological systems. However, attempting to marry this with the claim that *all* of matter is in some sense present to itself is harder. On a materialist account, the universe's presence to itself also needs to be ultimately reducible to the relations, sometimes weaker sometimes stronger between the forces reacting and interacting across spacetime and subject to the probabilistic conditions of quantum theory. Here we cannot resort to a universe-as-brain analogy, but must come closer to the universe-as-thought position, but in such a way that the elimination of a special additional category of subjectivity emergent upon the weak electromagnetic force present in synaptic systems is maintained in favour of an identity of subjective and 'material' descriptive devices. Both, ultimately work as analogies for unitary interrelated processes, but necessarily fall back upon the language of the localised subject 'inside' the whole. Mathews attempts to meet this challenge, rather as Žižek does by centring the claim to the mindlikeness of all matter precisely on its indeterminacy.

[W]hile quantum mechanical principles are, as a matter of fact, descriptive of physical reality, they seem in many respects conceptually more applicable to mental than to physical processes, on any traditional account of the latter. This ambiguity is less perplexing when quantum mechanical phenomena are understood as the external manifestation of the felt but nevertheless relatively lawlike pattern of impulses that emanate from the primal conatus. (Mathews, 2003, p.50)

There is much here which is entirely consonant with the central thrust of this thesis. The capacity of matter to order itself along lines patterned by but not determined by laws, presenting the reality of ‘choice’ at a lower order¹¹⁶, speaks of the materiality of thought, its non-uniqueness, its quality as a twenty mile stretch of a much longer road (c.f., Dietzgen, 1906a, p. 83). “In the context of quantum mechanics, a particular impulse in the primal field might occur as the result of the collapse of a wave packet, and as such its actualization might represent just one possibility within a determinate field of possibilities; in this sense its occurrence might fall under laws without being predetermined.” (Mathews, 2003, p.193) Here the materialistic claim to subject-matter identity does not rest on a reduction to forms of energetic movement, but rather to the bare fact of ‘choice’ at different levels, or in differing orders. Curiously, one of the clearest philosophical expressions of this position is also one of the first – that of Marx’s great influence Epicurus¹¹⁷. Mathews’ attempts to reconcile human free thought with the lawfulness of the universe in such a way that the universe too is granted a level of conative freedom in its subjectivity meet with some success.

These laws or patterns describe the characteristic forms of movement within the field – the way impulses gather and unfold, the way they expand and contract and interact. That the lawlikeness of these processes does not contradict the mindlike aspects of the primal field is clear when we consider that movements within ordinary subjectivity have their own dynamics, as we discover when we observe our mental processes with any degree of detachment. (Mathews, 2004, p.49)

¹¹⁶ See also Margenau and Penrose’s claims regarding freedom and choice in Chapter 7.

¹¹⁷ Sadly further discussion of Epicurus’ swerve falls beyond the scope of this study.

In taking, for example, emotions, as exhibiting “a momentum of their own [which]... once aroused, cannot be simply arrested or abruptly redirected” (ibid.), Mathews adheres to Engels’ dialectical categorical device of *movement* as the marker of ‘edges’. Thought is a movement and as such shares features of other substantial perturbations, especially in relation to sustaining systemic integrity, and, of course, ultimately a tendency towards entropic return to general directionlessness.

Importantly,

the characteristic patterns of subjectival movement can be acknowledged without this implying that these processes are strictly predetermined... the fact that snakes move in characteristic ways does not entail that the direction a given snake chooses to take on a particular occasion is predetermined. Order in the sense of large-scale patterning does not preclude small-scale variation of “direction” in these patterns. (Ibid.)

The points we should recall here from Chapter 1 relate to our conceptualisation of freedom as a wholly ‘human’ trait. Whilst at some levels, we operate successfully with the axiom that human thought exercises a freedom which is not available to other species, we recall the bizarre freedom of the subatomic particle to ‘choose’ its trajectory in relation to the presence of an observer, and the equally bizarre lawlike results which accrue from the ramification of such ‘chosen’ instances (Feynman, 1992, pp.129-148)¹¹⁸. It is certainly the case that the everyday abstractions of freedom and law do not pertain in anything like the sense we might commonly understand them at the subatomic level, nor indeed at the level of subconscious subjectivity.

Ultimately, Freya Mathews attempts with little success to soften the consequences of the Copenhagen interpretation. Her concern is around the degree of arbitrariness suggested by a co-constructionist system of observer-dependence which proposes that

¹¹⁸ We might also recall here Epicurus’ attempt to allow for the breaking of the ‘bonds of fate’ within a universe governed by universal laws by permitting the declination of the atom from its straight line, a subject brilliantly explored in Marx’s doctoral dissertation (Marx, 2006, pp.108-118).

unavoidable changes in a system flow from its observation¹¹⁹. Although resistant, Mathews has to concede that the *co-constructionist* consequences of quantum physics are significant. And here, she uses that by now well familiar phrase which we first encountered in Ollman's writing:

The point that this recognition of observer-dependence does drive home however is that observation is not a one way, but a two-way street: the perceiver is not outside the world looking in, but is an embodied presence within it. Looking is itself a physical process, with effects as well as causes. It is necessarily an interaction, an exchange. (Mathews, 2003, p. 168)

Indeed Freya Mathews goes on to make the point in almost the same terms we saw earlier in relation both to Ollman and to Dietzgen, bringing home as strongly as any other of the parallels in this study the connection between deep green ecosophy and Dietzgenian Marxist ontology as a basis for a green socialist theory of consciousness, ethics and pedagogy. “[T]o concede this does not imply that we can never discover the nature of things. For it is precisely in the nature of things that their self-manifestation at any given moment is selective, according to the particular interactions in which they are involved.” (Ibid., p.169) This explication of the panpsychist presence of the observer within the observed re-strengthens Dietzgen's and Ollman's now familiar claim that the abstraction of unities which make possible the Marxist analysis of economic (and ecological) systems requires the

¹¹⁹ In choosing to illustrate her point via ethology rather than quantum mechanics, she fails to pay due regard to the limits of correspondence in the relationships pertaining between ontological levels (see Chapter 1 on loose correspondences – such parallels have a relatively limited heuristic value). She offers a proposal which might work very well for animals, but contradicts the arguments of physics at the quantum level: “For it is the object's *already determinate* nature that dictates how that object reacts to the subject's presence, and hence the subject can infer, from that reaction, truths about the independent nature of the object.” (Emphasis added) (Mathews, 2003, p.169) This is simply not the case with quantum *indeterminacy*: in some senses explored elsewhere, matter is unchanging and ever-present, yet its mode of existence is anything but. Waves or particles exist *in* material spacetime. A better use of the ethological metaphor could have been to show that it might indeed be true that the researcher's observation of animals in their habitat simply demonstrates the opacity of such systems before or between observations, and the impossibility of obtaining untainted objective knowledge of animal behaviour ‘in the wild’, rather than calling into question the possibility of the independent histories of particular animals. Rather as Heisenberg has insisted, “we have to remember that what we observe is not nature in itself but nature exposed to our method of questioning. . . . In this way quantum theory reminds us, as Bohr has put it, of the old wisdom that when searching for harmony in life one must never forget that in the drama of existence we are ourselves both players and spectators.” (Heisenberg, 1990, p.25)

interdependence of actors within a field at the level of basic ontology. The positive or negative selection of data – their appropriation or elimination (in Whitehead’s terms, their prehension) calls forth for the observer and in actuality complex abstracted unities, communities of feeling, systems of thought. Thus reality itself becomes malleable to political, ideological pressure within the broad limits set by the inheritances of greater lawlike patterns, the meeting of cosmology and politics. At points, both Heisenberg and Bohr come close to this position as expressed by Ollman and the method employed by Marx in articulating the categories which offer explanation of the working of capital through the process of abstraction as an onto-epistemological act of co-creation¹²⁰.

Finally, a crucial distinction between panpsychist ontology and that arising from the standard (Copenhagen interpretation of) quantum mechanics is that for the latter, if the observable world cannot be characterised independently of some conscious presence, then the presence in question is that associated with the particular observer; that is to say that when we observe it is our minds which are implicated in the realisation of potential. Whereas, for panpsychists, by contrast, the subjective agent is somewhat more diffuse, resting in a theory of universal self-presence. Why and under what conditions should self-presence occasion actuality? The answer to this question remains elusive: it shall constitute a part of the discussion in the final section of this study. Let it suffice to say for now that only through some great act of learning – the dialectical opposition of self-presence to itself – can it be possible to realise the potential of self-presence-for-itself.

Dietzgen and Panpsychism

¹²⁰ Bohr himself goes so far as to use the term often neglected by physicists in their attempt to explain the quantum world of ‘complementarity’ or actually existing, non-cancelling contradiction. This ‘complementary’ mode of description, he says, “aims at the appropriate dialectic[al] expression for the actual conditions for analysis and synthesis in atomic physics.” (Bohr, 1998, p.147) Bohr also suggests that the dialectical method drawn from atomic physics might be more widely employed – “An example is offered in biology where mechanistic and vitalistic arguments are used in a typically complementary manner. In sociology too such dialectics may often be useful...” (Ibid. p.147) Whilst for Heisenberg, “[i]t is understandable that in our scientific relation to nature our own activity becomes very important when we have to deal with parts of nature into which we can penetrate only by using the most elaborate tools.” (Heisenberg, 1990, p.25) Let us just say for now that Marx’s tools were nothing if not elaborate! ‘Marx the physicist’, or indeed ‘Marx the panpsychist’ would be a step too far, but Marx the metaphysician, who along with Engels and Dietzgen operated on a dialectical basis which foresaw something of the ‘complementarity’ of the quantum universe through the lens of a transmutating social formation in dialectical self-contradiction, we must admit.

The lines of connection which have been drawn in this study hitherto have sought to relate ecosophical thinking with Marxist monist materialism. By drawing Dietzgenite Marxism into the sphere of ecological philosophy, something of a rapprochement has been attempted. Little has yet been noted in this regard about the possibility of finding in the Marxist tradition something parallel with Mathews' development of panpsychism. Dietzgen, of course, never used the term, but in what follows it will be proposed that at least a few passages in his muddled oeuvre suggest ways in which contemporary ecological and Marxist thinking might be drawn together on this question. Here we enter the murkier end of Dietzgen's speculative Simonian forays into a 'social democratic religion', and the prosthetization of his son Eugene. This is the Dietzgenism which got Dietzgen a bad name among Leninists but found sympathy with the god-building tendency among the 'other Bolsheviks' around Bogdanov and Lunacharsky¹²¹.

If Joseph Dietzgen's turn of phrase was inexact, his eldest son Eugene's was still more so. It was Eugene who turned his father's approach into "the proletarian method" – a "consistently dialectic and monistic, or critically inductive, method of thought with its cosmic crowning" (E. Dietzgen, 1906a, p.48). This method is so called because on Dietzgen Jr.'s account, it is the hallmark of the proletarian that, in the final analysis, he must fall back upon his capacity to intellectually or physically labour, not as an unaided individual but as a member of his class. In contrast with the bourgeois, insofar as he becomes class-conscious, the proletarian enters into a permanent association of equals. For Eugene Dietzgen such a state of affairs suggests a receptivity on the part of the class-conscious proletarian to the indivisibility and democracy of a consistent materialism. This is best viewed as a pole of attraction to be contrasted with the dualist and individualist ideology of the bourgeoisie. Echoing and amplifying Dietzgen, Bogdanov after 1900 asserted that members of bourgeois society think in dualistic terms, with the privileging of spirit over matter mirroring the material reality of the proletariat's division from and domination by the bourgeoisie¹²². By contrast, socialist society will think in monist terms,

¹²¹ See the following chapter for further discussion.

¹²² See chapter 6 for a fuller discussion of Bogdanov

“contemplating a single universe of mind, matter, energy, and experience of which the self is an integral part, and not an isolated segment.” (Williams, 1980, p.391) The expected transformation in popular cosmology was premised on the belief that “Marxism and socialism were closer to religion than science” (ibid., p.391) and this in turn to the conviction that, as proletarians acted far more on the basis of sentiment and collective myth than rationality (ibid., p.395), the wholesale adoption of a new cosmology and attendant labour mythologies would play an important part in the transformation to a collectivist society and a new type of humanity, freed from bourgeois individualism and atomism. In the communist society “cosmic dialectics takes root in the heart and brains of men.” (E. Dietzgen, 1906a, p.77) As we will see, this position stems directly from Dietzgen Senior and is associated with those rather hazy affirmations which, in terms that will be examined, echo the somewhat religious language of ecosophical panpsychism. The position of rationality in Dietzgenian-inspired cosmic socialism and syndicalism is unusual in the Marxist tradition because it is so precariously balanced against mythologizing. To some extent Dietzgen’s ‘social democracy’ works in the interests of a profoundly Romantic and utopian vision which owes more to Schelling than to later Marx (and yet has been derided as reductive and positivist by some more recent commentators such as Richey (2003)). As the metaphysical absorption into nature gives way to an equally paradoxically empowering surrender to the collective, rationality takes a back seat to the dogmatic assertion of ‘it’ before ‘I’. Dietzgen’s is certainly a strange position. He at once says of religion that it is ‘childish’, ‘airy’ and obsolete and yet occasionally speaks of ‘God’ without irony. For Dietzgen (1906, p.197) the method is the distinguishing feature between religion, philosophy and science. Religion looks for wisdom among clouds or behind ghosts; philosophy is likewise befogged with religious myths into speculating on hazy generalities. Only the method of exact science operates with the materials of the perceptible world of phenomena. And yet, he urges us to turn our

attention to the mind and to those aspects of matter which are not perceptible, and calls forth a cosmological injunction to faith¹²³.

For his son, in Joseph Dietzgen's politicisation of cosmology – his synthesis of the religio-cosmological and the political – lies the crucial connection between economic conditions and mental activity, providing the basis for Eugene's overblown claims regarding the significance of this philosophy: “[h]ence, all phenomena, including the force of thought and the human individual endowed with it, are organic members of the cosmos, and this natural, infinite, and organic interrelation is the long sought final and unitary explanation for all phenomena”! (Ibid., p.57) In Dietzgen's attempt to entangle mind within the movement of material and economic forces, it is purported that he finds the explanation for forms of consciousness. Moreover, for Eugene and his supporters, Dietzgen has ‘perfected’, ‘supplemented’ and ‘developed’ Marxism into a complete system of “cosmic and monistic dialectics” (ibid.,p.58). Dietzgen has supposedly solved the great unrecognised contradictions of post-Cartesian philosophy

by pointing out the universally verifiable fact, that every individual phenomenon, including man and his force of thought, is not of itself whatever it is, but exists only in and derives its particularity from the connections with all other phenomena of nature, so that this natural and universal interrelation, this universal being, is recognized as the absolute and uniform premise for every concrete phenomenon. (Ibid., p.62)

For the cosmic socialist “the universe is the all-combining, and all-embracing organic being, and ...the mind, or consciousness, is one of its parts endowed with the peculiar power of serving as an instrument of orientation in the general interrelation.” (Ibid.,p. 65) Here, Eugene Dietzgen comes close to the term panpsychism and even closer to its spirit in asserting “[w]hatever does not partake of the psycho-physical nature of the universe, cannot exist.” (Ibid.) Thus the Dietzgenite pseudo-religion so much derided by Leninism emerges. For Eugene Dietzgen, the pansychist “universe has all the

¹²³ Dietzgen sees the natural science of his day as unable to rise to the challenge of unifying the various aspects of its study, even if organic matter is proved to be derived from inorganic, and man proved to be descended from apes. This is because science divides the tangible from the mental. Instead he calls for a “democracy of epistemological freedom” where “modesty governs, that is, submission to material, physical necessity” (Dietzgen, 1906a, p.220).

attributes of divinity without its dualism, without that faith which would believe in a supernatural mind and a supernatural world apart from the natural mind and the natural world.” (Ibid.) Humanity’s job in abstracting, explaining and classifying phenomena is to orientate ourselves to the cosmos. At one level, this project differs little in its aims from Mathews’ in *The Ecological Self*.

So, let us return to the origin of this proletarian panpsychist cosmological reorientation. In 1875 Joseph Dietzgen produced a series of ‘sermons’ on the ‘Religion of Social Democracy’. Therein he claims not that socialism will supplant religion, but simply that it *is* a new religion. The Social Democratic ‘gospel of today’, he argues “promises to save us from misery in a real and palpable way... We want our saviour, our Word, to become flesh, and to be materialized not in one individual only. All of us desire, the people want to become sons of God.” (Dietzgen, 1906a, p.90) This exercise in what Lenin would later call god-building has as its end a sacralized collective.

If religion consists in the belief in supernatural beings and forces, in the belief in gods and spirits, then social democracy is without religion. In its place we put the consciousness of the insufficiency of the individual, who needs therefore to his completion and perfection the cooperation of the whole, and consequently acknowledges his submission to the whole.

Civilized human society is the supreme being in which we *believe*; on its transformation to socialism we build our *hope*. Such a humanity will make love a reality, of which the religious enthusiasts have only been dreaming.

(Original emphases) (Ibid., p. 109)

The language of perfectibility echoes the utopianism of earlier in the century. The means by which human perfection may be realised is in the overcoming of individualism and atomism and their replacement by collectivism as the basis for proletarian cultural development, this taking something like the form of a religious ‘revival’. Dietzgen is steadfast in his view that religious thought is subject to the same ‘evolutionary’ pressures as all other phenomena, that it develops through particular

phases and will pass away¹²⁴. In the context of his discussion about the most advanced forms of religious thinking, wherein a personal deity is superseded by a vision of God as an ordering principle in the universe, he makes some interesting remarks, which reveal those aspects of his thought which come closest to the explicitly panpsychist position, probably inspired by his absorption of Spinozism.

It cannot however be denied that there is in dead matter a living impulse towards a higher form of organization, and that, consequently, the material world is not dead, but living. (Ibid., p.119)

Dietzgen maintains the militant materialist conviction which is inseparable from his monism, but in some passages, matter is described as, in some sense ‘alive’. One would want to explain this claim by adding that matter is ‘alive to itself’ or ‘alive for itself’ rather than opening the door to crude misreadings. Nevertheless, Dietzgen goes further in his ‘Gaian’ explication of the living subjectivity of matter – and this must mean *all* matter, for there is only one indivisible whole. And here we see very strongly the influence of Spinoza’s notion of conatus on Dietzgen’s thought. The language is, as ever, inexact and confused (and his argument at times self-contradicting), but it is fairly clear that Dietzgen intends to confer upon all matter some form of subjectivity, he speaks of its “will” and purposiveness – its conatus – but also of “universal intelligence” and of “consciousness” (ibid., pp.119-120). The distribution of this subjectivity is uneven, and Dietzgen’s criterion for establishing its ‘density’ is *organization*, rather than dynamism: “[t]he higher the organization of matter the clearer the manifestation of the intelligence.” (Ibid., p.119) One might legitimately question what is meant by organisation here: how might some formations of matter be more ‘organised’ than others? There is a strong case for claiming that such a question might best be referred to those more well developed and subtle contemporary forms of ecosophy such as Mathews’ whose application of systems thinking to panpsychist monism finds systemic complexity and resilience at the macroontological level to be the mark of their integrity and selfhood; and Dietzgen himself certainly comes close to this position, even more so his immediate successor

¹²⁴ His position is more complex and dialectical than this briefest of summaries would suggest, but it will do for the purposes of this study.

Bogdanov (1996)¹²⁵. Although with characteristic clumsiness, Dietzgen blunders around the question of the permissibility of allowing conatus to “lower organised matter”, eventually coming down against such an ascription, he must to some extent accede to the participation of all such matter in the one “universal intelligence”. If, as he asserts, human intelligence is the highest manifestation of the universal intelligence,

[h]igh and low means in our materialistic philosophy as much as more or less organized. The less autonomous the parts of a thing are, the more they function as organs, the more independent and closely connected they are, the more numerous and varied their natural communications and services, the higher is the thing in the hierarchy of nature. (Ibid., p.120)

It is not hard to read such a passage as committing the philosopher to a position close to that of Mathews for whom ecosystemic intraconnectivity is synonymous with higher conative capacity¹²⁶.

There are other instances which further add to the case for some kind of panpsychist tendency in Dietzgen, prefiguring later systems theory and ecosophy. Interestingly, in his consideration of the relation of abstracted individual intellect to whole Nature in his last work, 1887's ‘Positive Outcome of Philosophy’, Dietzgen identifies not only human but also other ‘intelligences’ as embodying aspects of the whole:

Just as a piece of wood has the twofold quality of partaking not alone, with its oaken nature, of the general nature of wood, but also of the unlimited generality of all nature, so is the intellect a limited specialty, which has the quality of being universal as part of the universe and of being conscious of its own and of all universality. The boundless universal cosmic nature is embodied in the intellect, in the animal as well as in man, the same as it is embodied in the oak wood, in all other wood, in all matter and force. The worldly monistic nature which is mortal and immortal,

¹²⁵ As explored in Chapter 6.

¹²⁶ And as suggestive of a general ‘systems theory’ – see Chapter 6.

limited and unlimited, special and general, all in one, is found in everything, and everything is found in nature (Dietzgen 1906a, pp.341-2)

Dietzgen turns first to wood, then to animals' intellection before considering that of man as embodying the monistic nature of the Universe. As such, he is trying at a non-anthropocentric look at the relation of mind to matter and part to whole. Whilst his thinking is certainly undeveloped, he is attempting an ontological account of humans and others as fundamentally dialectical, each at once in its twofold nature limited and unlimited. Each individual life represents both something unique and also a tiny aspect of a total whole. Each life is an open identity, open to the Universe. It is important to remember in this regard that every individuated, abstracted thing must be regarded dialectically both as a provisional identity and as a lack of identity because by its very existence it represents its own relation to the whole and cannot be known except from the viewpoint of the whole. A dialectical reading of Mathews might yield a more convincing account of just this ontology.

An issue remains, which connects the question of panpsychism with what follows in the third section of this study. Dietzgen refers a great deal to the sense in which the faculty of grasping the 'universal concept' is *innate* in humans. The innateness of a relationship to the universal in humans need not imply its realisation in consciousness; indeed, a conscious apprehension of the universal and its ontological relation to the subject would seem to be far from generally accepted. Insofar as such a knowing has been supposed to have realisable existence, it has principally been the subject of religious and or cosmological exhortation. Indeed at a fundamental level, the discovery and acceptance of such a cosmology form the basis of much of the work of Freya Mathews (along with others over many centuries). To this extent, it would be as difficult to claim an innateness to the universal idea as it is to claim that our faculty of vision allows for all-seeing. In what sense could the apprehension of the materiality of the subjective experience of the material totality be said to be innate in that its attainment is not only deeply contestable, but also an issue of ongoing cosmological speculation and persuasion on the part of Spinozist and ecosophical thinkers?

In attempting to answer this question, Dietzgen, though his language is, as ever, slightly confused, nevertheless makes an important point regarding the pedagogical

relation of universal to individual consciousness. “Not every individual is conscious of the universality of general nature, otherwise there would be none of that distracting dualism. Nor would there be any necessity for volumes and volumes of philosophy to teach us that a limit, a thing, or a world outside of the universal, is a nonsensical idea”. (Ibid., p.368) Pedagogy and cosmology are interwoven in their role as connecting abstracted individual selves into their always already extant greater Self. Our consciousness is only in a limited sense our own; it is, more broadly, a consciousness belonging to but non-localisable within the material plenum. It is, claims Dietzgen, a “child” of the infinite. Consciousness is the “science of infinite being” (ibid., p.369): whosoever wishes to learn more of their relationship to the universe must work for their own progress by observation and study. Educational process in this respect is no more or less mysterious than it is as with regard to any other aspect of the ‘general mystery’ which we all strive to overcome. When Dietzgen says of the “universal faculty of thought” that it is “born with the capability of grasping the conception of the universe” (ibid., p. 368-9), does he mean to refer to the ‘birth’ or emergence of the individual consciousness of the infant? Or is his meaning closer to Schelling’s great creation of possibility from which all other abstracted subjectivities flow as echoes of the original collapse into the real?

In response to the charge that the innate apprehension of the infinite is not experienced by all, Dietzgen asserts, in typical dialectical fashion, that that which is innate can be acquired and that which is acquired presupposes something innate. It is fair to say that, insofar as we admit the experience of consciousness of a relationship to the infinite, such a consciousness presupposes both its possibility and the material condition of human ‘nestedness’ in the materiality of the universal whole which is the subject of our ontology. But Dietzgen is going further: he suggests that the innateness to which he refers is not located within the human brain but is an immanence within the universal matter of which consciousness is but an aspect (a non-localisable ‘arising’ in geometrodynamical terms). This lends a different sense to what innateness might mean. The ‘acquisition’ of the consciousness of the relation of part to whole might be, in some sense, innate to our materiality (universal being) rather than to our subjectivity. This acquisition is innate as an immanence in our broadest possible

Selfhood, that of the universal conatus. In making his bold and paradoxical claim he wishes to locate the individual subject at two levels. The subject for itself – the inward-facing subject – may not be consciously aware of its universal nature. But the subject in nature, the subject in its exploded self is, for itself, everything. Thus the expansive subject is always already (‘innately’) conscious of its universality, whilst the abstracted subject-in-brain may be merely in itself, awaiting the transformation for itself. This consciousness “does not rise out of the isolated faculty of understanding, but out of the universal nature” (ibid., p.366). Here, the panpsychist implications of Dietzgen’s monism come to the fore, for in this case one must understand abstracted human thought realising its partaking in the subjective being for itself of all nature, its ‘internality’ as Mathews would have it. The source of our ‘philosophical understanding’, that reintegration into the infinite, must not be sought in individual ratiocination. Though the work of the brain is important, such material labour fundamentally serves to reconnect this material activity of thought into the subjective materiality of the universe, “[t]he womb of our knowledge and understanding must not be sought in the human brain, but in all nature which is not only called the universe, but is actually universal.” (Ibid., pp. 366-7) This is a profoundly non-localizable definition of the subject in nature, which resonates with the panpsychism of Freya Mathews and contemporary ecosophy. The self is both innately subject of the universe and object in itself. The great act of learning is its acquisition of its always already (‘innate’) nature, the realisation of the possibility of its being; the collapse of the potential into the real for itself. Dietzgen attempts to clarify, “Every individual has his own [consciousness]. But the peculiarity of my consciousness, of yours, and that of others, is that of being not alone the consciousness of the individual in question, but also the general consciousness of the universe, at least that is its *possibility* and mission.” (Emphasis added)(Ibid. p. 368) For Dietzgen, the pedagogy of universality requires a grasping of the ecology of his universe, of “the conciliation of all differences and contradictions in universal nature.” (Ibid., p.366)

Conclusion

Panpsychism as an ontological principle is contrary to much of the recent Western tradition in philosophy, including mainstream Marxism. However, it has a part to play

in green thinking, and can be found among those echoes of Romanticism which redound at the edges of contemporary culture. As a thread running through the modes of thought discussed in this chapter it has served to bind together the ecosophical hopes of natural communion with the strange interdependence arising from quantum physics. The cosmic socialism of Joseph Dietzgen and his son has been proposed as the strain of Marxism most proximate to post-Romantic panpsychism. Such a claim may not matter very much. Then again, if it contributes towards red-green rapprochement, and it may, this unorthodox Marxism which reaches back into the utopianism of the early nineteenth-century, and further to the Romantics, may point the way towards an acceptance among socialists of the need to re-examine at a fundamental level the relationship between our movement and ecologism. Perhaps our tendency to forget the roads not taken has obscured our ability to envisage a socialist project which puts wholism, interrelatedness and panspeciesism at its heart. Certainly such a project remains elusive, even given the increasing willingness of many Marxists to embrace an ecosocialism in policy and action. We return to the irony that Dietzgen was a clumsy and reductive writer whose materialism sometimes tends towards the crude and antidialectical mechanics of the leading scientists of his day. Yet in his writings remain glimpses of promise, regarded now through a post quantum lens of both ontological and ecological uncertainty, which unsteady the supports of the remaining promethean elements of much socialist thought. The elements of his writing which appear sympathetic to panpsychism are of this type, and it is these proto god-building tendencies which were dismissed by Lenin¹²⁷ and Bolshevism after Bogdanov, and by subsequent generations of Marxists. The thoroughgoing embedding of human psychological relations, and the production relations upon which they grow within rather than outside or above nature takes us some way from the main currents in post-Leninist Marxist and even ecosocialist philosophy.

¹²⁷ The subject of the following chapter.

Chapter 6: Unearthing Dietzgen amidst the Roots of Deep Ecology

Introduction

The following chapter represents an extended addendum to the discussion of both Romanticism and panpsychism. Here it is intended to illustrate the potentialities immanent at the moment of post-revolutionary confusion in the decade following the 1905 revolution in Russia. Why might this be of any interest whatsoever? During this period, the intellectual and moral leadership of the Russian Marxists was contested, and with it the direction social democrats should take in advancing the revolution. Perhaps the ideas born of and grown in this ferment could not outlast it; certainly they could not have emerged except in response to the set of material conditions and a balance of forces which it offered. Or perhaps the unique context offers a lens through which we might recognise something of our own restlessness, distrust of leaders, sense of impending transition, rootlessness. For, we bear witness here not only to a moment of political transition after 1905, but also to a new scientific context – a recognition of the importance of energetics and natural limits, an emerging awareness of the new physics; and, of course a keening sense of the disorientating disequilibrium occasioned by the ongoing brutal and uneven advance of capital across the landscape. Add to this a deeply superstitious and fatalist peasantry and a rapidly growing proletariat receptive to and productive of novel and revolutionary ideas and we have a cauldron of contradictions. From this context, it is argued, we might learn something of the organic synthesis of the religious and scientific, the political and the cosmological. In rounding off the second part of this study, the historical overview offered here attempts to relocate some of the syntheses proposed in previous chapters

within a set of material practices and ideas which are both particular to the moment and offer a glimpse of the project of epistemological and pedagogical reconstruction possible, and necessary among the contradictions of the current period of environmental crisis. There will be little specific reference to either the Romantic tradition, or to panpsychism, or for that matter to process philosophy of internal relations. However, other connections are made which thread through these traditions and, most particularly, through the often seeming incommensurable divide between Deep Ecology and Marxism. Specifically, there is an attempt to offer an archaeology of the origins of Deep Ecology and systems theory: the purpose of this exercise is to unearth something of the network of largely disregarded connections between Marxism in Russia and the newly founded USSR and the systems thinking which informs ecosophy¹²⁸. For the purposes of this study, the legacy of the by now familiar Joseph Dietzgen will be invoked as an important and almost wholly unremembered precursor to the acknowledged forefather of Soviet systems theory, Alexandr Bogdanov. Bogdanov controversially and creatively mixed his Marxism with the ideas of the important physicist and philosopher of science Ernst Mach (1959) to formulate a holistic approach to natural and social scientific study. This was represented by a very large body of work, pursued at first under the name of ‘Empiriomonism’ in 1904-6 and later as ‘Tektology’ (1914-22). To Lenin, Bogdanov was, at different times, an ‘idealist’, a ‘Machist’ and a ‘vperedist’¹²⁹. It will of course be necessary to offer some explanation of the political conditions which surrounded the development of Bogdanov’s systems thinking, and the ways in which Dietzgen’s influence played into the highly charged philosophical milieu of revolutionary Russia, a sphere which came increasingly under the sway of V.I. Lenin after about 1910. For Ted Benton, Bogdanov’s universal organisational theory, his *Tektology*, represents a “new proletarian science” of the sort anticipated by Dietzgen, which “was a precursor to, and possibly even a superior version of, the systems theory of Ludwig von Bertalanffy.” (Benton, 1996, p.116). Tektology’s all-encompassing attempt to

¹²⁸ If one were to do full justice to this subject, far greater attention would need to be paid to the characters of Mach, Verdanskij, and others. Regrettably such a project will have to wait for another day.

¹²⁹ An advocate for the ‘renegade’ ‘forwardist’ faction within the Bolsheviks, of which more later.

offer a set of general methods of explanation of the interrelations between every element of the universe allows the retrospective reader to attempt a more or less direct line from Bogdanov through systems thinking into Deep Ecology. For Benton, “[b]y conceiving humans as part of and within nature, as existing only through their capacity to obtain and process usable energy, Bogdanov brought the limitations of the natural environment into sharp focus.” (Benton, 1996, p.116) In Tektology and Bogdanov’s earlier formulations, we see something very like the cosmic conatus proposed later by deep ecologists such as Mathews. Just as each ecosystem strives to preserve its own systemic integrity, so does the cosmos as a whole: “*all* behaves towards its preservation.” (Original emphasis). (Bello, 1985, p.143) In this regard, the ecosophical assertion of an inherent value in all forms of life seems to be prefigured by Tektology.

What Ernst Mach, leading experimental physicist and foremost philosopher of science of the Austro-Hungarian Empire, brought to the table was contentious to say the least. Here is not the place to discuss Mach; let it suffice to say that his dogged empiricism and equally vociferous relativism lent him, for his Russian revolutionary followers, the caché of cutting edge science. Along with Dietzgen, he also provided an empiricist basis for their forays into the realm of philosophy and psychology. An important aspect of the so-called Machists’ ‘Empiriomonism’ was the emphasis on *thought as action*, and here Dietzgen’s influence was also clear. Under the influence of Dietzgen and Mach, the pedagogical aspect of social transformation thus came to the fore within the thought and writing of Bogdanov and the other Machists. In proposing workers’ self-organisation into a “General Workers’ Soviet”, Alexandr Bogdanov recognised the need for proletarian self-education: for this to operate, he, like Sorel (1999), saw the need for a working class *mythology* to inspire a reorientation within the world. It will be proposed that such a project bears a striking similarity to some of its successor movements not only within the anarchist tradition, but also in Deep Ecology. Along with syndicalism and autodidacticism, it will be suggested, goes a cosmology or worldview which identifies collective action of the working class as a manifestation of contradictions within the material conditions of production within which they find themselves, but which does not require the necessary intervention of

a party from the outside; such a dualism being seen as representative of a mind-body split, or of a theoretical-practical divide. Here, Dietzgen's legacy goes far deeper than some recognise. For it is only on the understanding of the universe as single and unbroken that it is possible to conceive of a dialectics without mind-body or party-people dualisms. Yet Bogdanov diverged somewhat from Dietzgen on this point. According to Benton, "Bogdanov regarded Dietzgen's philosophy as still too much based on contemplation, defending Marx's (and modern physicists') concept of matter as that which resists labor (or action) against Dietzgen's conception of matter as primary being." (Benton, 1996, p.115) On this reading, in contrast with Dietzgen, Bogdanov's counter-posing of matter against labour means that the absolute indivisibility of matter is broken, with labour standing in as the motive force of the universe, the active sphere as against matter's passivity. However, Benton's interpretation may not fully take into account Bogdanov's appropriation of energetics as a force which works across these spheres.

Nevertheless, it should not be surprising that Bogdanov's sense of the centrality of *labour* in defining the dialectics of 'nature' marks his theory as anthropocentric. This makes it perhaps all the more notable that his predecessor Dietzgen's conception of thought as matter retains a dogmatic holism, a vision which his supporters understood as demanding a 'world consciousness'. In this respect, Dietzgen's vision is truer to the nature-monist aspirations of later Deep Ecology than were the intermediate phases of Bogdanovite systems thinking. The cosmology after which Bogdanov strove was certainly worked through in far more detail in his so called 'proletarian science' of Tektology than Dietzgen ever achieved, but many of its features are already present in Dietzgen's monistic sketches. Politically, it was Dietzgen's cosmology or *cosmopolitics* which informed too those whose attempts at drawing together Marxist and anarcho-syndicalist strands were most effective, such as Pannekoek (2003) and Gorter (1989). Contemporaneous with Bogdanov's innovations, this confluence of the cosmological and the political in Dietzgen's legacy led to profound clashes within communism both in Russia and Europe, which can only be touched on in this chapter. The key to his influence on both the Dutch left Marxists – Pannekoek and Gorter – and the 'Machists' was the importance that accrues to a transformation in the cultural

imaginary; Dietzgen's vision of the 'religion' of communism (or of 'social democracy', in Dietzgen's terms), mentioned in Chapter 5, which demands a cosmological reorientation. This 'god-building' exercise would, in Bogdanov's eyes require the proletariat to "transcend bourgeois culture, which he argued could only be achieved by creating a new culture to organize experience." (Benton, 1996, p.115) Ted Benton notes that in this respect, Bogdanov anticipates Western Marxist critiques of bourgeois science, but insofar as this meant that "he saw the mechanical view of the world, the split between mind and matter, idealism and materialism, as expressions of the social practices of capitalist society" (ibid.), Bogdanov clearly also follows in the footsteps of Dietzgen.

So, it will be argued in this chapter that a thread runs from Dietzgen to recent ecology, a thread which can be traced through Bogdanov and into systems theory. In proposing this connection, it is intended not to make some definitive claim to the origins of Deep Ecology, but only to occasion the retelling of a particular story about its emergence, one which brings to the fore that which it shares with early Marxism as its genetic forebear. In this respect, this second part of the current study ends as the first part began; but by historicising the abstractions discussed by Ollman and the ontological potentialities developed by Žižek and thereby locating them within their own 'conrescence' rather than presenting merely the 'sum over histories'.

Bogdanov and his place within Marxism

A brief overview will suffice here to lend a sense of Bogdanov's overriding concerns and his distinctive place within the Marxist milieu. Several themes emerge in Bogdanov's thinking which mark him as an unusual and unorthodox Marxist thinker, and one who clearly owes a debt to Dietzgen. This inheritance will be discussed further a little later, but it is important to give a flavour of it here to aid Bogdanov's contextualisation. There is a central paradox in the Bolshevism of the period immediately after the 1905 revolution, and in the thought of Alexandr Bogdanov in particular. Bogdanov was fiercely scientific, and his method was very deliberately attuned to the developing new science of Western Europe, particularly the 'new

physics'. Yet, Bogdanov recognised that neither the Russian peasantry nor proletariat saw the world in his scientific terms. In common with most syndicalists he and his co-thinkers felt that men acted on the basis of will, sentiment, and collective myth more than they did out of rational self-interest. He was thus certain that the social democratic project would need to develop a language and strategy which to some extent mirrored the worldview shared by the peasants, and drew on religious sentiment, but turned it towards entirely new ends. The humanistic and collectivist vision he espoused was consciously 'religious' in that it projected a utopian ideal of heaven on earth, and a promise of a life free of individual pain and woe in the redemptive capacity of the collective. Such a vision derives in large part from the explicitly 'religious' aspect of Dietzgen's materialism¹³⁰. This project became known as 'god building' and was developed by Lunarcharsky and others after 1900 to oppose the individualism of neo-Kantian 'god-seeking'. (Williams, 1980) In key texts, such as Lunarcharsky's *Religion and Socialism* (1908 & 1911), he, along with Gorky and Bogdanov developed a line that "Marxism and socialism were closer to religion than science." (Williams, 1980, p. 391). In the spirit of the 'new physics' which he embraced, Bogdanov proclaimed a 'science' which was an organising of men's experience and observations rather than an explication of absolute truth. Bogdanov followed Dietzgen in asserting in his *Empiriomonism* that all truths were relative and historically and politically contingent. The more traditional scientific method of Lenin and Marxist 'orthodoxy' was set against the new science of potential, possibility and uncertainty (Williams, 1986, p.127), and this scientific relativism unsurprisingly earned Lenin's ire, as will be noted in slightly more detail later.

Like his concern with the 'religion' of social democracy, Bogdanov's particular understandings of monism develop ideas which were sketched by Dietzgen. Echoing and amplifying the earlier proletarian philosopher, Bogdanov asserts that members of bourgeois society think in dualistic terms, with the privileging of spirit over matter mirroring the material reality of the proletariat's division from and domination by the

¹³⁰ Footnote: Mansueto's conclusions are fascinating but offer a different and perhaps more conventionally religious set of possible directions to address what he sees as some of the contradictions which arise in relation to Bogdanov's thought. To consider them in more detail would require more time than it is possible to dedicate here.

bourgeoisie. By contrast, socialist society will think in monist terms, “contemplating a single universe of mind, matter, energy, and experience of which the self is an integral part, and not an isolated segment.”¹³¹ (Williams, 1980, p.391) Bogdanov therefore necessarily perceives himself as different from both the speculative and the materialist philosophers of the West whom he associates with bourgeois dualism, in that he is an organic representative of the universal class, the proletariat, from whose collective consciousness will one day flow the fully formed version of the universal organisational science of which his Empiriomonism and later Tektology are prefigurative glimpses. The superiority of the new science of the proletariat would lie in the forms of knowledge or consciousness characteristic of that class as a function of their forms of organisation. Bogdanov’s Tektology is envisaged as an evolutionary extension of proletarian culture and science, as the first possible *universal* theory and practice able to discover the organizational character of nature. Here again, Bogdanov follows Dietzgen in believing that bourgeois science, as a product of emergent capitalism and the division of labour necessarily diversifies into specialist disciplines incapable of representing the universal interest¹³². The early Empiriomonism of Bogdanov “does not consider the antithetical terms “spirit” and “matter” as necessary since, fluid and vague, they are generated by an authoritarian dualism of times past, with an inferior form of social organisation; they are relics.” (Yassour, 1983, p.22)¹³³ For Bogdanov, as for Dietzgen, it is only the universal class, the proletariat who are

¹³¹ It should be noted that insofar as he takes his cue from Dietzgen, Bogdanov’s position on the historical material bases of any “Weltanschauung” are very similar to those of his contemporary, the Dutch left communist Anton Pannekoek. Both see scientific positivism and mechanical materialism as bourgeois in the sense that “[i]n general, the antithesis “God – Universe” and “soul – body” are but reflections of a reality which is based on the antithesis, “authority – obedience”, i.e., the organisational and executive functions.” (Yassour, 1983, p.24) Pannekoek understood Dietzgen’s philosophy as the scientific culmination of previous philosophies, as completing the work of Kant and Hegel; but for all this, Dietzgen’s philosophy was not his own but, rather, “one of the more systematic intellectual elements of the historical mode of abstraction of a rising working class.” (Gerber, 1978, p.6) Thus, by applying Dietzgen’s own historical relativism, Pannekoek decides that Dietzgen’s thinking represents merely a projection of the underlying conditions of the economic development of the proletariat. Crucially, Dietzgen is himself a self-educated proletarian, but beyond that his individuality matters little; Dietzgen’s “finite and temporary realization” (Pannekoek in Gerber, 1978, p.8) of truth is the truth of the working class at that moment.

¹³² It divides the world along the lines Engels critiqued in *The Part Played by Labour in the Transition from Ape to Man*, giving ontological priority to the classificatory idea rather than the integrated practice of working within natural process.

¹³³ However, whereas Dietzgen redefines matter, albeit vaguely, to accommodate the ‘spirit’, Bogdanov is drawn away from materialism per se, and attempts to position himself as equidistant to both matter and spirit, materialism and idealism, a stance which predictably set him against Lenin.

able to recognise and develop a science which gives priority to labour in its material engagement within systems, and to the organisation of the nexus within which it operates: “The proletariat is in charge of culminating the process of organization, of implementing Tektology.” (Bello, 185, p.137) The world historic events in early century Russia are both the condition and the realisation of the possibility of the new systems thinking, “historically, socially and scientifically, the revolution brought about by the proletariat was the necessary step towards the establishment of the reign of the organizational science.” (Ibid.) As a reading of Dietzgen has revealed, a feature of his monism is a theory of internal relations which stands opposed to established versions of causality. Bogdanov, like Dietzgen, supposes that this new conception of cause also arises as a function of peculiarly proletarian relations, and is therefore a distinctive ‘truth’ emergent upon changes in the material world. “[F]or Bogdanov, the proletariat’s conception of causality provided the final link in his own attempt to bind the mental and physical constellations into an interacting monistic view of reality.” (Boll, 1980, p.53). The historicisation of fundamental concepts in this way lends Bogdanov’s proletarian philosophy a strongly teleological aspect. For him, the bourgeois revolution in Europe had ushered in new forms of understanding and, in bourgeois society, our orientation to the world is shaped by a sense of cause which unwittingly reflects class relations, “[c]ausal connection is represented according to the form of economic necessity; hidden beyond the phenomena, natural necessity engenders both the causes and their effects” (Bogdanov, in Boll, 1980, p.53).

Although Bogdanov’s organisational ontology is ‘proto-ecological’ in a sense which will be explored more fully later, his account of the genesis of dialectics is avowedly and unapologetically anthropocentric. Unlike the dialectics of Dietzgen, proceeding “from the natural universe” (Untermann, 1906, p.243), or the ‘dogmatic’ assertion of ‘it’ before ‘I’ which has been accepted in this study, Bogdanov posits an organisational principle grounded in proletarian experience, not monism per se, but ‘*Empiriomonism*’. That is, his is a critical method which retains an ontological privileging of the ‘I’. Energetic transfer is described as a basis for the transformation of the material world at the hands of the proletariat, a utopian vision of mastery which sits very uncomfortable with any account of humanity as intertwined within an

organising network¹³⁴. Out of this develops Bogdanov's "labour-causality" (Bogdanov, in Boll, 1980, p.56), which makes of 'nature' a nexus of energetic relations that is forever being transformed into new forms of energy to meet the needs of the labouring collective. Bogdanov's empiricist monism (Empiriomonism), then, develops Dietzgen's picture of the mind on the basis of 'labour-causality', where 'mind' is nothing but transforming energy. It is not caused by brain states or distinct from them, but simply another way of describing the process at work, from the perspective of part of the organisation of elements of the whole. Bogdanov attempts to formulate a political account of the relation of 'mind' to 'matter' rather in the manner established by his forebear by locating the possibility of 'substitution' within the process of organisation. Whilst 'psychic' experience is individually organised, physical experience is socially organised. "The 'psychic' configurations are included in the immediate configurations of the various degrees of organisation that are basic to physical experience. These 'psychic' configurations can be *substituted* for the phenomena of physical experience (the physiological processes of the superior neural centres)." (Emphasis added) (Yassour, 1983, p.23) A correlation is thereby attempted between combinations in 'nature' and in 'spirit'. Whether this formulation is any more successful than Dietzgen's will remain unanswered for the moment. Contra Lenin's (1948) charge of solipsism¹³⁵, Yassour defends Bogdanov: matter or nature is not a function of individual consciousness, but of "collective human practice". "Nature is the realm of efforts and conflicts – it is the realm of "matter". One cannot conceive matter without directing activity toward it." (Ibid., p.

¹³⁴ In some passages, nature is organised around the extent to which it feeds the needs of the proletariat, a distinctive communist take on a kind of anthropic universe: "every phenomenon, every process of nature is a possible source for the labouring collective of mastering some other process. In this consists the practical connection of phenomena, the practical unity of nature" (Bogdanov, in Boll, 1980, p.56) In this respect, cause and effect are not separate, nor is cause prior to effect in any strict sense. Rather as we saw in relation to Fichte, a continuous process of transformation, here described as energetic rather than 'material' connects the materials of labour with the process and the products of labour:

"If light is the wave motion of the ether in its changed form as it is perceived by our senses, if matter represents complexes of electrical processes in an equally changed appearance, then brain with its physiological life turns out to be [*okazyvayetsya*] *the psyche itself in its converted appearance as it is perceived by people in their physical experience*. From the point of view of causal connection, this is one and the same sum of energy in its two phases, belonging to different provinces of experience." (Bogdanov, in Boll, 1980, p.57) (Original emphases)

¹³⁵ See *Materialism and Empirio-Criticism* (1948), Chapter 1, Part 6

25) This position clearly parallels that of the emerging science, of quantum physics, but places it in a collectivist context where matter-nature is established by collective intervention.

Bogdanov and his co-thinkers' marriage of a pedagogy of 'spiritual' transformation with the cosmopolitics of monism should by now be familiar, representing the cornerstone of both Dietzgenite myth-building and the ecosophical and panpsychist reimagining of society. The possibility of this transformation is to be found in the worldview which Bogdanov begins to map, a cosmology which represents the early phase in what becomes known as Systems Theory.

The Origins of Systems Theory

For the purposes of this study, it is necessary, at this point, to secure a case for the precursors of systems thinking lying in early twentieth-century Russia and the Soviet Union. The picture painted here of the origins of systems thinking in Russia will, of necessity, remain a little general. The purpose of this foray into the murkier corners of the history of ideas is merely to shine a light on some of the now largely forgotten predecessors of contemporary ecological thought, and thereby to propose a connection between the transformation of consciousness sought by early Marxists and that required by deep ecologists to face the environmental crises of the twenty-first century. Belykh (1990) claims that Alexandr Bogdanov's *Tektology* "is rightly considered to be the forerunner of... general systems theory" (Belykh, 1990, p.571), but for the purposes of this study Bogdanov's monumental achievement is considered as a bridge between the earliest Marxist philosophy of Joseph Dietzgen and the systems thinking of Deep Ecology.

Whilst systems thinking in general goes far wider than biological or 'natural' relations, (Susiluoto, 1982, p.17) it is that strain of biological philosophy as exemplified by Ludwig von Bertalanffy which most informed ecological thinking in the twentieth-century. However, the projects which bookend this study, Dietzgen's and the ecosophy of Mathews and Naess, both in a sense represent attempts to approach the same ends as those which Susiluoto identifies as the object of systems thinking, "the rise and precise definition of concepts of totality and order and of

related concepts.” (Ibid.) Susiluoto makes an important distinction between systems thinking and systems theories. The latter represents the coalescing of the former into a form which conceals its own emergence. Here perhaps the thinking of Dietzgen and some of his followers help in allowing us to understand systems as contingent upon material conditions, the balance of class forces, ultimately the mode of production. A system may appear internally coherent, each element linked within the whole, and precisely this appearance can easily lead one to overlook the history of the thinking which developed into systems theory.

Susiluoto usefully unravels the intimate relationships between pre-Soviet and early Soviet thought and later systems theory. Unsurprisingly, von Bertalanffy himself acknowledged among the historical predecessors of systems theory, both Hegel and Marx (leaving the way open for a Marxist reading of the origins of systems thinking)¹³⁶. There may be no direct lines which lead from Bogdanov to Ludwig von Bertalanffy; nevertheless, one indirect connection was Moritz Schlick, a supporter of Bogdanov’s positive stance on Einstein’s theory of relativity, who went on to teach von Bertalanffy.

A crucial aspect of the understanding of ‘biological relations’ which underpins Bogdanov’s development of a systems thinking approach was the spread of evolutionism and his development of these ideas within his material political context.

Bogdanov linked the study of societies with the Darwinist perspective. In nature, the development of animal species was regulated by a struggle for survival. In society, struggle and adaptation reached its highest level, as it were, in the collective. The evolution of knowledge became the motive power of development. According to Bogdanov, society’s ability to adapt to nature depended in its ability to obtain, process and generalise information. (Ibid.)

¹³⁶ Whilst it was Felix Auerbach who in 1910 applied the rules of thermodynamics to biology to propose the idea of living systems resisting disorder, a central theme in ecological theories and a necessary and acknowledged influence upon von Bertalanffy, also of great importance in this respect, the Russian V.I. Verdanskij’s analysis of the biosphere “led to a comprehensive approach which in a way became the basis for today’s ecosystem concept.” (Susiluoto, 1982, p.26). However, most importantly, “[t]he task of taking thought processes originating in different quarters and combining them into a single movement was left to a revolutionary with medical training, Aleksandr Bogdanov” (ibid., p.27).

It can only be in the lived experience of collectivity that the kinds of knowledge can arise which would allow humans successfully to adapt to nature. In this sense, only proletarian science and proletarian culture really allow for such a possibility.

Something very close to such a position was already present in the writings of Dietzgen, for example in his 1887 'Excursions of a Socialist into the Domain of Epistemology' nearly twenty years before Bogdanov began to develop them¹³⁷: in contrast with the emerging socialist science, bourgeois "science is narrow and wanting in penetration, it still lacks a systematic theory of the Universe as an infinite monistic evolutionary process." (Dietzgen, 1906b, p.299)

Bogdanov saw organisational forms in society as bearers of the experience which gave rise to a worldview or cosmological orientation, the organisation of ideas. Thus the communalism of village life, and its religious rituals, for example, came to represent, for Bogdanov, a primitive form of his organizational science. Here one might recall the Deep Ecological reverence for the 'traditional ecological knowledge' embodied in the lived experience of tribal peoples. The 'order' in some traditional societies is evident in the integration of its moral, geographical, medicinal, technological and astrological rules. Bogdanov calls this an "artistic totality" (Bogdanov, in Susiluoto, 1982, p.47) and it prefigures the scientific, ecological totality of Tektology and later general systems theory. The transition towards the possibility of a general theory was marked by the joining up of the sciences, the emergence of universal scientific concepts: "[t]he engineering industry was a social manifestation of...[this] tendency towards integration. The more perfect machines became, the closer they approached automatic mechanism." (Susiluoto, 1982, p.48)

The 'universal science' of Tektology sought to describe all activities including those of human thought as part of processes of organisation and disorganisation. As far as

¹³⁷ By 1913, Bogdanov had come to foresee the day when the socialist transformation of society would yield new forms of thinking and, ultimately the new science, then envisaged as an outgrowth of his own *Empiriomonism*. In *The Philosophy of Living Experience*, he writes, "Philosophy is living out its last days. Empiriomonism is already not fully philosophy, but a transitional form, because it knows where it is going and to what it will have to give place. The beginnings of the new universal science come in the next few years. Its flowering will arise from the gigantic, feverish organizational work which will create a new society and complete the agonising prologue of the history of mankind. That time is not far off..." (Bogdanov in Susiluoto, 1982, p.45)

these processes are concerned, no boundary exists between human and non-human nature, or between organic and non-organic nature. Bogdanov's programme

contained many of the ideas which were later classified under the names cybernetics and general systems theory. These included the concepts of the machine and the organisation, the examination of machines and animals as processes in which control and self regulation were possible, investigation of the relationships between the whole and the parts in a non-reductionist manner, the dismantling of the barrier between natural and social sciences, the attempt to develop a common interdisciplinary language and the ideal of exactness. (Susiluoto, 1982, p.54)

In 1919 Bogdanov published his *Course in Political Economy* which imagined a utopian social order organised on the principles of Tektology. Even then, two years after the revolution had begun, he did not describe this systematically organised social system as socialist or communist, but as collectivist (Susiluoto, 1982, p.58) Most interesting from the point of view of subsequent green theory is the role Bogdanov assigns to capitalism in this text. Capitalism, then, represents a period of profound instability between far more stable and organised epochs. From the perspective of Russia, with capitalism a relatively recent, shallow and incomplete mode of production, Bogdanov saw this phenomenon as brief and transitory, covering "a period which is very important from the point of view of the individual but insignificant when examined from the perspective of mankind." (Bogdanov, in Susiluoto, pp.58) It is preceded by primitive collectivism with its relatively resilient and sustainable character, and will be succeeded by advanced collectivism in a state of equilibrium. Like some deep greens, Bogdanov takes the long view of evolutionary time – *sub specie aeternitatis* as Dietzgen said of Spinoza – and finds in the primitive collectivist systems pointers towards the sustainable society to come, a 'steady-state' world of internally coherent elements.

Bogdanov's approach was that of a natural scientist rather than that of a politician. Although he saw capitalism as a 'brief' transitional phase, he did not foresee its immediate decline, even among the turmoil of 1919 in Russia. Indeed, because he felt

that in order for a new social system to emerge and sustain, what was required was a new worldview, a socialist outlook on the cosmos, “[h]e had his sights set centuries ahead. He could not, therefore, provide exact advice on how a new society should be built. The ideal should be implemented through a prolonged period of learning, in the process of which the collective experience would raise the awareness of the people to a new level.” (Susiluoto, 1982, p.59) In contrast with later Marxist orthodoxy, Bogdanov like his Dutch contemporary and keen ‘Dietzgenite’ Anton Pannekoek takes as a central lesson from Dietzgen the importance of the transformation of consciousness in any successful revolutionary process.

Bogdanov was clearly aware, in a way that the Leninist tradition was not, of the distinction between the self-organizing capacity of the cosmos on the one hand, and the structures which regulate that activity on the other hand. This in turn made it possible for him to understand the difference between the development of human social capacities - actually raising the masses to a communist level of development - and merely securing their support or acquiescence through economic, political, or cultural sanctions. (Mansueto, 1996, p.48)

If, as has been by now very often repeated, consciousness or subjectivity does not stand above and against materiality, then, whilst it is necessary for changing consciousness that the structures of society be transformed, it must also be true that a revolution in the social, political and economic structures of society cannot be deep or sustained without a revolution of the mind¹³⁸. Again, Bogdanov and Pannekoek are at one in applying Dietzgen’s philosophy to reach this conclusion. The pedagogical implications of this approach are obviously considerable, and demand the kind of revolutionary schooling activity which Bogdanov, with Gorky, Lunarcharsky et al aspired to on Capri and later Bologna and Paris¹³⁹. Bogdanov, seeing himself as a

¹³⁸ For all its talk of the ‘new man’, actually existing socialism always led too much by the nose for the transformation of consciousness itself to guide and deepen structural change.

¹³⁹ In his exposition of Pannekoek, Gerber (1978) takes this position to its spontaneist (and possibly anti-Party) conclusion in declaring, “[a]lthough the outcome of... revolution will be decided by the physical power of the working class, it is not this power alone that is decisive, but the “spiritual power” which precedes it and determines its use. Revolution is thus a victory of the mind, of historical understanding and revolutionary will.” (Gerber, 1978, p.17)

representative of the European working class, formulated his proletarian systems thinking in response to just this challenge. Again it should be clear that the legacy of Dietzgen's autodidactic ideal and the manner in which it found political form in support for spontaneism hangs over the proto-systems theoretical perspective here. Mansueto (1996) agrees with Williams (1980) that the heart of the much debated dispute between Lenin and Bogdanov was the question of the transformation of consciousness. Lenin's emphasis on the role of revolutionary activity and of the vanguard occurring along the fault-lines of capitalist contradiction, contrasts with Bogdanov's vision of organic change across wide swathes of the proletariat through gradual historical time, with pedagogy and organization coevolving, as "social development, like cosmic evolution generally, was a product of growing organization. When a group emerged within human society which understood how to organize at a socialist level, it became possible at least in principle to reorganize society on a socialist basis." (Mansueto, 1996, p.50)

Taking his cue from Dietzgen, Bogdanov wished to expand the scope of materialism into the new energetics, his monism operating with an account of dialectical relations between 'parts' of an interrelated whole. Insofar as we can describe objects as in motion at all, they exhibit not contradiction but "counter-action – a term much better suited for a materialistic dialectic" (Bogdanov, in Boll, 1980, p.55) A feature of the central place of energetics in Bogdanov's 1919 socio-natural systematising is his focus on global fuel reserves. Here he developed a theme which he had considered as early as 1897 in his widely read *Short Course of Economic Science*. Of carbon based fuels he noted that resources were "limited and non-renewable" (Bogdanov, in Susiluoto, 1982, p.60), and he highlighted the need to harness the "enormous forces" of wind and tide-power, along with the power contained in the atom. As the possibilities of these revolutionary new power sources – particularly nuclear power – are realised, the necessity of their common control will become clear, for, he says without human collective control such terrifying forces threaten "the destruction of all life on earth." (Ibid.) With the employment of the new energy forms, production, though planned, would not need to be concentrated in urban centres. Importantly, decentralised production "would make it easier for people to become united with

nature, the great source of this living experience and culture” (Bogdanov, in Susiluoto, 1982, p.62). In the light of such comments, it is remarkable how little Bogdanov’s analysis has been commented upon by later green lefts as it offers a glimpse of a political as well as a theoretical bridge from Marx and Dietzgen to systems theory and Deep Ecology. This reference to nature as the source of the collective culture of the new society closely prefigures the writing of Freya Mathews on the material bases (for example in tribal peoples) for a cosmological orientation towards an ecological worldview and culture. An understanding of the project articulated at various times by Bogdanov, Lunarcharsky, Gorky and others as the projection of a new scientific socialist worldview, something akin to Dietzgen’s religion of social democracy, is supported by Susiluoto: “the birth of systems thinking is revealed in the right context only when Bogdanov’s... theories are examined as attempts to elaborate... a new scientific “Weltanschauung”.” (Susiluoto , 1982, p. 193) The achievement of this worldview is affected through a sustained attempt at cosmological reorientation towards a collectivist vision of human agency and embeddedness. We recall the deep green critique of contemporary societal orientation proposed by Freya Mathews. Humanity is lost without a compass so long as it lacks a cosmological orientation. At best, our contemporary understanding of the universe is often atomistic, disconnected and alienating. Of course Marxists take this argument a step further and look for the genetic factors which give rise to such disorientation, and here Bogdanov is at his strongest. Although, somewhat confusingly, he calls the atomistic worldview which came to prominence in the nineteenth-century, “metaphysical monism” (Mansueto, 1996, p.45), the object of his critique, like Mathews’ is a social orientation which is self-destructive. And, of course, the origins of this worldview lie in the ways in which capitalism divides labourer against labourer. As Mansueto puts it, “[w]hen human society is organized by market structures, which treat human beings as only-externally related atoms, then human beings will tend to understand the cosmos as a whole on the same model.” (Mansueto, 1996, p.45) Bogdanov’s projects from *Empiriomonism* through to his Tektology are intended to address this question of the formation of cosmological orientation by attempting to recast the worldview of the masses in the mould of proletarian

experience of collective labour in the industrial era. As a basis for an ecological realignment of cosmological mindsets, this might not appear a promising basis, but of course, the nature of the experience of the expanded self which we have regarded elsewhere as self-in/as-environment is also – and cannot but be – social and, for Bogdanov, collectivist.

In the 1909 Collection *Essays in the Philosophy of Collectivism*, Bogdanov explained truth and reality as relative, and reflective of collective experience. His utopianism recalled the mastery of nature conjured by the generation of Fourier: “[t]he future belonged to the scientific and technical intelligentsia as organizers of nature.” (Williams, 1986, p.148) Yet, ‘organizers of nature’ need not necessarily mean its conquerors as Engels so clearly explained many years earlier in *The Part Played by Labour in the Transition from Ape to Man* (Engels, 1987). To understand nature’s laws and apply them correctly for the benefit of the expanded collective (what we might now term, the ecosystem, or indeed the biosphere): this is the wish expressed by Engels, and one might charitably read Bogdanov’s ‘spiritual’ science of nature-mastery in the same light. Here again, what Dietzgen’s vision and that of Bogdanov and Lunacharsky share with Deep Ecology is a picture of a world where the individual ego is more or less consciously aware of its greater self as collective, just as Schelling’s subject ‘surrenders’ into wider nature. The material conditions and balance of forces of 1909, of course, differ very significantly from those of a century later and so the understanding of the collectivity into which the ego must of necessity ‘surrender’ itself if it is to preserve anything of the life of its class, and indeed its species, has further expanded to encompass interrelations between the proletariat and its ecological life support for which the Bogdanovites had relatively little regard¹⁴⁰. However, both deep ecologists and Bolshevik collectivists recognised that monocultural systems wherein multiple relations (of, for example, domination and predation) are reduced to spokes from a centre, are unstable and liable to rapid collapse. If the collectivity to which the individual surrenders is to be sustained, it

¹⁴⁰ Perhaps a backward glance at the traditions of Romanticism with which the more ‘spiritual’ side of the Bogdanovite project shares much might have informed the ecologism of Bogdanov’s co-thinkers (‘Machists’, ‘Vperedists’ et al), though it would no doubt have further earned them the distrust of the Leninist centre.

must be complex and internally interrelated. Only if it is can the human subject attain a kind of ‘immortality’ in its sustained systemic integrity. Just as in any system, resilience is a function of complexity, “Collectivism meant the Bolshevik collective, not Lenin’s individual authority, and syndicalist unity with trade unions, not party dictates.”¹⁴¹(Williams, 1986, p.149)

Dietzgen’s influence on Bogdanov

The influence of Joseph Dietzgen on Bogdanov would seem clear enough both in the nature of his project and in relation to some of the specifics of his programme.

However, given how little this relationship has been remarked upon, it is necessary next to locate it within the discourse of the period, including some discussion of Lenin’s response to Bogdanov and Dietzgen¹⁴².

Much has been written about the influence of both Marx and Mach on Bogdanov’s early systems thinking (Jensen, 1978), but very little on the importance of Dietzgen’s

¹⁴¹ It is worth drawing a parallel here between Bogdanov and his Dutch contemporary and keen ‘Dietzgenite’, Anton Pannekoek who, like Bogdanov came from a background in the natural sciences. It is perhaps unsurprising then that he would make an assertion that among the forms of “thought activity” generated during the development of the productive forces, none are more important than science (Gerber, 1978, p.9). Pannekoek followed Dietzgen in proposing that scientific thinking reflects its particular historical epoch and values. Scientific ‘truths’ form part of the technologies and forces generative of productive activity and cannot be separated from other material features of the historical landscape. Again, like Bogdanov, Pannekoek sees these “new scientific “truths” (or forms of consciousness)... [as] an important and indispensable source of “spiritual power,” both for the development of new technologies and for the new social relationships that arise out of them.” (Gerber, 1978, p.10) Like deep ecologists of later generations, Pannekoek, Bogdanov and other Dietzgenians looked to the provisional and relative nature of the claims made by the new quantum science of the twentieth-century to argue for a spiritual realignment. When Freya Mathews appeals to geometrodynamics for a tentative account of the underlying unity of the universe, she operates in way which would have been very familiar to Pannekoek and Bogdanov. Her science is political because it could not be otherwise, insofar as it is reflective of the development of the social forces operating within society. But it is not only reflective, but prescriptive of possible directions in the development of consciousness. If atomistic science represents something like the spiritual and cosmological reflection of capitalism, then the emerging science represents a future beyond capitalist individualism and the refraction of the contradictions within capitalist society which point towards a coming collectivism, and ecologism beyond capital.

¹⁴² Interestingly, there would even seem to be some direct connection between Dietzgen and Bogdanov’s acknowledged great influence, Ernst Mach, something which would not have helped Lenin in his employment of Marx’s proletarian philosopher against Bogdanov’s revisionism, had he known of it. In 1907 the ‘Vperedist’ Volsky (better known as Valentinov), a follower of Bogdanov, corresponded with Mach, enquiring about the influence of Marx, Engels and Dietzgen on his thinking. He received in response the confirmation that the physicist *had indeed* read the proletarian philosopher, though *not* Marx and Engels (Williams, 1986, p.130). Had Lenin been aware of this, he would have had to work even harder to maintain any trust in the increasingly anti-orthodox looking legacy of Dietzgen – even given his friendship with Marx – against the corrupting charge of idealist deviationism. As it was, Lunarcharsky’s appropriation of Mach along with Sorel, and Bogdanov’s interest in Avenarius and Mach, suggested a radical revision of Marxism towards the new relativist science of Einstein. And behind the thinking of both Bogdanov and Lunarcharsky lay Dietzgen’s empiricism and monism.

impact on Bogdanov and his co-thinkers¹⁴³: for example, although Susiluoto identifies several other precursors to systems theory, he overlooks the influence of Dietzgen on Bogdanov's thought. However, among astute contemporary critics, the connection was clear, and none were more astute than Plekhanov. Writing in 1907, Plekhanov laid the ground for Lenin's later attack on 'Dietzgenism'. The historical moment for this attack is important: here the catalyst for the beginning of the Russian denunciation of Dietzgenism, if not yet Dietzgen himself, was the writings of Bogdanov and their divergence from the emerging orthodoxy of Lenin. Thus, it was Bogdanov's engagement with the 'idealist' philosophies of Mach and Avenarius that coloured Plekhanov's judgement of Dietzgen. Plekhanov is most harsh when it comes to the Russian Dietzgenite Pavel Dauge. He recognised the association which had rightly begun to be drawn by Dauge and others between Dietzgenism and Bogdanov's thinking. He quoted Dauge at length, and it is worth reproducing this translation of Dauge's introduction to his Russian edition of Untermann's *Antonio Labriola and Joseph Dietzgen* (as quoted in Plekhanov):

We indeed find many points of similarity between Bogdanov and Dietzgen and we are certain that the former, by extending and developing the philosophical work he has begun, will arrive finally and by the logic of things – 'independently' of Dietzgen, as Dietzgen did 'independently' of Marx – at proletarian *nature-monism*, to which, perhaps he may give another name, but which will have the same philosophical content.

(Original emphasis) (Dauge, in Plekhanov, 2004a, p.104)

Evidence, if this were required, that the direction 'Dietzgenism' was heading in Russia was towards a 'nature-monism' which ran counter to Lenin's promethean dialectical materialism. Indeed, not just the openly 'Dietzgenist' Dauge, but Bolshevism itself was drifting under the influence of Bogdanov towards a collectivist,

¹⁴³ It should be noted that Jensen (1978, pp.106-109) offers a reading of a couple of pages of Bogdanov's 'Philosophy of Living Experience' where Bogdanov does indeed refer explicitly and in some detail to Dietzgen's merits and shortcomings. The significance of the passage Jensen identifies for this study is that in it Bogdanov notes approvingly of Dietzgen's similarity to Schelling in finding the "the real and the ideal [meaning the material and the psychic] simultaneously in all phenomena". (Jensen, 1978, p.108) This is perhaps a unique example of a comparison of Dietzgen with Schelling on this or any other question.

and monist position much at odds with the minority line taken by Lenin in 1905-9, but suggestive of a nascent form of systems thinking. All this might be of historical interest alone were it not for the glimpses it offers of the possibility of a Marxism emerging with a holist ontological orientation in early century Russia, a ‘nature-monism’ which was choked off by Leninism’s rise. As Bogdanov’s forerunner, Dietzgen furnishes the early experiments in systems-theoretical thinking with an admittedly undeveloped basis which is surely worth excavating from beneath the sediments of dialectical materialist orthodoxy, dusting off and setting alongside contemporary green successors to the same thinking as their perhaps not so distant relative, with whom a re-acquaintance might yet be affected.

In 1907 Georgii Plekhanov launched his assault on Bolshevism as tending towards a syndicalist revision of Marxism, and in doing so re-established a line which would become orthodoxy when adopted by Lenin¹⁴⁴. He was the first to offer a retrospective denunciation of Dietzgen’s philosophy as tending towards ‘Bogdanovite deviation’¹⁴⁵, warning his readers “against being too credulous and unwary in their approach to Dietzgen’s philosophy, on the grounds that it sometimes takes on a resemblance to...

¹⁴⁴ Plekhanov made some entirely reasonable criticisms of Joseph Dietzgen’s fleeting acquaintance with French materialism and only superficial understanding of Hegel and Kant. However, this point acknowledged, there is still something about Dietzgen’s ontological argument which challenges Plekhanov’s orthodoxy in a manner he doesn’t satisfactorily rebuff. To the extent that Plekhanov, Engels and even Marx declare themselves materialists in opposition to idealism they do indeed sometimes exhibit a particular kind of “one-sidedness”. By contrast, to the extent that Dietzgen “abolishes” the opposition between these two concepts” (Plekhanov, 2004a, p.104) whilst declaring himself a monist materialist, he insists both that “Nature comprises all” (Dietzgen in Plekhanov, 2004a, p.104) and that Nature is dialectical. And – insofar as he is consistent in this – Dietzgen’s represents a socialism which contains a nascent critique of anthropocentrism, and indeed which lends itself to the task of re-inventing ecocentric cosmology dialectically. It is probably fair to say that Plekhanov was little concerned with the dangers of anthropocentrism. For Dietzgen, by contrast the emerging evidence of the interrelatedness of non-human animals and humans offered an insight which logicians and systems thinkers needed to take up in relation to “being in general, to the infinite cosmos.” (Dietzgen, in Plekhanov, 2004a, p.110) That all things, and all forms of being are interrelated “is the basis of all J. Dietzgen’s logic, or – since his logic embraces his theory of cognition – his gnosiology.” (Original emphasis)(Plekhanov, 2004a, p.111) And it is when Dietzgen is at his most ambiguous and all-embracing that Plekhanov levels against him the ironic charge that “here, indeed, J. Dietzgen’s philosophy does begin to resemble the very “original” philosophy of Mr Bogdanov.” (Plekhanov, 2004a, p.113)

¹⁴⁵ Writing in 1907, Plekhanov excoriated Untermann for claiming that in the absence of the publication of *The German Ideology*, there was a gap in Marx’s theory of cognition, a gap which Untermann considered not significantly addressed by Engels’ later writings. For Untermann, Dietzgen filled the gap; whilst for Plekhanov, Untermann had not fully understood Marx on consciousness, and there was in fact no gap for Dietzgen to fill, no need for a ‘supplement’. Marx’s ‘gnosiology’ was not unelaborated but clear and sufficient. Plekhanov proclaimed that Dietzgen’s writings “do not contain a single theoretical principle that could be acknowledged as new in comparison with those enunciated in the works of Marx, Engels, and Feuerbach.” (Original emphases) (Plekhanov, 2004a, p.103)

Bogdanov's own" ¹⁴⁶(Plekhanov, 2004b, p.188). For Robert Williams "In Russian "Dietzgenism" lay the roots of Bolshevik collectivism, god building and the proletarian culture movement" (ibid.) and, we should add in the light of what has already been outlined, of Bogdanovite nature-monism and subsequent proto-systems-theory. If it was Dietzgen's influence on left Bolsheviks including Bogdanov and Lunarcharsky that grew into the project of 'god-building', Williams argues that this connection was an important one, 'Dietzgenism' forming "an essential component" (Williams, 1986, p.94) of this cultural-pedagogical strategy. In the period after 1905, with the shift among many European Marxists towards parliamentarism, and in light of the failure of the democratic revolution in Russia, the rediscovery of the writings of Dietzgen along with those of Mach "represented an attempt by socialists everywhere to reradicalize Marx" (ibid., p.96) and, as is now clear, to recast the movement as akin to a faith rather than a science. Of course, this is not to say that, insofar as he was a philosopher of science, Dietzgen's ideas were not 'scientific'. Bogdanov's assimilation of Dietzgen's position into *Empiriomonism* was at once both a scientific scheme and one intended to win popular assent as a new way of orientating oneself towards others, a way of being, or faith, and in this respect it differs little from its successors in ecogistic thinking. Pavel Dauge, Dietzgen's Russian translator wrote to Eugene Dietzgen expressing the hope that his father could serve as a Bolshevik Aesop (Williams, 1986, p.96); Bogdanov himself wrote an essay on Dietzgen's philosophy, published in early 1908 in the collection *Essays on the Philosophy of Marxism*; Lunarcharsky drew on Dietzgen and Sorel for his essay in the same volume, also evoking "proletarian monism" and the religion of social democracy (Williams, 1986, p.97).

¹⁴⁶ At this historical juncture Bogdanov, rather than Lenin seemed to represent the future of Bolshevism, and to be its foremost theoretician. Given the spectre of anarchism which surrounded the politics of collectivist god-building, it is perhaps unsurprising that Marxists searching for a new direction in the wake of the 1905 defeat should have sought a more respectably Marxist basis for their prophetic monist nature philosophy, thus "many Russian social democrats in 1907 turned to a little known proletarian philosopher and friend of Marx, Joseph Dietzgen, whose view of socialism as a religion of science promised to provide a useful Marxist myth without admitting any syndicalist associations" (Williams, 1986, p.93). (These social democrats must not have been fully aware of Dietzgen's earlier controversial history as supporter of the Haymarket anarchists!)

The peak of Bogdanov's influence, when he effectively assumed the leadership of Bolshevism in exile was the period 1907-9¹⁴⁷. This coincided with the highwatermark of Dietzgenism in perhaps 1908 when he represented "a significant influence on those Bolsheviks who sought a new collectivism through useful social myth that would mobilize the masses into action." (Ibid.) It is no coincidence that this was also the height of syndicalist influence both within Russia and elsewhere in Europe. Unlike other Bolsheviks, Alexandr Bogdanov was sympathetic to spontaneism. In the wake of the 1905 revolution, Bogdanov's willingness to synthesize the ideas of anarcho-syndicalism with his Marxism echo the response of his forebear Joseph Dietzgen to the events of Haymarket. It was during this period that the embattled Lenin, alone among the Bolsheviks, sided with the Menshevik Plekhanov who claimed the inheritance of Marxist purity as he attacked the various revisionisms and deviations of Mach, Avenarius, Dietzgen and their 'Vperedist' followers¹⁴⁸.

Plekhanov similarly condemned Eugene Dietzgen for daring to claim that Marx and Engels had failed to chase away the last spectres of idealism by setting consciousness against nature rather than 'rooting' it within the "nature of the universe" (Eugene Dietzgen, in Plekhanov, 2004a, p.104). For Plekhanov, Engels was beyond reproach, and the charge that neither his nor Marx's materialism offered a "criticism of cognition" thus without foundation. To be sure, Eugene Dietzgen's claim that his father's philosophy represented the fourth and final stage in the nineteenth-century development of materialism after Hegelianism, Darwinism and Marxism was overblown, but the son's inflated loyalty alone was not the main source of Plekhanov's antipathy. Plekhanov proceeded to confront Joseph Dietzgen directly over his son's claim that he abolished the opposition between idealism and materialism, and he did so via an assault on the worker-philosopher's clumsy phrasing

¹⁴⁷ Williams explains that syndicalism started to wane in 1910, with Sorel's renunciation of this approach a marker of its failure and decline; and it may be presumed that Dietzgen's influence similarly begins to fade in Russia and elsewhere in Europe in the succeeding years. (Williams, 1986, p. 158)

¹⁴⁸ It was at the Paris meeting of the Bolshevik Centre June 21st-30th 1909 that Bogdanov and his circle were expelled from the Centre in what they regarded as an unconstitutional manner. Though they proceeded to establish a rival parallel Centre, their vision of a diverse mythologizing Marxism was, politically, no match for Lenin's iron orthodoxy. (Williams, 1986, p.143)

and inexact expression. It is certainly true that when Dietzgen wrote of the shortcomings of eighteenth-century materialism he did not, as Plekhanov pointed out, distinguish between the materialisms of LeMettrie and Diderot, Helvétius, Holbach, and that of Hartley and Priestly. Nevertheless, the substance of Dietzgen's point remained that the material act of thinking as a neurological movement is but a particular instance of a 'universal process', that the universe is both material and subjective or for-itself¹⁴⁹.

Writing some seven decades later, Ilyenkov defended Plekhanov's position and that of Lenin, disputing the need for the kind of study undertaken here (see Appendix II for a fuller account of Ilyenkov's defence of Lenin and the philosophical dispute with Bogdanov, the vperedists and Dietzgenism). He believes that on the basis of misreadings of Lenin, "far-reaching conclusions are frequently drawn about the need to 'broaden' or 'supplement' Lenin's definition of matter and the philosophical conception of materialism (as supposedly narrowly epistemological) by means of the so called 'ontological aspect'." (Ilyenkov, 2009, p.287) It is just this kind of reconceptualisation of matter in its 'ontological aspect' that has been attempted here by reference to Dietzgen, Whitehead, Schelling and even the young Marx himself.

Conclusion

The ideal of collectivism which gathered so much support among leading Bolsheviks in the last years of the first decade of the Twentieth-century might be of little interest were it not for the parallels between the idea of subjectivity to which it gave rise, and that more recently developed by deep greens and proponents of revolutionary ecological politics. In 1908, Gorky wrote an essay entitled 'The Destruction of the Personality', though this was never published on Lenin's orders (Williams, 1986, p. 147). At this time when Gorky was at his most influenced by Bogdanov's vision of a new social imaginary, a new myth, the religion of social democracy, he foresaw a politics of absorption of the individual into the collective: the "integral personality" finds immortality in the collective. Whilst it cannot be denied that there is a strain of

¹⁴⁹ It is also perhaps worth noting Plekhanov's sideswipe against Pannekoek (Plekhanov, 2004a, p.106) whose advocacy of Dietzgen as a means of understanding Marxist strategy in relation to the analysis of capitalism, it is claimed, echoed Eugene Dietzgen's own.

wild prometheanism in Gorky's vision of a people capable of building a utopia, and cheating death, there is also something of the Romantic socialism of poetic release, and the panpsychist appeal of Freya Mathews in this ego-transcendence. Gorky's novel of this period *A Confession*, escaped the Leninist censors and managed to communicate the same message in powerful and poetic terms¹⁵⁰. Lunarcharsky followed up with his two volume *Religion and Socialism*, promoting a proletarian cosmology drawn from Dietzgen and Feuerbach (Williams, 1986, p.148). In each case, Bogdanov's, Gorky's and Lunarcharsky's, their exercise in god-building is not pure fideism, indeed there is a strong argument to be made that it is a highly rational, even scientific response to a set of material conditions in the post-revolutionary period. The same argument could, of course, be made for some among the ecosophists. Here again, an unfolding set of material conditions is tending towards ecological, and very probably economic crisis. The response offered by the 'rational' deep green is to mythologise, or at least to develop a strategy of intervention into public consciousness at what Pannekoek (after Dietzgen) called the "spiritual" level. When science is used to advance a world of unpredictability, uncertainly, perhaps panpsychist possibility, the deep green rightly identifies the opportunity to broaden the base for a new type of thinking about subjectivity and personal responsibility. But what they tend to fail to do is to learn the lessons of their forebears. Neither Pannekoek nor Bogdanov were able to successfully employ Dietzgen's new religious aspiration to mobilise sufficient masses of people to effect a genuine mass change in consciousness. In many ways revolutionary greens are still further back in developing such a possibility. Just as was the case a hundred years ago, forms of anarchism and reformism dog the movement for radical societal restructuring, and deep greens have been less systematic in their employment of collectivist myth-making than the vperedists ever were.

Whereas Lenin valued first and foremost the understanding acquired through revolutionary action, for Bogdanov, a longer term strategy of pedagogical work was required to 'convert' workers to a thoroughly materialist cosmological orientation, for without this, their willingness to engage spontaneously in collective activity

¹⁵⁰ See Gorky (1910), especially pages 259, 277-8, 286.

sponsored or endorsed by the Party would be short-lived or shallow. Let us push the analogy made earlier a little further and propose that what Freya Mathews and Arne Naess require for their panpsychic and ecological cosmologies to take root and flourish is a kind of Proletkul't for 'world consciousness'. Deep Ecology needs something like Bogdanov's proletarian culture (and science). In this respect, it is worth remembering that the direction of travel for some of Bogdanov's followers, Lunarcharsky foremost among them, after the 1917 Revolution was towards the raising of proletarian culture not only to a new scientific level, but also into a new cosmology and mythology framed in terms of 'God-building'. The influence of Dietzgen's social democratic religion is little commented upon in this respect but clearly runs through the thinking of Bogdanov and into the early Proletkul't. For Mansueto (1996), Bogdanov's thinking moved in the same direction as twentieth-century physics and biology. The non-localisability and paradoxes associated with quantum physics and the post-Darwinian tendency towards ecological, self-organizational explanations of evolution, even the revival of anthropic and panpsychist cosmologies, all suggest

that in many ways Bogdanov was on the right track. The new science does not support atomistic or mechanistic conceptions of organization and development, nor does it require that we posit a strong nature/society dualism in order to "save" the phenomena of relationality, holism, self-organization and teleology which are characteristic of the social form of matter. On the contrary, it is becoming increasingly apparent that these attributes characterize the whole universe at every level of organization, and simply find higher expression in complex forms of organization such as human societies. And as the new physics does away entirely with the form/matter dualism, we no longer need such baroque theoretical formulations as the "theory of reflection" in order to reconcile natural science with a dialectical worldview. (Mansueto, 1996, p.55)

If this is true, and much in this study has pointed in a similar direction, such developments suggest not only a prescience in the work of Bogdanov, but an important connection directly back to the first generation of Marxist philosophising in

his forebear Joseph Dietzgen. In Dietzgen's 'mythologizing' and cosmological realigning we find a clear steer for Bogdanov, and, therefore, for the direction systems thinking was to take in its journey towards a late twentieth-century engagement with ecological crisis in the form of Deep Ecological thinking and ecosophical critique. The necessity for the working class to raise itself to a level of organisation where it sees green socialism as "an end in itself, because it represents a higher, more complex form of organization, which raises humanity's capacity for creativity, power, knowledge, and love to new heights" (Mansueto, 1996, p.50) may seem to pitch such a dream into the 'long grass' of the distant future. However, such a religious aspiration nevertheless persists in the capacity of the collective to glimpse such a future.

Part 3: The subject out of nature

Chapter 7: The Great Act of Learning

Introduction

At this point, it is worth revisiting the route travelled so far. The theoretical categories of classical Marxism have a longevity and application which signal their value through the vicissitudes of unequal economic growth and concomitant plunder of non-human wealth into the twenty first century. But insofar as these categories have in the past also contributed to the development of industrial practices which have further hastened ecological collapse, they sometimes appear paradoxically ill-equipped to offer prescription for the ills that Marxism so accurately predicted. No attempt has been made here, nor was it ever intended, to explore the economics of ecological collapse. Marxists have always been clear that with the changes in the lived experience of the mode of production go changes in the modes of thought of the participants in that productive activity, though it will be argued that these are anything but overdetermined. For Dietzgen the activity of the brain is a form of labour which occurs as part of the patterns of labour structured by the system of capital accumulation, exchange and consumption. Dietzgen remains something of an anomaly within the Marxist canon for his adherence to a monism which very deliberately collapses the psychological, epistemological and ontological into a 'social democratic' materialism within which subjectivity is an immanent feature of the single substantive universe. One might even make a claim that the 'savagery' of the anomaly Dietzgen represents makes him the forgotten Spinoza of Marxism. I do not go quite so far. But it is certainly the case that Dietzgen's distinctive adoption of a

monism that owes much – largely unacknowledged – both to Spinoza and to Romantic philosophy. As such, Dietzgen's example offers the possibility of a counternarrative to the main stories of both official communism and democratic socialism. Such a narrative might be used to retrieve and reconstruct aspects of the Marxist tradition which more comfortably accommodate its conceptual apparatuses to the philosophical requirements of an age of ecological crisis. Why so?¹⁵¹ Firstly, because of the inheritance partially shared by Dietzgen's Marxism and by ecological Deep Green theory, from Spinoza through Schelling to the early Marx. Secondly, because Dietzgen's ideas very loosely presaged something of the scientific revolution of the early twentieth-century, and more persuasively perhaps, some of those who were influenced by Dietzgen such as Bogdanov were quick to accept the new physics and to turn them to an ontological project which was more thoroughly holist and ecological in outlook than the emerging Leninist orthodoxy. Thirdly, because the expression of the heritage of Spinozism and Romanticism in the development of later twentieth-century ecosophical thinking rather parallels the ways in which the anomalous Marxism of Dietzgen and Bogdanov moved. In particular, the movement towards the pedagogical is crucial. Dietzgen's project was, from the outset, one which intended to promote the idea of a new way of thinking as a key feature of social democratic change. This epistemological reorientation was not to be merely social or economic but fundamentally cosmological. It was a philosophical movement towards collective consciousness- 'world consciousnesses' – a 'new religion'. As Naess has argued, Deep Ecology demands something very similar, a politics and practice grounded first and foremost in a new – and very old – understanding of the universe as unitary and interrelated; a deep personal re-orientation. Here, it has been argued, close parallels exist between the pedagogical movements towards cosmological

¹⁵¹ I have never intended to retrieve from Deep Ecology all of its premises, nor argue that these are wholly compatible with Marxism, even of the Dietzgenite type. In principle, those on the left rightly dispute the Malthusianism of its population arguments as fundamentally anti-human and specifically anti-poor. Its arguments regarding value are interesting and might profitably be worked through from a Marxist perspective to find points of convergence, and areas where Marx's analysis might require modification, but this area of study must be for another project

reorientation represented by, on the one hand, Deep Ecology, and on the other Bogdanovite collectivism. Fourthly, and as Bertell Ollman observed, Dietzgen's philosophy of internal relations, though largely neglected within Marxism, found echoes in the process philosophy of Whitehead, which itself took a strongly ecological direction, as will be seen in this last chapter. It has been argued that if Dietzgen and his anomalous tendency within Marxism is to have any relevance to the current period, one must have regard for the way in which the sciences of physics, and of biology (and in particular neurology) have developed, and re-read a less deterministic philosophy of science through Dietzgen accordingly – thereby, admittedly, playing rather fast and loose with the historically situated Dietzgen's scientific perspective. As a scientist, Bogdanov understood these developments well in his day, as shown by his controversial advocacy of Ernst Mach. Pomeroy has made a persuasive case that the post-Einsteinian philosophy of A.N. Whitehead can also contribute productively to an understanding of Marxism. In this study, Dietzgen's ideas have been stretched and reconstructed to bring to light more explicitly features of the thinking of both his forebears and his philosophical successors, Whitehead not least among them. Why bother? Because the philosophy of Mathews and Naess, whom I have taken as representatives of Deep Ecology, immeasurably enrich our understanding of how we might reshape ourselves in this period to affect a transformation towards human flourishing. Such a transformation is embodied in every new child born as an emergent subjectivity. Marx and Mathews in their very different ways have powerfully critiqued the egocentric, atomic self of Western bourgeois society. The extent to which such an individual fails to register their orientation towards their own activity, their class, their species and their land community is the mark of an adaptive pathology. It will be necessary in this final chapter to begin to understand something of that process of learning proposed both by monist materialist Marxists and by deep ecologists and required of humanity as a whole and its interrelated members if we are successfully to transition from a period of environmental and economic injustice, inequality and crisis to an equilibrium of ecologically and socially just and equal green socialism.

This chapter traces the faint outline of an approach which attempts to synthesize much of what has been argued hitherto into an account of and argument for emergence as transformation towards a new society: emergence of a subjectivity which is both opposed to the manifestations of the contradictory and pathological world of capital, and also recognises itself in its class, species and ecosystem as an emanation of a wider, greater Self. The ontology of becoming singular whilst remaining 'One' has been the source of very great difficulty within this study. Whilst, of course, I cannot hope to resolve such a fundamental and age old question, in offering a synthesis of neo-Spinozan, neo-Romantic Marxism of internal relations with the contemporary ideas of deep ecologists, I hope to find a way of explaining the possibility of transformation, and offer some hope of affecting change at the level of pedagogical interactions which might move us towards rather than further from equilibrium and survival.

Each emergent subjectivity represents the dialectical relation between potential and collapse. In more concrete terms, freedom consists in the possibility of every child's rejection of the headlong rush towards economic and environmental collapse under the necessary revolutionisation of production and destructive growth of capitalist accumulation. Such a possibility might be regarded at several levels. Over the course of the following chapter, these levels will be brought into focus at different moments. The registration by subjective matter of itself as a self at different degrees of magnification and complexity can be a more or less 'conscious' process. The more aware the subject is of the nature of the processes at work and of the context into which it is registered, the more possible becomes the realisation of the subject as non-egocentric, unalienated, integrated. We begin the account of the possibility of becoming self for oneself at the most fundamental level of the expression of freedom, the quantum level, before proceeding with perhaps unseemly haste to the most general level, that of the totality.

In quantum terms the question is what would trigger the collapse of the waveform and thereby sublimate opposition into the real? By analogy, we might ask, what are the conditions for the possibility of the realisation of the subject for itself, its registration?

We might even go further and enquire, what are the particular kinds of circumstances under which this possibility is realised? To become for-myself is surely the great act of learning. To acquire for myself a sense of my own presence, this ‘choice’ to be, is one that ‘I’ will always find myself to have already taken, for it is the learning which precedes all other self-reference. What then if one were to take another step and ask the role of a teacher in this learning? The question then becomes one about the catalyst for the ‘big bang’, the intervention which collapses the potential into the real. The crucial final question concerns the catalyst for the collapse of potential into actuality. Put another way, what is it that occasions the great act of learning? What is the means by which the subject becomes itself for itself? My argument differs from that employed by Lacanians like Žižek in that it operates dogmatically at an ontological rather than an epistemological level. The becoming itself for itself of a class, in Dietzgenite spontaneism, does not require an outside agent – a party¹⁵²; becoming ‘conscious’ in a higher sense in Dietzgenite pedagogy does not require a teacher – it is autodidactic. Most fundamentally, the becoming itself of the universe in the momentary arising and passing away of all of its interrelated elements, as far down as the subatomic level, does not, on the neo-Dietzgenite¹⁵³ ontological account, require an observer – though it must be ‘felt’, it does not require anything other than the strangeness of the material movement of thought – ‘brainwork’ – abstracting and re-abstracting, constituting and reconstituting itself as part of the movement of the universe. It is the ‘felt’ movement of the material universe within itself, across the ‘spaces’ between subatomic particles. It is the geometry of infinite subjectivity. But, what of the stirring of this movement, the becoming of the brains which do the work? What of the gradual recognition by the child of herself?¹⁵⁴ The focus here turns to the child as one of the most puzzling features of the universe: the universe’s

¹⁵² This is not to suggest that the author is opposed in principle to parties; these are desirable insofar as they function as an expression of the will of a sector of society, a class or class-fraction. The huge question of the nature of the party of the working class in general falls beyond the scope of this study.

¹⁵³ Dietzgen, as modified by Whitehead, and with a non-physicist’s due regard for the physics of the twentieth-century

¹⁵⁴ What, indeed, of the ape’s primitive sense of selfhood or of the primitive self-awareness of other animals? This question must unfortunately remain unaddressed as largely beyond the scope of this particular study.

opening of its eyes to its own possibility and presence. Such considerations are necessarily presaged by that most fundamental of registrations, that of the universe for itself at the subatomic level. If such an act seems at first rather removed from the learning about which we more usually reflect in our day to day experience, this is because we rarely consciously identify ourselves as instances of an exactly parallel phenomenon, the universe's becoming for itself. Monist and panpsychist ontologies find no fundamental qualitative distinction between acts of registration at different levels or in different orders. So, in this context, the question of the occasioner of the collapse of potentiality into the real becomes one with a substantive bearing upon how we understand the emergence of the distinctively human subjectivity.

So, how might it be possible for the child to experience again, consciously, for herself, the great act of learning to which Schelling alludes, his original cognition of identity? This is not the least difficult of the questions which this final chapter will seek to address. In this context, the child's act of becoming for itself is an instance of the universe's becoming aware of itself – a replaying of the original cosmic act of registration.

Systems, totality and abstraction

Among the points of convergence between 'cosmic socialists' and deep greens, the necessity for a 'total view' emerges as central. Here is not the place to discuss the wisdom, absurdity or irrelevance of 'total views' in general¹⁵⁵. Rather, as regards the actuality of totality and its recognition – Schelling's 'cognition of identity' – let us proceed by reversing the usual polarity of the argument. A great deal of energy has been and will continue to be expended on attempting to understand how the human subject might recognise herself as materially indivisible from wider social, ecological

¹⁵⁵ Arne Naess (2008a) makes a useful contribution to just such a discussion. Whilst Naess points out the logical absurdity of total views, he also notes the equal absurdity of seeking to criticise such views without at least implicitly identifying with one. His own engagement with theories of totality and of systems is complex to say the least. He holds onto 'metasystematic plurality' which allows truth to be asserted, but for that truth to have different meanings at different ontological levels: "[M]etasystematic assertions of plurality do not invalidate or make assertions of the simple kind, such as "p is true," meaningless. This would invalidate or make meaningless the assertion p. In other words, the so-called absolute concept of truth remains. Only, strictly speaking, there is not just one such concept. A rich variety will occur if made precise in relation to different ontologies." (Naess, 2008b, p. 164)

and cosmic collectivities – the material plenum. Perhaps we might approach this from the opposite direction – which is perhaps simply a better way of expressing the same problem. After Schelling we ask, how might we *reconnect* with the cognition of identity which is of the nature of the unitary panpsychic absolute identity itself? A reminder of the positions of Dietzgen and Whitehead on totality will serve here as the basis for a synthesis which sublates emergence to totality, before sharpening the focus on a rather different level of analysis – that of the material mechanics of the human brain – to continue address the same questions of totality and abstraction.

At the root of human consciousness is the unity of self and not self, of ‘I’ and ‘it’: if we consider the newborn as our starting point, the nature of the problem takes on a different complexion. In the first instance, the infant does not need to learn to identify with the wider universal Self¹⁵⁶. Rather, the infant learns to divide and differentiate the ‘me’ from the ‘other’, the mother, the object of experience, even the body. We begin our lives with what Naess calls a “totalitarian disposition” (Naess, 2008a, p. 156) towards the reasonableness or importance of elaborating a ‘total view’, before we even begin to make philosophical enquiries.

We may refer to such an initial view as preconscious in the sense that parts of it, perhaps any part whatever, can be made the object of our concentrated attention and will then appear to us as fresh, verbal expressions of something we had expressed already in indirect or nonverbal ways. (Ibid.)

Such a claim tallies well with some of the writing already considered, such as Schelling on the ‘original cognition of identity’. The preconscious disposition in relation to totality may very plausibly be said to be a feature of the neural landscape required to orientate us towards our environment. At the level of brain-based epistemology, neurologists like Gerald Edelman (1989, 2006) argues that our neural maps interact in such a way as to create this sense of a totality (a Gestalt, in Naess’

¹⁵⁶ The capitalisation is a deliberate device borrowed from Naess.

terms) in the moment, and across spacetime, as an important feature of our biological nature (we will return to this below); so, we cannot but think in totalising terms, perhaps because of the hardwired adaptive advantage such a predisposition confers. Nevertheless, the brain scientist working at her appropriate level of magnification and with conceptual tools appropriate to her task offers an account which only operates with full success at just that level, and one might find Edelman's a rather anthropic version of totality, somewhat at odds with the sense given by Whitehead or Dietzgen that such 'feelings' are expressive of a unity of which human brains are a part, but within which they do not hold so uniquely important a place as to require for their existence that very unity upon which their orientation depends. Widening the frame, and from a perspective largely shared by both Deep Ecological and monist materialist Marxist ontology, the activity of abstraction is a process of *disentanglement* from the ordinary unity of our dispositional experience of totality, a great act of *forgetting*. By contrast, the child's registration of her agency, her recognition of the freedom represented by her body in space, seems a later development. Indeed, the subject's realisation of the freedom of the brain-in-body as an expression of the absolute freedom of universal matter may appear a process of a far 'higher order', and of adult life. Yet this lived reality is *intuited* from the beginning. It has always been there. Dietzgen is right to recognise this situation as dialectical. On the one hand, we learn to forget – that is we acquire the cognitive apparatuses necessary to our emergence from the immediacy of being within *ur-Ich*; on the other, in becoming separate, individuated and alienated, we make possible the becoming conscious, the 'conscientization' of our inseparability from our social, ecological and ultimate material bases. From infancy, we are pulled in two directions simultaneously. The newborn lives a kind of ψ -life, a superpositional potential whose collapse into wave or particle is dependent upon the nature of the act of registration which the environment of which she is an expression affords. We could conceive of the universe as an infinite number of possibilities of this kind in a continuous state of both suspension and collapse – subjective and superjective. Of course, such a conception poses as many problems as it answers. For example, could the conception of a field of possibility rather than a world of things in themselves undermine a concern with

individual beings – individual human infants or animals and plants – and abstractions such as species? Naess argues not, in that the spontaneous experience – let us be more precise and say that of the infant – is not merely sense experience but an experience of more or less stable things and processes of the world of which we are a part. “When meeting an animal, we meet in our spontaneous experience something enduring and self propelled.” (Naess, 2008d, p.201) Whilst in adulthood, the omnipresence of ‘I’ is banished by such experience along with the duplication of inner and outer worlds, in infancy, the ‘I’ fluctuates across possibilities of recognition and separation. There is something of Dietzgen’s two way street here in the expression of the emergent subject as both ‘in the world’ – for example *in* the recognition of the animal as part of life ‘like me’ – and as becoming separate from individuated animals and objects in relation to ‘me’. The infant seeks an answer as to whether this thing is part of me or ‘self-propelled’, and finds it to be both, a recognition of ‘me’ and a living thing of a particular type with the potential to be regarded as a distinct and unique feature of the cosmic landscape. At this stage,

What the both-answer [both subject and object] can do... is to delay, or hold back, the introduction of the subject-object distinction by admitting a diversity and richness of ontologically homogenous traits (rather than properties) of a constellation. Primary, secondary and tertiary traits are completely on a par. The secondary and tertiary do not need a subject, a mind, a consciousness in the form of a container... The concept of things in themselves is held back because we do not find contradiction between dissimilar utterances about “the same thing.” (“Things with properties” are described in terms of *fields* – comparable to what occurs in physics.)
(Naess, 2008d, pp.200-201)

The ‘holding back’ of commitment to ‘me’ or ‘it’ speaks of nothing more than the indeterminacy of the superposed world at the quantum level, the paradox of Schrödinger’s cat. The collapse of the distinction between subject and environment is a central feature distinguishing Naess’ Deep Ecological perspective from ‘shallow’

green approaches, and it finds resonance in the lived experience of infancy, where either/or is held at bay and neither ‘container’ nor ‘reflection’ of reality are necessary to account for our brainstates, or the immediacy of the original cognition of identity. It is the collapse of such indeterminacy which occasions the abstracts which define our existence, “[a]n interpretation that transforms what it interprets” (Derrida, 1992, p. 51)¹⁵⁷.

The starting point for the pursuit of a philosophy of internal relations among both monist materialists and deep greens is fundamental ontology: it is the understanding of and orientation towards totality which operates as the site of first engagement. Herein lie the origins of our concern for the world, and on Mathews’ and Naess’ account, the bases of our ethics; this is why Naess advocates “the supremacy of environmental ontology and realism over environmental ethics” (Naess, 2008e, p.236) as the basis for activity. Here again, we find a solid basis for common ground between Deep Ecology and Dietzgen’s thinking. Dietzgen wrote at some length on ethics: some (Easton, 1958) consider his ethical writing to be his best, but the reason why little has been made of this writing here is that it *follows* from the ontology¹⁵⁸. The ontology or, again, more accurately – the ontopolitics – of monist materialism represents the basis for the expansion of the proletarian self across the domain of historical agency, as an expression of global ecologies of being. That the life of the human child should be interjected into this ontological account might be regarded as a trivialisation. On the contrary, the phenomenological state of infancy is deeply suggestive of the whole-mind of entangled being, something far closer to the ‘first nature’ consciousness of nonhuman animals, and a state to which it has been necessary for mystics, Romantics, deep greens and, yes, even socialist collectivists to appeal to develop an understanding of the possibility of liberation from the bourgeois ‘I’.

¹⁵⁷ Derrida takes this process to connect with the 11th Thesis on Feuerbach. It is also of course of the essence of ‘registration’.

¹⁵⁸ More accurately, it is contained within the basic ontology; not ‘ought’ from ‘is’ but ‘ought’ in ‘is’: nevertheless, the ‘it’ of ‘it is’ takes priority over the ‘I’ of ‘I think/believe’.

The explanations offered by Dietzgen and others of the means by which the undivided universe comes to be separated by the conscious mind into ‘abstracted’ parts has already been discussed but requires a little further elaboration here to bring out its pedagogical element. Dietzgen’s attempt at an account of the processes by which the single and undivided universe is abstracted by consciousness assumes the utility to the human species of the particular patterns of classification applied. Whilst humans seek to systematically draw and redraw our lines on the basis of ‘actual’ and ‘real’ criteria – visual, spatial, chemical, genetic – we do so in ways which give our species a chance at survival in our econiche. That is, had we different sensory apparatus adapted to different survival needs; were we, for example insectivorous animals who employed sonar systems similar to those of a bat to acquire the means of our survival, we would organise and classify the world in rather different ways. In a prefiguring of the universal interrelatedness of Whitehead’s world of prehension, Dietzgen makes it clear that insofar as things exist individually “they manifest themselves in as many different ways as there are other things within which they enter into relations of time and space.” (Dietzgen, 1906, p.87) He takes as his example the abstraction, ‘heat’ – a relation of phenomena experienced rather differently by for example, humans and snakes. Social democratic monist materialists “conclude that there is no such thing as “heat itself,” since it cannot be found, in nature, and we conceive of heat as *effects of matter* [on itself] which the human brain translated into the conception of “heat itself”.” (Ibid.) We do not see, hear or feel things *in themselves* in any idealist sense, there are “concrete sights” with which the brain operates to generate organising systems of “sight in general”¹⁵⁹. That is, Dietzgen builds up an account of the

¹⁵⁹ If Dietzgen somewhat blunderingly says that the mind proves to be the creator of the abstract idea of matter (and here he shares a common turn of phrase with Edelman) (Edelman, 1989, p.247), he is able to chase away any idealist confusion by insisting that “hidden nature does not dwell in the world outside of the human mind, but in the brain of man.” (1906a, p.86) It is the physical, energetic, neurological work of the human brain which constructs the possibility of a world beyond its reach, of noumenal possibility. But such a construction is, itself, a material expression of a material brain at work, attempting to organise and systematise its data into a basis for an orientation. Idealism is a false orientation, one which fails to align the human brain-in-body within its material life-support, but pathologically imagines something lying beyond, or behind the environment. It is possible to read ecological panpsychism in the same way as implying a subjectivity behind and separate from appearance. But if understood in a manner compatible with Dietzgen’s brainwork and modern neuroscience, deep green panpsychism can only strengthen the case for an interiority to all matter which is immanently free and indeterminate.

preconscious experience of the singular inclusive universe, its abstraction into usable parts and its epistemological reconstruction as a more or less conscious whole. His sketch is little more than that, despite its widespread adoption and application by early twentieth-century working class partisans, but it offers us a useful way of approaching the more recent onto-epistemology of Naess and Mathews, as well as that of Whitehead, through a Marxist materialist lens, potentially enabling green and ‘proletarian’ philosophers (where are all the proletarian philosophers?) some shared basis for dialogue with readers and activists.

As we have seen, A.N. Whitehead’s philosophy also furnishes the movements for social and ecological justice with a foundational ontology, features of which meet the requirements of both reds and greens. At this point it would be useful to take up again and advance the positions of Whitehead’s explained in chapter three, and to develop their ecological aspects in synthesis with the Dietzgenite, Marxist materialist and ecosophical arguments towards a pedagogy of green socialist transformation of the emergent subject. How are we to regard Whitehead’s ‘eighth level’ metaphysics of totality, his most general level of abstraction at this point? He is neither operating with brains, like Edelman, nor with the biological realities of ecologies per se. He is not even concerned as physicists such as Penrose (whom we shall meet later) are with either the quantum or its relation to the mechanics of human freedom. But, Whitehead, like Mathews and Dietzgen proposes a universe which is fundamentally open to the historical intervention of free, novel conscious activity. And he presents his account in such a way that it coordinates features inextricably and powerfully, so as to be very amenable to ecological readings, as we saw in chapter 3. If there is to be a red-green philosophy of emergence of the free, historical working class subject and collective, then Whitehead’s proposals add to it. So let us treat what immediately follows as heuristic and work with it as helping us to identify a shared understanding of the possibility of just such an emergence. Operating on a completely different level from neuroscientists or even from the political psychology of some of Dietzgen’s 1869 work, Whitehead is trying to account for the operation of higher ‘second nature’ consciousness as opposed to animal ‘first nature’ consciousness, and does so through the process of what he calls Transmutation. What is important in the proposals he

presents here is the relationship he sets up between freedom at the level of the ultimate substance – matter – and the operation of inheritance and novelty in conscious activity. He does so through a series of explanatory levels which interrelate rather in the manner of Mathews ‘selves’. These ‘ecological’ layers are Whitehead’s ‘nexūs’ and ‘societies’.

The ‘nexūs’ and ‘societies’ into which the undivided universe is classified have both an ontological and an epistemological meaning, indeed, in Whitehead’s philosophy, to try to distinguish between these two fields would anyway be virtually impossible. We should know by now that Whitehead’s ‘subjectivist’ terminology of ‘feeling’ does not imply he requires higher consciousness or anything like it for the fulfilment of the conditions of the possibility of sustaining complex structured societies characterised by widescale ‘conceptual prehension’. In the case of most living things, conceptual prehension amounts to the massive nexūs-wide possibility of thoughtless adaptation to an ‘ideal of harmony’. In terms of brains, such a state of affairs is described thus: for most nonhuman animals, abstraction is very limited; these perceivers “lack flexible means to provide internally determined decisions on the salience of signals arriving in parallel, except as determined by fixed evolutionary schemata of behaviour” (Edelman, 1989, p. 245); whereas, only in higher animals does ‘conceptual initiative’ amount to awareness or thinking on experiences. This conscious activity of co-construction of the universe is the process of ‘abstraction’ which Ollman takes from Dietzgen, in which, at various levels, the “irrelevant multiplicity of detail is eliminated, and emphasis is laid on the elements of systematic order in the actual world.” (Sherburne, in Whitehead, 1981, p.77) The processing of data in ‘intellectual feeling’ – this positive or negative filtering of prehensions which Whitehead terms adversion and aversion – has importance only in the case of the higher animals. They allow for conceptual feelings to “mask and fuse” the simple physical feelings into abstractions. Whereas we human adults can “only understand by discarding” (ibid.), the first-order consciousness of other animals “is merely the summation of the forms of energy which flow in upon it in all their multiplicity of detail. It receives, and it transmits; but it fails to simplify into intelligible

systems.” (Ibid.) However, we need not look only to nonhuman animals: our own lived experience of infancy, burnt deep into the architecture of our brains, also conjures the potential for the memory of ‘harmonious’ *ozeanische gefühle* of first nature conceptual prehension. Whitehead is careful not to draw a hard and fast line between living and non-living, and between ‘I’ and ‘it’: complex structured societies such as local ecologies may contain more or less ‘life’ or living elements, “[f]or certain purposes whatever ‘life’ there is in a society may be important; but for other purposes, unimportant.” (Ibid., p.88) Whitehead’s dynamic self-prehending totality, like Naess’ Gestalt experience of the *ur-Ich*, proceeds from a dogmatic (in the sense explained in Chapter 4) assertion of unity. But Whitehead, like so many others, operates as if human cognition were delivered fully formed to adult minds, and, whilst the continuum between life and non-living is noted, that between consciousness and newborn experience is not. Whitehead’s positing of original unity raises the question of whether he conceived of this as merely a logical necessity or, like Naess, as a preconscious backdrop to all subsequent cognition. If regarded through the lens of early infancy, one begins to understand a little more of what such a question might mean, epistemologically.

A very useful exercise in developing this line is to re-focus one’s analytical lens at the level of neurological functioning – brainwork. If totality and abstraction are to maintain any cogency as inter-level terms, loose correspondences of the kind explored in chapter 1 between properties at quantum and macroscopic levels should be sought. And, what one finds when working with the categories offered by a neuroscientist like Gerald Edelman is that fascinating correspondences do indeed exist, correspondences which will be returned to through the remainder of this chapter, and which would have delighted the old materialist brainworker Joseph Dietzgen.

The actual mechanics of brainwork were beyond the scientific knowledge not only of Joseph Dietzgen but even of the leading anatomists of his day, men like Rudolph Wagner who famously disputed materialism with Marx’s nemesis, the arch-materialist

Karl Vogt¹⁶⁰. But the contribution of more recent scientists such as the Nobel Prizewinning Director of the Neurosciences Institute, Gerald Edelman to the field of epistemology should not be overlooked when considering human cognition of ‘totality’ and of ‘self’, to say nothing of the genesis and acquisition of these understandings. Edelman has made repeated forays into the philosophical field, unlike his forebear Wagner adding a dose of cold hard materialism to the debate.

Whilst there is clearly little space in this study to bring to the table great quantities of neuroscientific data, even if the author were capable of processing it, reference to analysis at this level will be added to the already multilayered approach to emergence and subjectivity to further strengthen the monist materialist case. It is not intended that Edelman’s contribution be regarded as central to the case, nor should it be seen as of comparable importance in this regard to the work of Whitehead, Mathews or Naess. However, for the serious materialist to disregard brain-functioning as part of the emergence of subjectivities from their environmental background, would be remiss to say the least. Dietzgen, from his position of limited knowledge, was acutely aware of the necessity to regard ‘brainwork’ as central to an account of human emergence.

On the question of abstraction, as this onto-epistemological process has been presented hitherto, the physical brain coordinates segregated perceptual events in such a way as to ‘carve up’ “the world of inputs into objects significant for a given animal species’ recognition.” (Edelman, 2006, p.20) It is interesting to note that though this appears to be a one way system within which the species in question, human, snake or bat have no agency in regard to the way in which their adaptive advantage is played

¹⁶⁰ Before Vogt’s bitter and protracted legal dispute with Marx (over his receipt of payment by Napoleon in exchange for inciting writers to urge Prussia against Austria (Marx, 1982)), Vogt had been embroiled in another fierce battle with Rudolph Wagner. Wagner’s reputation as an anatomist was at its height, and his work on the nervous system was leading science: one might call him the Edelman of his day. But in marked contrast with his twenty first-century neuroscientific successors, Wagner’s scanty philosophical writings (e.g., Wagner, 1863, pp.230-32) declared his avowal of a strongly dualist account of consciousness. The anti-religious, mechanical materialist Vogt famously and publically did battle with Wagner through the 1850’s (Gregory, 1977, pp.92-5). It may be worth noting that Vogt’s influence on Dietzgen is unacknowledged, but the tanner was most certainly aware of the work of the German mechanical materialists, and their advocacy of a pedagogical approach, and of the possibility of a new rational, scientific materialist ‘religion’ are likely to have been of great significance for him (see page 254).

out in terms of the abstraction of unities from the swirl of perceptual scenes, neuroscience actually leaves some space for a perceptual recalibration along lines drawn elsewhere in the brain by developing conceptual schemas, such as, for example, in the case of human cognition, in belief-systems, or *weltanschauung*. That is, neuroscience, will allow us to add a further material layer to the case that cosmological reorientation could metaphorically and possibly even literally enable the perceiver to ‘see the world differently’, or ‘under a different perspective’. Indeed Edelman develops some possibilities here, making the distinction between brains and computers in terms of the way inputs are regulated: “signals to various sensory receptors of the brain are not so organised; the world (which is not carved up before hand into prescribed categories) is not a piece of coded tape.” (Ibid., p.21) That is, the undifferentiated world requires intervention to fall into categories of organisation. Are we really saying that thought is the basis upon which the cosmos is divided? At the quantum level, this may indeed be the case, and, if so, a certain instability haunts the seeming permanence of the world of objects. For Whitehead, we recall, the satisfaction of a process of concrescence in the form of an actual occasion retrospectively acts as something which we might equate in temporal terms with cause; that is cause seems to succeed its realisation. The movement of a single material plenum is infinitely complex and it would be simplistic to claim that the plants and animals, classes, armies, modes of production, tables, chairs, rocks, planets and suns of our experience were not at some level the reception or registration by conscious matter of its own potential, satisfied in the dialectic of transmutation (or superpositional collapse) and its dynamic becoming, subject and superject.

To attempt to locate this process entirely within human brains would be to limit our description to a single heuristic level, but with this in focus, one can operate with correspondences between Whitehead’s generalities and neuromechanical specifics. If the process of abstraction of singularities from the universal is a material process of prehension or appetite, of the specific kind associated with ‘conceptual initiative’, employing biological models helps to collapse the distinction between epistemology and psychology in a manner which would have greatly appealed to materialists such

as Dietzgen, and avoids maintaining a conversation at an entirely abstract level. The model developed by Edelman and others of multiple neuronal maps correlated by reentry offers an account of the ways in which our abstractions congeal and relate, culminating in a dynamic and shifting global mapping which we call, the self (see below)

The unlabeled world (which follows the laws of physics but in which biologically adaptive patterns occur that are not described by physics) is disjunctively sampled by various parallel sensorimotor channels. At any moment, not all features or correlations of features are sampled. This sampling results in the selection of combinations of neuronal groups (closely connected sets of neurons forming particular variant circuits) that are mapped in various ways. (Edelman, 1989, p.243)

This process of sampling, selection, organisation of sensory data into categories does not precede the world. But neither is the preconscious world already thoroughly ‘carved up’; it is ‘unlabelled’ and malleable, open to radical re-registration. As Mathews comments (1991, p. 57) regarding the observer-dependence of reality, whilst our culturally and economically structured categories inform both what we enquire of the universe and the answers we receive, the cosmos consistently answers electron questions with electrons and wave questions with waves, but it refuses to answer other questions such as those concerning angels or phlogiston, consistently or at all. Whilst Edelman echoes the sentiment that the abstractions of the phenomenal world are not entirely plastic, for such an acknowledgement would lead quickly towards outright idealism, he can offer relatively little comfort to those looking for a clear answer to the question of why humans divide the world in quite the ways they do, and indeed, how human consciousness under differing economic and cultural conditions has divided the world rather differently, “how, without the transfer of preexisting specifically coded messages, a biological system nonetheless specifically distinguishes one thing from another.” (Edelman, 1992, p.64) His appeal to the adaptive advantage of one system of classification over others is instructive. In this

respect, humans are like all other animals in that we think and organise our experience in such a way as to maintain our existence and that of our species over a sustained period. This is also Whitehead's point apropos nature's 'strategies' for resilience under changing environmental conditions in the form of the emergence of 'conceptual prehensions'¹⁶¹, for "during evolution... concepts precede language and meaning. They are driven by the perceptual apparatus and are constructed by the brain as it models its own classes of activity." (Edelman, 1989, p.247)¹⁶² After all, if consciousness were to serve no active purpose what would it be selected for? It must confer some evolutionary advantage to its possessors. There is a real sense in which totality is *our* species-totality, and the processes of arising and passing away within the plenum which we identify as objects are *our* abstractions, conceptions and categories evolved to meet our adaptive needs. Yet, as we know, such conceptualisation can become maladaptive, and the pathology of bourgeois categories – its atomism and individualism – is a cruel mutation which leads us increasingly into an evolutionary cul-de-sac.

The Ecology of Being-Emerging

By the ecology of emergence, we refer to that nexus of interrelations which enable novelty and freedom to emerge against a relatively stable backdrop, yet which bind such freedoms within themselves as expressions of the immanent potential of the universe. Emergence is dependent, situated and embedded, representing a localised expression of a general tendency, for "the world exists only in its interrelations... A thing is anything "in itself" only because it is something for other things, by acting or appearing in connection with something else." (Dietzgen, 1906a, p.75) The ecology of emergence can be described at many levels, from the most fundamental subatomic

¹⁶¹ See page 71

¹⁶² Though Edelman returns to the language of 'correspondence' to describe the relationship of concepts to things and motions, claiming that in their most 'elaborate form' such concepts become the basis for what he calls "image schemata" such as "object", "motion", "barrier", such schemata are fortified by the power of lexical binding whilst retaining the possibility of modifying and recombining with one another in 'explosive fashion' as has been demonstrated in the universe of quantum physics, where the categories of our perceptual level do not apply.

level, through the neurological selective systems of evolutionary epistemology to the societal becoming of collectivities for themselves, to the species and 'Gaian' levels of nested ecosystemic 'world consciousness', up to the cosmic emergence of the universe for itself in Self-realisation. The universal 'background' for emergence consists of infinitely many concentric and interpenetrative societies or selves, a field which is profoundly ecological. The widest possibly conceivable society is the 'society of pure extension', within which the 'geometrical society' constitutes all of our four-dimensional spacetime system; within this, the electromagnetic society comprises that set of internal relations which define our cosmic epoch (one might, in fact, regard these societies epistemologically as higher Ollmanian levels of description). There is a deep level of compatibility between the ecosophical position on selves and process philosophy's explanation of societies. Whereas the former tends to emphasise the internal unity of the abstraction 'self', Whitehead places the emphasis upon internal interrelatedness. However, each necessarily requires its opposite pole: ecological selves imply internal interrelations, and Whitehead's societies are defined by their uniting characteristic 'form'. Whilst Whitehead's societies are self-realising systems, they presuppose a context within which such a system might be realised, an environment which not only registers the presence of the society but necessarily provides the prehensive conditions for its existence and which remains fundamentally inseparable from the society. Without environment, there is no society. Thus, "in proportion to its importance, this background must contribute those general characters which the more special character of the society presupposes for its members." (Whitehead in Sherburne, 1981, p.79) In a consistently ecological fashion, societies and their environments together form wider societies, each society nested within the next. "[T]his means that the environment, together with the society in question, must form a larger society in respect to some more general characters than those defining the society from which we started. Thus we arrive at the principle that every society requires a social background, of which it is itself a part." (Ibid.)

We have seen earlier some of the problems of dualism of the type expounded within the Marxist tradition by Lenin in his 'reflection' theory, for example as related to the

problem of ‘access’ to the world. In order to vault the horns of the dilemma and avoid both positivism and subjectivism, panpsychist and related theories have been brought to bear. Whitehead’s solution to this problem lies in his association of centres of subjectivity and thus ‘consciousness’ with more or less ‘alive’ features of the ‘background’, a position echoed many years later by another mathematician turned philosopher, Roger Penrose who is “prepared to believe that consciousness is a matter of degree and not simply something that is either there or not there.” (Penrose, 1989 p. 407) For Deep Ecology, the continua of consciousness and aliveness have something to do with *systems*: aliveness here might be equated to ‘organisedness’ or level of interrelatedness and complexity (Whitehead in Sherburne, 1981, pp. 96-7; Pomeroy, 2004, p.23) But no amount of wrapping up consciousness with complexity as a function of ‘aliveness’ in general will get around the necessity for that level of explanation and analysis which focuses upon living brain tissue as the expression of matter wherein the activity of thought, including self-reflexivity is concentrated; after all, “mind in nature is a property of particular brains with particular histories, that is, of particular phenotypes with particular brain areas and structures capable of the kind of memory that leads to consciousness.” (Edelman, 1989, pp.268-9) Thus the local ecologies of brains should be seen as features of wider ecological systems having particular and specialised functions adapted not only to the sustenance of their species-being, but also the field of relations internal to their environmental ecosystem. A very helpful formulation is offered by Gerald Edelman: for the neuroscientist, the brain functions as part of a system – one might call it a local ecology – in such an inextricable way that our usual limited use of ‘brain’ should be expanded across levels. When we refer to ‘brains’ we should regard such an abstraction as an abbreviation of *brain-in-body-in-econiche* – a solidly materialist description with which old Dietzgen would have been delighted, and, furthermore, which green socialists and Marxists should be happy to adopt:

The brain is embodied and the body is embedded... The brain’s maps and connections are altered not only by what you sense but by how you move... you *are* your body... Second, consider embeddedness. Your

body is embedded and situated in a particular environment, influencing it and being influenced by it. This set of interactions defines your econiche. (Original emphasis) (Edelman, 2006, p.24)

However, like Whitehead, the Deep Ecology Movement goes still further in rejecting the straightforward man-in-environment model in favour of the relational, total-field image, seeing “[o]rganisms as knots in the biospherical net or field of intrinsic relations.” (Naess, 1973, p.95) And for the monist materialist, this formula strengthens and deepens rather than weakens Edelman’s, by ensuring that we understand the sense in which the nexus ‘brain’ is not conceivable outside of the set of intrinsic material relations within which it nests,

An intrinsic relation between two things A and B is such that the relation belongs to the definitions or basic constitutions of A and B, so that, without the relation, A and B are no longer the same things. The total-field model dissolves not only the man-in-environment concept, but every compact thing-in-milieu concept – except when talking at a superficial or preliminary level of communication. (Ibid.)

But let us not be too dismissive of the ‘preliminary’ level. It is of course often entirely necessary to abstract humans from their background as part of a Marxist analysis, but as Naess and Dietzgen remind us, this should not be done at the expense of forgetting those other levels of analysis which embed us within ecologies of being at ‘higher’ levels. Deep Ecological ontology should be understood as compatible with, not contrary to Edelman’s brain-in-body-in-econiche, not undermining but enveloping the neurophysiological position; the body and econiche are made more wholly relational and thoroughly interdependent, not in the anthropic sense that ecologies rely upon individual human presences, but in that humans can – and have – played their role as ‘plain members’ (see Fritzell, 1987, pp.142-3) of the land community.

Dietzgen's ethical and epistemological relativism operates on just this basis: it is relative in the sense that it transcends the rigidities which Edelman sees as characterising monolithic, traditional epistemology concerned with a single truth and its pursuit. Such was the Leninist epistemology whose advocates effectively wiped out the messy empiricism of the Dietzgenites. Brain-based epistemology of the sort espoused by Edelman claims that traditional epistemology such as Marxist-Leninist science is a narrow, one-sided project. It fails to appreciate the means by which truth is established in evolved brains in terms of adaptive advantage, motivation, emotion and pattern-recognition. In terms which neatly match Dietzgen's Edelman argues that such epistemology fails to understand the material conditions (including of course neuronal energetic flows, brainstates, brains-in-bodies and bodies-in-environments) which are generative of *our* truth. Here the possessive pronoun refers most clearly to a species identity¹⁶³, though the necessary impermanence across geological time (or indeed cosmic time) of any such abstraction renders our awareness of the truth of the universe as a wholly transient feature of materiality's dynamic self-registration. *Sub specie æternitatis*, when the human species is gone, our understandings of the fundamental truths of the universe will be gone with us, and on the way to our demise some of our categories will shift according to their expediency in extending our species' survival, that is, *as a function of our resilience*. That one day human truth and meaning will no longer exist should not be shocking or surprising, our tenure on the earth has been very short and our development of higher consciousness the briefest of flickers amidst the great galactic swirl of matter. Even focussing merely on life on our planet, Edelman claims that during the long period of evolution in which consciousness and thought had yet to emerge, there were no 'selves' (Edelman, 1989, p.260). This term he associates with another, 'personhood'. But, this does not quite chime with ecosophical theory or an expanded ecology of emergence. Without wanting to deny either the great significance of the evolution of nerve cells and fantastically complex brain tissue or the work of the neuroscientists, whilst we might allow that no 'persons' existed prior to the emergence of consciousness, *selves*, in

¹⁶³ The identity in question is also conveniently presented for the moment as that of human adults at a moment in their individual self-development, suspended somewhere between infancy and Naess' Self-realisation.

Mathews' and Naess' ecological sense extend well beyond that category of states which requires self-awareness or higher order thinking for their occasioning. The question of whether there were selves before there was any life in the universe at all remains troublesome¹⁶⁴.

In brains as in other biological selective systems, the complex dynamics of the registration or recognition of novel elements by their environment is the hallmark of 'aliveness'. 'Recognition' is "the continual adaptive matching or fitting of elements in one physical domain to novelty occurring in elements of another, more or less independent physical domain, a matching that occurs without prior instruction." (Edelman, 1992, p.74) The process of recognition is system wide, and makes possible the adaption of organisms by selection from a population on the basis of fitness for the changing environment. That is, recognition is spontaneous, and utterly unpredictable, but forms the basis for the relationship between novelty and resilience in biological systems such as human brains. There is recognition, but no 'instruction' or direction in selective systems; however, in a wholly interrelated universe – a monist universe of material self-presence – matters are not so straightforward. The dialectical insight Whitehead brings to this process of recognition at whichever level is, we recall, that presupposed occasions aim at the 'feeler' as final cause; that is, nontemporally, the newly realised reality – for example the complex structured society of enduring objects we know as a newly established neural pathway – is both effect and cause of those possibilities which occasioned it; this because, at the quantum level, Penrose will argue, it collapses the superpositional state within which all things are balanced. Biological recognition and transmutation in physics map onto one another uneasily, loosely, but promisingly. This proposition writes into the emergence of individual subjectivities a freedom from within the confines of the somatic and ecological structures which constitute its domains of coevolution. Whilst human subjectivity resides in the free recognition of changing neuronal environments to ontological novelty, we must remember that such subjectivity is nothing but a function of those brains within bodies *as part of the*

¹⁶⁴ Mathews would probably argue that the universe itself has always constituted a self.

selective operation of ecosystems. It is clear that ‘recognition’ does not occur in nonbiological systems, “such as “evolving” stars” (ibid., p.79), and in this sense emergence is a function of the aliveness of the universe. However, whilst it is true that nonbiological systems do not contain the constellations of variants ready and waiting for “interaction by selection to give a population response according to a hereditary principle” (ibid.) they may offer parallels ‘of a different order’ in the patterns of ramification they exhibit at the subatomic level¹⁶⁵.

All this may seem very far from the clunky materialism of the early Marxist tradition. Yet Dietzgen’s repopulation of materiality with multiple subjectivities in constant dialectical re-creation makes of us agents of novelty and spontaneity whilst locating freedom in physical brains as an expression of the immanent freedom of all matter, presented in the Marxist tradition as the creativity, more specifically *the creative activity or labour* of humans; “thinking is a physical process and it cannot exist or produce anything without materials any more than any process of labor.” (Dietzgen, 1906a, p.74) Such brainwork is freely undertaken and remains genuinely free, even when infected by the maladapted, collapsing environment of capitalism. Dietzgen’s definition of ‘consciousness’ in his early work is an anthropocentric one, specifying only what Edelman calls ‘higher-order consciousness’, “[i]t is a form, or a quality, of existence which differs from other forms of being in that it is aware of its existence” (ibid., p.78), but his increasingly ‘cosmic’ orientation means his later writings lose something of this epistemological anthropocentrism¹⁶⁶. However, Dietzgen understands that to be conscious in the ‘higher-order’ sense is to live a contradiction. To be present to oneself suggests singularity, and the experience of singularity allows one to understand and differentiate the world into discrete parts in relation to oneself. Yet consciousness is also the “organ of abstraction, the faculty of

¹⁶⁵ Edelman comments, “Physics proper does not deal with recognition systems, which are by their nature biological and historical systems. But all the laws of physics nevertheless apply to recognition systems.” (Edelman, 1989, p.72) There is a danger here that Edelman goes to far in divorcing recognition at different levels. That the word may be used at different levels may be a mere convenience, but, it has been argued suggests something of the ontological conditions necessary for the exercise of recognition at higher levels – the claim here echoes Margenau’s (Margenau, 1966).

¹⁶⁶ So that he ends up (as we saw, page 147), admitting something like ‘mind’ to oaks and animals (Dietzgen, 1906a, pp.341-2) insofar as mind is a quality of the single universal nature.

generalization or unification,” (ibid., p.79) combining, relating and reconstructing perceptions as features of a scene within which each relates to the other and only exists insofar as it is not something else, whilst remaining suspended in a dependence upon that which it opposes. Consciousness “recognizes that all nature, all being, lives in contradictions, that everything is what it is only in co-operation with its opposite.” (Ibid.) But there is something more, which turns Dietzgen’s account into a neo-Spinozan panentheist-made-panpsychist basis for an ecology of emergence; because, for Dietzgen, awareness of body(-in-econiche) serves as the ontological condition for an expansive ‘feeling’ of matter (Naess’ Self-realization) to occur. In an early disquisition on matter (ibid., pp.81-2), Dietzgen outlines the essentials of his understanding: he begins by noting the lessons learnt from the materialists, namely that whilst matter eternally changes in form, it remains everywhere and at all times indestructible. In the world of sense perception, we meet only examples of perishable matter, forms of matter seeming to come into existence and to pass away again. Crucially, one’s experience of one’s own body is the means by which one can comprehend the immutability of the totality of matter. Like all ‘organic individuals’, one’s body changes and deteriorates, and yet at some level, *for me*, it remains the same body. “What constitutes then this body which is distinguished from its transient form? It is the sum total, in a generalized way, of all its varied concrete forms.” (Ibid., p.82) The experience of this degree of ‘permanence’ – resilience would be a more useful term – makes possible an *identification* with that greater eternal order of matter “as the sum total of its perishable forms” (ibid.). Still more, our ‘consciousness’, that is, our subjective sense of our continuity (as bodies) across time and within spatial relations offers a glimpse of the truth that “there will always and everywhere be matter.” (Ibid.) Brains-in-bodies are the sites of the kind of activity which allows for the possibility of the registration of the universe for itself, but only because they are themselves features of a material landscape which includes a plentide of interrelated material societies of enduring objects in motion.

On this point regarding the centrality of our own bodies to our learning of universal materiality, Naess is uncharacteristically confused. He seems to dismiss the location

of the ordinary 'I' within the corporeal self on a semantic nicety, and drifts ineluctably close to dualism (Naess, 1995c, p.227). For sure, we can agree with Naess that when we say 'I' we do not usually mean 'my body', but this may signal a particular failure in the modern – we might add bourgeois – subject who fails to equate self with bodily existence as expressed in activity, labour, production. Solid materialism of the kind espoused by Dietzgen should be perfectly satisfied that at one level, 'self' and 'body' are indeed identical. Admittedly, this makes it far harder to identify the nature of Naess' expanded 'Self'¹⁶⁷, which, oddly appears to lack a structuring along dynamic material lines drawn across contiguous spacetime parallel with that of the abstracted human self-as-brain-in-body. But, of course, the central argument of ecosophical ontology is that monist materialism denies the atomisation of matter across the geometrodynamical field. As we have seen, subjects existing within a genuinely interrelated cosmos need not fall foul of the charge of parallelism. But again, this does not get around the difficulty of how to then locate something like subjectivity across matter knotted into formations which are clearly not similar in any meaningful way to the neural networks of fantastically complex maps which are absolutely necessary for thought¹⁶⁸.

In summary of what has been argued hitherto; our experience of sense perceptions are described by Dietzgen as appearing as one phantom chasing another, yet it is in this regard that he famously describes such a 'phantom' as "no more and no less different from the thing which produces it than the stretch of a twenty-mile road is different from the road itself." (Ibid., p.83) The forms of matter may appear congealed into unities, an appreciation of which are to the adaptive advantage of the human perceiver, or, indeed, to the rather different adaptive advantage of a nonhuman perceiver – snake or bat, for example; but matter itself extends across spacetime between perceiver and perceived, between object and brain. There is absolute material continuity between the 'thing' and the flickering patterns of neuronal reentrant activity which can be described as the 'experience' or image of the thing. There is no

¹⁶⁷ See page 235

¹⁶⁸ Mathews' panpsychist dilemma: see chapter 5

‘reflection’, there is only the ‘road itself’ and its many stretches always under a perspective. The road is travelled, and, as Dietzgen tersely puts it, “[p]henomena appear, that is all.” (Ibid.) Recognition of the material universe is the necessary expression of an immanent tendency organised, categorised and systematised relative to the adaptive advantage of the perceiver, such that our species-reality reveals something of the materiality of the cosmos. The material subject, the subject in the universe is not divided against the universe as consciousness against matter. The “subjective reflection” of the universe occurring within brains is ‘subjective’ precisely because the brain is an abbreviation of brain-in-body-in-niche; the partial or distorted universe existing in the brain is such because of the subjective presence of the brain’s functioning within spacetime, as positional, as a point of emergence of the universe under perspective. The basic thrust of this study is entirely in concord with Žižek on this point.

So, the question is not whether there is a reality outside and independent of consciousness, but whether consciousness itself is outside and independent of reality: so, instead of Lenin’s (implicitly idealist) notion of objective reality as existing “out there”, separated from consciousness by layers of illusions and distortions, and cognitively approachable only through infinite approximation, we should assert that “objective” knowledge of reality is impossible precisely because we (consciousness) are always-already part of it, in the midst of it – the thing that separates us from objective knowledge of reality is our very ontological inclusion within it. (Žižek, 2002, p.180)

For, how could matter ‘objectively’ regard itself? In that we humans in our complex physicality represent knots in the fabric of the universe, we are also nodes of the densest coagulation of matter’s presence to itself, always already ‘out there’ as – to mix metaphors again – points of perspective on that long road.

Among the levels at which our ecologies of emergence can be regarded, *recognition* or registration takes us to the ontological, whilst *identification* focuses on the epistemological. Both are descriptions of the same basic features of matter, under different perspectives, the first fundamental, and the second pedagogical. Whereas for Dietzgen, identification begins with the human body, for Naess, identification is more closely associated with environment and interspecies relations¹⁶⁹. His example of identification with a flea might be deliberately provocative, but makes the point clearly that the conscious aspect of expansive selfhood cannot truly select which features of the environment it identifies with¹⁷⁰. In part, this also explains Naess' unease over the equating of "I" with "my body" which deep ecologists would regard as too anthropocentric a formulation. Naess is rarely willing to extend his argument more than a little and very tentatively into the foundational, ontological bases of such identification. One might regard this as commendable and suggestive of humility in relation to the unknowable structures of reality. But the fact remains that few people in modern bourgeois society demonstrate the compassion he exhibits in his example of interspecies solidarity, that of the flea dying in a laboratory. Whilst such sentiments might indeed be prevalent among some Buddhist or Hindu communities, their absence among populations more than happy to see the end of such 'parasites' without any consideration for their well-being or necessary place within predation relations, testifies to a rather unsteady basis for an ecological order or an 'ecology of the self' if

¹⁶⁹ Green socialists might profitably remind themselves of the "it" before "I" of Schellingian dogmatism at this point. The issue of whether to operate first with 'my body' or with 'my ecosystem' is secondary to the ontological prioritisation of matter in any of its expressions, of which "I" am always already a part.

¹⁷⁰ Though, if one seeks to apply Whitehead at this level, the process of adversion as constitutive of those nexūs that take the form of 'societies' of knowledge is indeed selective of the bases of one's thinking. A society is a nexus under particular given conditions. These conditions are given by a shared 'form' among members of the nexus, these representing the 'defining characteristic' of the society. This form is positively prehended for, and such prehensions thus condition the reproduction of the form through time. This form has a highly Platonic character as an eternal exemplar of the nexus. The defining feature of all societies is that they are self-sustaining, in that they are their own adequate cause. Societies as Whitehead conceives them are almost all-encompassingly inclusive in their range and scope because they offer the possibility of an account of 'cause' and continuity as we perceive them in ordinary experience. For example, 'familiarity with the Greek language' constitutes a society! (Sherburne, 1981, p.79) And, if so, selective place-based knowledge as a basis for identification might do likewise. Why? Because there is continuity in time in contextual comprehension and employment of the language or knowledge, thus enabling Whitehead to abstract from the gestalt an instance of activity ('mental' or verbal) which relates in a variety of positive ways to its immediate history or inheritance as well as environmental factors allowing for further adversion and positive feeling such as to complexify the 'society'.

it does not offer an explanation both for the possibility of such self-identification with fleas, and the common absence of this phenomenon among the general population. At its core, “[t]he ecological self of a person is that with which the person identifies.” (Naess, 1995c, p.227) This could be taken to be a metaphor, an act of recognition, but remain monadic. But for Naess, it is this very act of identification in terms of sympathy and intense empathy which is suggestive of that far more fundamental connectivity of which these feelings are merely a symptom. “[T]here must be identification in order for there to be compassion and, among humans, solidarity.” (Ibid.)¹⁷¹

The substance and ecology of brainwork

How are the dynamics of brain activity, ‘brainwork’ to be regarded in the light of the discussion hitherto? And why should it matter? We are beginning to synthesize a narrative of the emergence of the individual human subject within a green and socialist framework. This conscious subject may be said to undergo a process of

¹⁷¹ The deep level of identification with one’s wider self may be set alongside something which may be more familiar to many – a shallower but nevertheless highly significant level of identification or affiliation with local geographies of the type one might call topophilia. Such affective loyalties may easily move towards love and solidarity with the flora and fauna of a bioregion and perhaps even the whole land community, including of course those people who share a common dependence on a local ecology. At this level, the network of relationships which encourage resilience are indeed material to our survival and most visible in the everyday life of communities of human and nonhuman animals. Such has been the wealth of writing about this level of identification that little space will be leant it here. Nevertheless, mention is certainly worth making of those human populations whose developed but unexpressed ecological self only becomes ‘for-itself’ when it is threatened or effectively shattered as people are forcibly moved to new locations. The transposition of a body into a new space may be relatively easy as the ‘self’ contracts and re-expands with a renewed topographic orientation. But, as in the cases of Inuit highlighted by Naess (1995c, pp. 230-31) (and there are many more such examples), a move away from traditional ecological relations towards semi-urban consumption (as in Canada) or forced collectivisation (as in the USSR) precipitate a genuine collapse of the self, a loss of self identity and a complete *disorientation*. Outside of deep green gatherings or Callenbach novels, very rarely would we expect to hear someone explicitly expressing a sense that they are an element in an ecosystem, but far more frequently a sentiment is articulated, by urbanites, rural dwellers and indigenous peoples alike, that they ‘belong’ in a place, that they are culturally and ‘spiritually’ connected to place – something closer to topophilia than conscious ecological identification. What does it mean to say that one is ‘part of’ a place? Naess cites several of the formulations used to explain this relation, phrases like “[m]y relation to this place is part of myself”, or “[i]f this place is destroyed something in me is destroyed”. (Naess, 1995c, p.231) He is quite right to note that, in (something like) everyday language, these claims leave plenty of scope for dualistic interpretation. There are two distinct and separable abstractions, place and person, the latter containing or reflecting the former. The relations between such identities are external to their being, rather than the two abstractions emanating from a common material basis, a wider Self. One thinks here of Sartre’s hodological space (Sartre, 1972, p.251). However, such expressions of topophilic solidarity are nevertheless suggestive of a far deeper level of recognition characteristic of human species being.

transformation in and through her own becoming ‘self’, and this process takes place at a number of levels, among them the somatic level. We have said that this is made possible by the fundamental freedom and unpredictability inherent to all matter at the quantum level (and this argument is further developed below). The two poles of the dialectic of the choice to be are, firstly the absolute and terrifying arbitrariness of doing one thing rather than another; and secondly, the bizarrely lawlike results of free choice, the distribution of electrons on the detector, the ramification of falling leaves or, perhaps even of dendritic spine growth on neurones. Expressed differently, this is a dialectic of freedom and recognition, or registration. But what of brains? Surely, insofar as they are pieces of complex biomachinery, we should be able to predict what brains will do under given conditions: perhaps, by examining genotype, controlling epigenetic factors, closely measuring the balance of brain chemistry, we could determine with a very high level of certainty the outcome of particular ‘choice’ making activity among selected humans? The answer to this question lies in considering the levels at which we apply our analysis.

To a materialist, brains matter. They cannot be ignored as those seats of the concentrated electromagnetic activity which we express as our or as the world’s awareness of itself. It is not surprising that the first Marxist materialist philosopher should have been so preoccupied with the operation of brains. But Dietzgen did not fall into the reductionist position so prevalent among nineteenth-century materialists which foresaw the culmination of the Newtonian project. Even despite his collapse of epistemology and psychology into political materialism, and contrary to his German ‘mechanical’ materialist peers, Dietzgen did not imagine that given enough knowledge about physics, neurophysiology, political economy and our evolutionary past, we might be able to predict with any accuracy human choices; or at least, he did not say so. Nevertheless, like other Marxists he could not deny that under given material conditions, the movement of human brains would be as predictable as – let’s use Mathews’ example – the movement of a sidewinder snake¹⁷². Dietzgen was

¹⁷² The movement of the brain follows patterns, like the flow of a river or the snake’s glide; yet patterns change over time with the recognition of those flows by the environment; loosely, rather as banks erode and new channels are formed, so in the neural environment, pathways develop and also close over.

clearly familiar with the work of his fellow German materialists – those Marx and Engels would disparagingly call ‘crude’ or ‘mechanical’ materialists. Like some of the most well-known of these figures, Liebig, (the infamous Herr) Vogt, Moleschott, and particularly Büchner, Dietzgen believed “that ideas change people and people change history”(Gregory, 1977, p.1)¹⁷³, though unlike them¹⁷⁴, Dietzgen did not hold that it was up to scientists and intellectuals to carry through the “sorely needed education of the masses” (ibid.). No, this was a movement of the masses themselves, and, his followers would argue, an effect of the spontaneity of immanent free thought. Despite Dietzgen’s obvious debt to the German scientific materialists, with historical hindsight one can immediately see that their naïve realism, their attachment to the absolute predictability of nature and its unambiguous and unproblematic division, is quite at odds with Dietzgen’s conditional, relative claims regarding truth, morality and cause and effect. Dietzgen’s position is far more amenable to the quantum universe.

As an important aside at this point, the politics of *Brainwork* and of a brain based epistemology – politics which Edelman entirely ignores – are, it will be argued, democratic, anti-Stalinist and opposed to the official version of what became Marxist-Leninist science on the fundamental basis that spontaneous and unpredictable human brain activity constitutes a material force in the world: *consciousness acts*. It acts within nexūs of relations which, as we have seen extend well beyond the physical brain; “cognitions internally joined with active affects and constituting interactions between body and environment (under the attribute of extension), are complex and

¹⁷³ Very much in common with Dietzgen, “the scientific materialists picked up where the Young Hegelians, in particular Ludwig Feuerbach, had left off, but their critique of Hegel, their atheism, their criticism of authority, and their monism were proclaimed as the result of science, not as the musings of philosophers” (Gregory, 1977, p.2)

¹⁷⁴ The epithet ‘mechanical materialists’ assigned to these thinkers by Marx & Engels relates to their conviction that the old mechanical tradition in physics provided the most effective method for the analysis of the world, matter and sensations. Although Dietzgen disagreed with them on much, including not least political critique and strategy, he does share with the mechanical materialists their antipathy towards Kantian claims regarding the ‘thing-in-itself’ as separate from its phenomenal appearance. They dissociated themselves from ‘crass’ empiricism because their outcomes were philosophical, yet just like Dietzgen this did not mean that they denied empiricism’s cardinal premise, the primacy of senses as the source of all knowledge. The difficulty here was their Gradgrindian attachment to ‘facts’ which convinced them that they had got rid of metaphysics. The role of the observer is wholly underestimated and undervalued by the mechanical materialists – facts and theory could be very clearly delineated.

comprehensive” (Naess, 2008f, p.258). If viewed in this way, the position of deep greens draws in and includes brain(-in-body-in-econiche) based epistemology in a manner which is compatible with the Marxist and green socialist idea of brainwork as a form of active material intervention in the world – people making history – as well as with thought activity as a process of interactive large scale neural reentrant mapping involving the creation of more or less coherent worlds of interrelated elements inextricable from action.

A monist materialist epistemology is of necessity a brain based epistemology, so long as we accept ‘brains’ as our shorthand for brains-in-bodies-in-econiches as part of a set of all-encompassing total field relations. For the contemporary neuroscientist, brain based epistemology necessarily rejects idealism, dualism and panpsychism (Edelman, 1992, p.152) – which Edelman equates with “mysterianism, and spooky forces” (Edelman, 2006, p.8) – and also represents a rejection of the ‘reflection’ model of consciousness. At the level of total field relations, it is necessary to take issue with the outright rejection of panpsychism, whilst recognising why, at the level of neuroanatomy such an approach is consistent with materialism. Materialist epistemology should also not only

be consistent with the physical description of the world but also must account in neural terms for a series of psychological functions, beginning with perception and culminating in an adequate explanation of consciousness. This requires that the theory, however unitary, specify the ordering and connectivity of several models, each accounting biologically for the different psychological functions considered to be required for the emergence of consciousness. (Edelman, 1989, p. 13)

A full account of any such theory cannot of course be offered here, where the contemporary expertise of Gerald Edelman is merely supportive and illustrative of the wider thesis. If one tries to connect Edelman with historical, materialist efforts in this area, it is clear that although from the position of nineteenth-century science Dietzgen

would have been unable even if he were willing to reduce the general processes of perception and cognition to neurophysiology, he was sure that discussion of thought as a product of brainstates would draw mental process “into the bright light of reality and out of the domain of fantasy in which the ghosts dwell.” (Dietzgen, 1906a, pp. 16-2)¹⁷⁵ That we distinguish between object and ‘sense-perception’ for Dietzgen is no reason to suppose that the ‘mental image’ in the brain is not ‘material and real’, “[m]ind is as real as the tangible table, as the visible light, as the audible sound” (ibid., p.63), and differs no more from these than they do to each other. And that material of the mind is no more than the myriad movement of brainstates in response to equally material stimuli both from within and without the brain:

This material is of the utmost variety and supplied by the senses. The senses reveal to us the substance of the universe in the forms of concrete qualities, in other words, the nature of perceptible matter is revealed to the faculty of thought through a variety of concrete forms. (Ibid., pp.88-9)

Here again, Dietzgen’s straightforward explanation of the piecemeal, empirical growth of organising systems within the brain for constructing our worldview (to our adaptive advantage) equates relatively comfortably with that of neurologists such as Edelman. Ultimately, for both, “*Thinking is a function of the brain*” (Emphasis added) (Dietzgen 1906a, p.62): a seemingly simple statement, but one which sweeps away idealist confusion, and, importantly, should be read with due regard to Edelman’s ecological caveat about everyday abbreviated meaning of the term ‘brain’.

Materialists have struggled with the sense of causality commensurate with a brain based epistemology, and, after Spinoza, Whitehead’s complex nontemporal account is the best we have in allowing immanent cause to matter itself. If mind is material, intentionality means no more than the expression of the freedom inherent to matter at the quantum level in the local form of brain tissue. To deny intention to matter would be either immediately to split will and spirit from material brain (thereby admitting

¹⁷⁵ Dietzgen is perhaps as fascinated with ‘spooks’ as is Marx, but far more determined to banish the *revenant* of the *cogito* (see Derrida, 1994, p.133), to chase away the Ego.

dualism) or to reject free will altogether. To be clear, brainstates – the complex patterns of synaptic operation – *do not cause consciousness*: consciousness is not an effect. Any such suggestion would bring to the matter the problems of temporality in cause and effect and, most importantly, risk reintroducing dualism. At one level, consciousness is a way of talking about brainstates; consciousness *is* a sequence of brainstates or, more dynamically, *brainwork* as regarded under the aspect of particular types of functioning; or, in Ollman’s terms, consciousness operates at the level of “whatever is unique about a person” (Ollman, 1993a, p.88) – the most specific of the levels of analysis employed by Marx and sequenced by Ollman. Edelman’s use of the term ‘entailment’ might be helpful here. Certain brainstates *entail* consciousness “just

as the spectrum of the haemoglobin in your blood is entailed by the quantum mechanical structure of that molecule.”¹⁷⁶ (Edelman, 2006, p.40)

Insofar as anything within time exists, it only does so in a dialectic of inheritance and novelty. Yet our brains work in such a way that we create and maintain an abstracted sense of a period of time. Our often experienced sense of time as a ‘flow’ within

¹⁷⁶ However, unfortunately, Edelman (2006) sometimes adds to the confusion associated with the term ‘cause’ in relation to consciousness by drawing on the language of *process* to deny causality to thought per se; “inasmuch as consciousness is a *process* entailed by integration of neural activity in the reentrant dynamic core, it cannot itself be causal.” (Original emphasis) (Edelman, 2006, pp.91-2) What does this mean? Here he differs from the Process Philosophy of Whitehead which takes as its starting point an ‘eighth level’ (in Pomeroy’s terms) of metaphysical engagement more fundamental even than the quantum. Edelman avoids the complications of fundamental ontology and the subatomic and instead asserts, more traditionally, that the transfer of energy is causal. If we take this as unproblematic at what he calls the ‘macroscopic level’, then it is not difficult to assert that the flow of electrical impulses across neuronal maps is indeed causal. Here, though, Edelman seems to fall into the trap Dietzgen warns against, that of separating the ‘phenomenal’ from the ‘thing-in-itself’ in arguing that “it is the activity of the thalamocortical core that is causal, not the phenomenal experience it entails.” (Ibid., p.92) Edelman argues first that the integrated pattern of neural activity – the brainstate – at any given moment is ‘faithful’ to the conscious state: there is a direct relationship between the neurophysiological and the mental. Second, he claims, one neurophysiological state is the material basis for the next: this is surely unproblematic at the ‘macroscopic’ level (and indeed on any reasonable reading of Whitehead such as to allow us to talk about temporality at all). But his argument that the neurophysiological is causal whilst the experiential is not is surely far more difficult to justify. Is it not true that the subjective experiences simply *are* the energetic movements, as described under the aspect of selfhood? How can the set of movements as described under one aspect be ‘causal’ whilst, as described under another they are not? On the basis of his claims, Edelman (ibid.) argues that our common-sense belief that our thinking something can make it happen is illusory. Again, does this epiphenomenal account not open the way for the return of dualism? Edelman compounds the mistake in claiming that “[q]ualia are entailed by states of core neurones acting to yield complex integrative states that can shift to yield new states and conscious scenes... Qualia are not themselves causal, and to assume otherwise would go against the laws of physics.” (Edelman, 2006, p.145) Whilst of course it is true that one cannot think something into being – one cannot disobey the laws of physics no matter how hard one wishes like a child or a petitionary penitent that one’s hopes or prayers might incur at-a-distance effects – this disaggregation of experience from brainstate is merely an abstractive convenience, and cannot be superimposed upon basic ontology in such a way as to rend the fabric of reality into parallel mental and material realms. Edelman is right that no strange powers, no panpsychist or pantheistic entity can fill the gaps – there is no god to help us out here. And here he agrees with Dietzgen, who writes, “Natural science looks for causes not outside or back of nature’s phenomena, but within or by means of them. Modern research seeks no external creator of causes, but rather the immanent system, the method or general mode of the various phenomena as they are given by succession in time.” (Dietzgen, 1906a, p.106) But, only the superstitious, mystical and religious claimed external causality for consciousness anyway. In contrast, it is argued here, insofar as cause exists at all (and at a quantum level, this is far from straightforward), thought *is* causal. Consciousness is but a form of material movement (as described under the abstraction of ‘self’) and, as such, is no less causal than any other transfer of energy. Edelman appears not to be consistent because he seems to overlook the different senses in which consciousness has been taken to be causal. On the magical version of its efficacy on physical objects at a distance, of course it is not causal. In the sense that one can consciously decide to move one’s arm, take a step, cogitate on revolutionary strategy, it is certainly causal. The fact that such ‘decisions’ can be and often are often made unconsciously is neither here nor there. Intentionality may be difficult to reduce to neuronal operations for all the complex cultural and environmental reasons to which Edelman refers, but to claim that causality in the everyday sense does not cut across the different ways of describing the functioning of our neuromotor and nerve systems is simply incorrect. Edelman cannot really mean this; however, his lack of clarity could easily lead one to believe that he does and needlessly raises the spectre of dualism.

which we can hold a view of a brief stretch of time at once is a construct hugely beneficial to our chances of survival; that is, it is of great adaptive advantage. This development in our brains is closely associated with symbolization, specifically with language use¹⁷⁷, allowing the raw data of experience to be organised and processed at great speed into the conceptual schema we employ to coordinate our action and orientation within the world. Only the present exists, but we integrate this moment into an extended ‘remembered present’ because of the lag in our brainstates. Our integration of so called ‘core states’ usually takes two hundred to five hundred milliseconds. That is, we often know things about our environment long before we know that we know them. In this sense, consciousness is always somewhat behind reality, though some unconscious brain activity can be much quicker and closer to the action – startle responses for instance precede consciousness of the source of the startle. Our sense of time varies, and we sometimes feel it moving faster than others dependent on features of our integrated brainstates. The fact that our self-conscious minds lag slightly behind reality might appear to reinforce an atomistic, reflection-type model of our consciousness. What our ‘mind’s eye’ sees has always already happened and is no more, just a ‘reflection’ remains. But of course, this is a matter of perspective; our brains are part of a hugely complex integrated web of energetic movement. The distance across the brain is not great by cosmic standards, but it is hugely significant, and, as compared with events at the quantum level, it is unimaginably many times larger¹⁷⁸. As physical objects, brains are extended, and, having the attribute of extension, they are necessarily four dimensional, operating under spatial *and* temporal perspectives. But there is no atomic mind, merely the flow of matter across and within spacetime, including within those knots in the fabric of the universe which we call braintissue.

¹⁷⁷ Edelman explains: “[w]ith the accession of higher-order consciousness and language, models of the past and future can be constructed by means of the rich interaction of conceptual categories and linguistic memory. The continuity of consciousness is not broken by this construction – instead, it becomes possible to compare the simultaneous perceptual flow of primary consciousness with the content of these models. The resultant “sense” of duration is sharply modifiable by sensory input, by attentional and arousal states, and by alternations of motor activity.” (Edelman, 1989, p.248)

¹⁷⁸ Whereas the scene of the desk I see before my eyes is only a fraction of a second old, the light I see with my naked eye from the stars in the evening sky may have been emitted two million years ago, plus the fraction of a second it takes for my conscious brain to acknowledge its presence in my vision.

Returning again to the pedagogical aspect of these material processes, as we now know from neuroanatomists, the patterns of our thought are inscribed early in our brains. The neuronal circuits which shape the way we think of the world develop as a part of a highly selective system in operation amidst the great microscopic anatomic variation in our brains. Even whilst we are in the womb, “neurons that fire together wire together” (Edelman, 2006, p.28). Across great distances in the brain, neurones will make synaptic connections if their patterns of firing temporarily align. Such correlations are strengthened or weakened by subsequent experience and behaviour. Of the vastly many billions of possible signal paths that could be formed in the brain, those that are selected for strength and efficacy serve to best attune the infant or young nonhuman animal to its environment. Perhaps the most fascinating discovery regarding this adaptational biology of the brain is the ways in which it creates a coherent consciousness, rather than, say, a kaleidoscope of contrasting and contradictory impressions. The explanation offered is of the process of reentry. The idea of reentry is one of ‘massive’ movement across the surface of the brain, the signalling back and forth across neural regions from one map to another of unimaginably many parallel axons. These reentrant signal paths constantly flicker across the brain “at the speed of thought”. This is indeed brainwork – material, continuous, inextricably related to the nexūs within which the brain nests.

Brains have generators of diversity in the selectional synaptic changes in their networks of neuronal groups and in the ‘value systems’ which release specific types of neurotransmitter or neuromodulator¹⁷⁹ under particular conditions such that behaviour is governed. Edelman tells us that brains “encounter signals from an unknown world through their repertoires of neuronal groups, and facilitate differential amplification of the connections of those groups of neurones that are adaptive. We conclude that our brains are clear-cut examples of selectional systems” (ibid., p.31), adapted to their ecological conditions. The part of brain activity which experiences its own operation as matter’s interiority for-itself, as subjectivity, is centred locally within braintissue. That is, within the knotted matter of the universe, there are parts

¹⁷⁹ Noradrenaline, dopamine, serotonin, acetylcholine.

which are more or less organised and complex, and associated with ‘aliveness’, and within these complex concentrations, some nested networks (or societies of enduring entities, in Whitehead’s terms) are associated with the kinds of energetic flows which we call thought; yet more specifically, within these nexūs are those whose movement humans know to be the most concentrated centres of subjectivity, and “[t]he evidence suggests that consciousness is entailed by re-entrant activity among cortical areas and the thalamus and by the cortex interacting with itself and with subcortical structures.” (Ibid., p.36) This is the mundane material reality of the one material universe’s registration of itself. And it is also quite remarkable; all the more so when one correctly understands that consciousness was not intended, it was not selected *for*; it is the consequence of random variation within one element of an ecosystem, selected through survival to better preserve the continuity and integrity of the equilibrium and sustainability of the system as a whole: “the brain, as a fundamental structure for the elaboration of knowledge was not *designed* for knowledge. Evolution is powerful and opportunistic, but it is neither intelligent nor instructionistic.” (Ibid., p.54)

The processes at work in the selection of synaptic connections and the establishment of neural networks connect brains fundamentally into environments, and it is worth making one more point about this before moving on. Neurological research has shown that different regions can in fact develop to carry out the same or similar functions within the ecology of the brain. This offers a picture of a system of what is known as ‘degeneracy’. Degeneracy refers to a situation where different structures can yield the same output or consequence: this is biologically very significant¹⁸⁰. Thus, if one structure fails to develop, or ceases to operate, other parts of the brain may adapt to fill the internal ‘econiche’ left by the absent element. This is particularly significant because it means that “[n]ot only is the fine structure of each brain unique, but the principles of Neural Darwinism lead directly to the notion of degeneracy: different brain structures can carry out the same function or lead to the same

¹⁸⁰ Edelman explains that “Degeneracy is seen at many levels of biological organization, ranging from properties of cells up to those of language. It is an essential property of selectional systems, which would be likely to fail without it. So we may expect that, in perception and memory, many different circuits of neuronal groups could and do give a similar output.” (Edelman, 2006, p.33)

output.” (Edelman, 2006, p.57) If the neuroscientists are right, the most important element in the development of the brain is the ecological effect of our action and interaction with the world; where somewhat different parts of the brain respond to active engagement and develop the equipment capable of supporting and extending this interactivity. This fact reinforces the action theories of consciousness developed by those like Vygotsky and Luria steeped in a Marxist tradition of understanding *thought as action* influenced, in no small part, by Dietzgen¹⁸¹.

Where are we in our understanding of consciousness in relation to brains and their operation? Consciousness, as entailed by particular brainstates, or brainwork, is the materially nested awokeness of nature to itself, under perspective. That is, *it feels unitary* and yet it is also profoundly connected. It represents an endless and limitless shifting and refocusing of privately experienced unitary scenes. Whereas dogs and bats and other mammals (and perhaps other forms of life too¹⁸²) have primary consciousness, the experience of a unitary scene in the now – the “remembered present” – they do not have a consciousness of the past or present, or of a nameable self. This is also true of human babies. Theirs is a kind of flashlight consciousness, illuminating the confusion for a moment and moving on. The coming into being of subjectivity in itself (though not yet for itself) is associated with the coagulation of fleeting pools of experience into a unitary consciousness in action. Yet consciousness is not a ‘thing’ in any meaningful sense; rather it is a process or movement of matter (on its extended Dietzgenian definition), that is a transference of corpuscular unity through time; but it is not ever any one particular brainstate, stasis being impossible, it is rather the process of changing brainstates – hence, *brainwork* as a shorthand for the dialectical subjective-superjective dynamic of brain-activity. As regards the term ‘consciousness’, Dietzgen (1906, p.61) aligns this with others such as ‘reason’, ‘intellect’ and ‘knowledge’ to argue that each represents a ‘special form’ of a general

¹⁸¹ The sequence of developmental interactions from environment to hand to brain is also precisely that proposed by Engels in his *Part Played by Labour in the Transition from Ape to Man*, a once largely ignored text which has taken on greater and greater significance in the twenty first century as the oft cited pinnacle of ‘Marx and Engels’ ecology’.

¹⁸² We recall Marx’s choice of bees as exemplars of a kind of primary consciousness in contrast with humans’ consciousness in time (Marx, 1990, p.284)

thought *process*. The materiality of mercurial minds continues to elude many even among the most committed of so called dialectical materialists who insist on an interaction between matter *and* mind, rather than between those knots in the material universe associated with consciousness and wider materiality, and who, in the process, ontologically privilege higher order consciousness, thus preserving anthropocentrism and maintaining dualist illusions; whereas, in fact, “the understanding that it is the selectional reentrant activity of groups of neurons in the [thalamocortical neuronal network, called the dynamic] core that yields phenomenal consciousness makes it unnecessary to invoke dualism.” (Edelman, 2006, p. 37) In terms of our understanding of consciousness, this basically means that Lenin was wrong in his ‘dialectical’ assertion of a reflection model of consciousness, and that Dietzgen was right, though of course woefully limited in his understanding, in claiming thought as a material (in his extended sense, to include energetic) movement much like any other. For Edelman, the processes of consciousness do not require constant components to imply continuity, for “[c]ontinuity does not imply essence, nor is it necessary that a system be constant to maintain a resemblance to previous states.” (Edelman, 2006, p.41) This systems approach is closer to Naess’ appropriation of impermanence from Buddhism than it is to Whitehead’s insistence on Platonic defining characteristics for inheritance. Green socialists may find the former a more appealing way of working with abstractions, and more in keeping with the practice of Marx and Dietzgen, for whom those abstractions which represent relatively stable and autonomous elements of a process, are called “moments” (Ollman, 2003a, p.66), reflecting the relative importance of the process over its ‘satisfaction’.

To take this discussion a step further, let us connect the material process of consciousness with self-in-brain, and with wider selves: “from very early developmental times, signals from the body to the brain and from the brain to itself lay the grounds for the emergence of a self. That self, like consciousness, is also a process.” (Edelman, 2006, pp.37-8) In a sense, though, this process is self in potentia. It is the self in-itself, but not yet the self for-itself. The self-in-brain is unquestionably

material; it is a way of describing the constantly moving flow of reentrant neuronal activity across the thalamocortical core relating conscious experience “for reference to its own memories” (ibid., p.38). Although, as Naess has pointed out, this kind of description may not necessarily be what many people think of when they identify their selfhood, it is materialist but not monist and far closer to the individualised ‘atomic’ self than to the panpsychist expansive self, with whom Edelman is very happy to dispense. This, then, becomes a question of levels of explanation. If we take the lens out far wider than humanity, as Edelman is of course very happy to do, and we include all other living things across terrestrial evolutionary time, we find selves-in-themselves emerging at all sorts of evolutionary points, in, for example the first birds, and early mammalian forms. Consciousness of sorts, though not yet self-consciousness crops up all over the place. Moreover, the most fundamental dynamic laws of nature are present everywhere (within our part of the universe at least), and at the subatomic level, there is no ‘edge’ to consciousness, merely greater perturbation of specific kinds, greater energetic flow, particular massive macroontological movement of matter which mark one region of spacetime more ‘conscious’ than another. And, yes, it is very difficult to conceive of consciousness in anything like the form with which we are familiar subsisting outside the staggeringly complex, delicate, fleeting networks which constitute the neuronal functioning of brains. But, refocus the lens and at the subatomic level, of course things become more troublesome, because here, potential is everything and yet it appears to be the operation of those forms of material movement associated with consciousness (at a far higher level) which somehow occasion the potential wave/particle to be and to have already been one or the other at the point at which it is ‘registered’ by its context, which cannot be other than similarly constituted packages of energy flow moving in patterns characteristic of systems at ever larger levels of operation, upwards through atoms, molecules, cells, to whole brains to brains-in-bodies and bodies-in-niches into total field relations of variously ‘knotted’ matter. Dependent upon our focus, consciousness looks rather different: at the everyday human level of functioning, it may be untroublingly merely a way of describing the operation of brains, but at a larger scale, consciousness looks very like a peculiarly specialised feature of environmental systems operating such as

to allow rapid and deft movements capable of enabling adaption and resilience of these systems against the pressure towards (eventually inevitable) collapse; and at the smaller scale consciousness again appears as a particular system of energetic flows but with cause and effects (and we know how difficult it is to speak in these terms at this level, but let us stick with them just for a moment) across and between patterns of movement which extend through spacetime in ways which cannot possibly be limited solely within the parameters of those more complex (higher neuronal) systems.

One further element of complication should be added to the developing picture of the ecology of consciousness in brains before going on to discuss the emergence of freedom across levels. That is the question of whether the pure potential of ψ -state probability at the quantum level could or does 'intervene' in the macroontological directly in such a way as to play a part in the construction of the neural pathways which constitute the material ground of consciousness. Whilst this is a speculative exercise, it serves a useful function in bringing to light something of the possibility of freedom emerging across levels from the fundamental ontology of the cosmos. Two physicist-mathematicians turned philosophers, Henry Margenau in the 1960s, and later Roger Penrose in the 1980s-90s have suggested there might be observable evidence of the operation of the absolute freedom of the quantum within the formation of the brain. These audacious and important claims will be discussed further a little later; for now let us just tentatively extend the discussion of the mechanics of brainwork a little into this field of possibility: the *quantum mechanics of brainwork*. In order to develop this, we need to accept Penrose's claim that there must be a 'nonlocal', i.e. quantum mechanical element to the formation of certain quasicrystalline substances, because their assembly rather than being possible through the usual local addition of one atom at a time, depend upon patterns arising many atoms away from the point of assembly:

one must consider an evolving quantum linear superposition of many different alternative arrangements of attaching atoms... Indeed, this is what quantum mechanics tells us must (almost always) be occurring!

There is not just one that happens; many alternative atomic arrangements must coexist in complex linear superposition. A few of these superposed alternatives will grow to very much bigger conglomerations and, at a certain point, the difference between the gravitational fields of some of the alternatives will reach the one graviton level. At this stage one of the alternative arrangements... will become singled out as the actual arrangement (quantum procedure **R**).¹⁸³ (Penrose, 1989, p.437; see also p.367)

This collapse into actuality goes way beyond the resolution of the dialectical potential of a single subatomic particle, and proposes a whole (relatively) massive nexus of probabilities collapsing into actuality at once, creating a macroscopic entity of perhaps a twentieth of a millimetre across made up of billions of subatomic particles in a formation established *on the other side* of the strange barrier between the real and the possible. If this account were to be correct¹⁸⁴, Penrose believes there may be something to take from the quasicrystal example to brain development. The growth of the dendritic spines of neurones could, Penrose speculates, be governed by operations paralleling those of quasicrystal development. Vast numbers of alternatives are tried out in complex linear superposition kept below the one-graviton level,

“[w]hichever atomic arrangements finally get resolved (or ‘reduced’) as the actuality of the quasicrystal involve the solution of an energy-minimising problem... I am speculating that the action of conscious thinking is very much tied up with the resolving out of alternatives that were previously in linear superposition. This is all concerned with the unknown physics that governs the borderline between U and R and

¹⁸³ The process **R** is called reduction of the state vector or wavefunction collapse. It is here that the non-determinism of quantum theory makes its entry, when quantum probability amplitudes are magnified up to the classical level so that differences between alternatives are large enough that we might directly perceive them. (Penrose, 1989, p.297. See also, p.367)

¹⁸⁴ More recent research (e.g., Jeong, 2007) has proved that three dimensional quasicrystal structures can in fact be produced by local assembly without the need for recourse to quantum level explanations. But let us treat Penrose’s claim rather as we did geometrodynamics, and say that it at least offers a plausible hypothesis from a position of informed scientific knowledge that quantum effects might be observed at the macroscopic level.

which, I am claiming depends on a yet-to-be discovered theory of quantum gravity.” (Ibid., p.438)

That such a possibility might be considered offers an intriguing glance into a speculative science of a universe of immanent freedom. Far from the deterministic delusions of the nineteenth-century mechanical materialists and Marxist-Leninist ‘science’, the universe of freedom and indeterminacy offers hope of human and nonhuman animal freedom too in the dialectic of inheritance and spontaneity within and against societies abstracted and defined in terms of class and of capital.

Dietzgen’s account of the functioning of thought is not sophisticated, but, in contrast with those accounts offered by both many of his mechanical materialist and dualist contemporaries and with subsequent generations of Marxists, Dietzgen’s are to some extent complementary with modern neuroscience. When he says “the faculty of thought makes of every tangible or sense perceived part an abstract whole and conceives of every whole or quantity as a part of the abstract world unit” (Dietzgen, 1906a, p.66), we recognise something explicable in terms of neuronal reentrant mapping, the operation of which enables the brain to organise its functioning into manageable ‘abstractions’ by reference back to structures of memory selected to support the human within a changing environment. At the level of human brain functioning, there is certainly an argument to be had about the extent to which Whitehead’s abstract ‘society of enduring objects’ might be equated with the existence of complex neural maps, for example about how such maps might be defined at the boundary, their duration, interrelationships, sublimation within wider ‘regional’ reentrant maps. But, such an equation would inevitably be deeply reductive and contrary to Whitehead’s intention if it did not proceed from a fundamental ontology which intricately interrelated such neuronal activity into sensory, and wider environmental ‘societies’ such as to allow for persistence of subjects within spatiotemporal nexūs. This might be something akin to Edelman’s brain-in-body-in-econiche formulation as viewed under the aspect of eternity in the Spinozan manner of Dietzgen. All this offers a somewhat speculative materialist account of a ‘one way

street', where the complex processes of reentry allow global mapping carried out by the brain itself, recombinations giving rise to conceptual categorisations. However, this does not yet allow us the dialectical relationship required for a truly integrated flow of abstraction back and forth between brain and wider reality. Such a possibility is only meaningfully afforded at the subatomic level, and, by analogy, at the level of epistemological reconstruction with the retroactive abstraction of such entities as classes. If Penrose's quasicrystal parallels represent the collapse of the possible into actuality on a massive scale, the coming into being of human subjectivities across vast areas of brain-matter is on a different level; and the emergence of the class-in-itself on another level still; indeed the widest possible resolution of potential into actuality – that of the universe in itself remains but another expression of the dialectic of freedom and reality, subject and superject.

Emergence and freedom at multiple levels

So we proceed to analyse that central question of emergence, the way freedom operates at the different levels we have discussed hitherto. One might even go so far as to say that freedom, however defined, is the single criterion for the possibility of emergence. In a famous address over forty years ago, referred to in their very different ways by both Edelman and Penrose, Henry Margenau proposed that just two levels are necessary to the understanding of freedom. At the first, one needs to specify only the position and velocity of molecules, nothing more. At the second, one needs to measure properties like pressure, temperature and entropy which have no meaning with respect to individual molecules, making these properties radically different from those of point masses at the first level. "These latter characterize a level of complexity *above* the mechanics of mass points. Explanation is continuous from below; the concepts of the lower level have meaning on the upper, but not the reverse." (Margenau, 1968, p.68) Margenau wants to use this device to work on freedom, which he regards as a property rather like entropy, immanent to the whole system; i.e., as one which can only be described at the second level of complexity, but which requires for its existence the paradoxically incompatible descriptions of

singular molecules operating at the first level. There are, it must be said, a number of leaps here. Having drawn a mechanical correspondence between levels in the first instance of a kind which implies some conceptual *discontinuity*, he wishes to propose a correspondence in the case of freedom which requires perhaps greater continuity: “Strict causality among the molecules, applied upward as a principle of nature to explain the behaviour of aggregates, cannot entail freedom because of the requirement of continuity from below.” (Ibid., p.69) That is, it is not entirely clear whether Margenau is reading human free will into the first level physics on the principle that freedom at the second level requires it at the first, or whether the claim is that quantum indeterminacy implies ‘macroontological’ freedom such as in human affairs. Ecosocialists should not perhaps be overly exercised by this lack of clarity, so long as an ontological prioritisation of the ‘it’ before the ‘I’ is maintained in the manner of the early materialist Schelling. Whilst human consciousness has many features which are unique within the terran / Gaian ecosphere, freedom per se cannot be regarded as one of them. It will be necessary here to regard freedom at the subatomic level, at the level of all living things and at a cosmic level as well as at that of human consciousness or brainwork.

Dualism or, as Margenau puts it, the existence of miracles (ibid., p.70), is not necessary for an explanation of human freedom “*provided physical indeterminacy is taken seriously.*” (Original emphasis) (Ibid.) However, there is a mundane sense in which the problem of levels reasserts itself in relation to indeterminacy, that of straightforward scale. Although indeterminacy is crucial at the quantum level, at the scale and complexity of the human brain, or even of a single brain cell, the vast numbers of elementary particles involved “usually add up to certainties... it can be argued that the organic structures which carry the physical function of free decision are predictable in their total action even in view of elementary uncertainty.” (Margenau, 1968, p.74) The mass of a brain cell is at least one trillion times that of an electron (ibid., pp.75-6), thus lawlike occasions at the macroscopic level appear a ‘consequence’ of the ramification of unimaginably many indeterminate events at the subatomic level into seemingly predictable accumulated data.

Nevertheless, the operation of chance and indeterminacy as a feature of fundamental ontology is, in Margenau's words "a physical precondition for human freedom." (Ibid. p.77)

Margenau's is a speculative run through of the possibility of the ingression of quantum indeterminacy into the macrocosmic world, leading to his bold claim regarding the necessity of indeterminacy for human freedom. The argument is underdeveloped, though, and it was Roger Penrose who picked it up and turned it into a more credible working hypothesis. Penrose drew upon and expanded Margenau's argument, similarly suggesting that perhaps the phenomenon of consciousness cannot be understood in classical terms but requires something of those "strange and wonderful laws which actually govern the world we inhabit" (Penrose, 1989, p.226) to be grounded in 'nature'. Just as this study has proposed, though approaching the position from a physicist's perspective, Penrose wonders whether perhaps we sentient beings live in a probabilistic world of freedom, uncertainty and unpredictability precisely because our consciousness 'reflects' the mystery already present in the natural universe at the quantum level. Rather than reinvent reflection, though, green socialists might speak of entailment and embeddedness, and locate freedom quite explicitly within nonhuman life and ecosystemic expression. We can find commonality here between these mathematicians and others including Naess and Žižek on the continuity of freedom across the heuristic levels of analysis. Indeed, it has been argued that there are also clear parallels with the positions of philosophers of the pre-atomic ages here too – with early Marx, certainly; Dietzgen to some extent; the young Schelling, undoubtedly; Spinoza, and even as far back as Epicurus.

Among Marxists, Bertell Ollman has been of great assistance to the ecosocialist project in respect of his beginning to develop a sense of both the ontology and epistemology of 'levels' of analysis, what they mean and how they operate to organise the ways in which we understand dynamic matter. As Ollman has explained (2003a), when considering focal levels, it is clear that scale alone will not do; the range, type and nature of the relationship between interacting elements at an identified level of

analysis are far more significant. The strange differences between the quantum level and the classical level of physics are often not best defined in terms of difference of scale because quantum effects can be observed over great distances relative to subatomic particles – metres, for instance. Indeed, there is no reason why they should not also be observed over light years. In fact, Penrose explains, ‘at the quantum level’ refers not to scale per se but to “very tiny differences of energy” (Penrose, 1989, p. 237). What is important in abstracting at a particular level of generality is the set of relations involved. As Ollman observes, such properties of the universe always exist, but they can only be brought into focus when the relevant sets of relations are considered (Ollman, 2003a, pp.89-90).

One should not, therefore, dismiss the possibility that quantum effects of the kind revealed by Heisenberg, Feynman, and Bohr and explained by Penrose in Chapter 5 might be felt at a scale and across distances so great as to be directly perceptible by human sensory apparatus and, thus, to have a potential for real impact on human brainwork. Margenau preceded Penrose in arguing just such a case, claiming that “[i]t is very likely that crucial processes within such miniature organisms [as neurons] are triggered by single electrons and photons which *are* very strongly affected by quantum mechanical indeterminacy.” (Margenau, 1968,p.76). He even goes so far as to write of the ‘*causeless*’ nature of macroscopic brain effects of uncertainty. This is when the process called ‘**R**’ – the reduction of the state vector or wavefunction collapse – becomes central. It is here that the non-determinism of quantum theory makes its entry, when quantum probability amplitudes are magnified up to the classical level so that differences between alternatives are large enough that we might directly perceive them. The example Penrose takes from Margenau is that of light detection. It is a remarkable fact that cells with single-photon sensitivity are present in the human retina, though in practice scientists have found the combined signal of just seven photons (Penrose, 1989, p.396) are required to trigger a macroscopic effect in human nerve cells. The point is that there are macroontological structures – neurones – in the human body which could in principle be triggered by quantum level events. “If this proves to be the case,” Penrose argues, “then quantum mechanics will be

significantly involved in brain activity.” (Ibid.) Before lapsing into anthropocentrism, it is important to add that such feats of light detection and associated brain activity are also likely – far more likely – in other mammals with relatively developed brains, including especially nocturnal mammals, some of whom can see in under conditions with one millionth of the light available during the day (Sterling, 2003). Such animals have indeed been shown to respond to the stimulus of just a very few photons. Because of the various stages of unimaginable magnification affected by the retina, nerve signal, and creation of a detectable charging electrical field, the significance of the transition from the quantum level to the macroscopic level with its wholly different fields of ‘probability’ and ‘reality’ is effected before one could actually be conscious of it. The tiniest possible flash of light may or may not have already been detected by the registering apparatus, in this case the rods in the living retina, and the wavefunction thus collapsed before the human or other mammal becomes aware of it. All this raises the most extraordinary possibility. What if the photons in question have been subject to one of the previously discussed quantum experiments, the slit or half-silvered mirror experiments? (See pages 36 & 133.) We recall, a lamp emitting light at the rate of a single photon at a time is set up and into the path of the photon beam a half silvered mirror is placed, splitting the photon’s wavefunction in two, with one part reflected off at 45 degrees and the other part continuing on its course as before. The split wavefunction is now double peaked, that is with each peak able to interfere with the other, but with peaks at an increasingly great distance from one another¹⁸⁵. This becomes evident if a fully silvered mirror is placed in the path of both parts of the wavefunction, reflecting the beams back together so as to achieve interference effects which could only be achieved by two peaks, and could not be attained had the photon simply taken one route or the other. Just as with the slit experiments, if a light detector is placed in the path of both beams, the wavefunction is collapsed and the detector registers a particle not a wave. But, with the half-silvered mirrors, and each route left open, light detectors placed so as to detect the route taken at the final destination when the beams are brought together again do not each stand a fifty per

¹⁸⁵ There is no limit to the distance between the peaks, experiments have been carried out which have split the wavefunction over several meters, but there is no reason why them same quantum level effects could not be carried over many light years were the photon’s wavefunction to continue unimpeded (Penrose, 1989, p.254)

cent chance of receiving the photon, as one would expect from similar experience at the macroscopic level. Instead, there is a one hundred per cent chance that the photon travels along its original route and is not deflected by the half silvered mirror. However, if the beams are interrupted in their routes by an absorbing screen (A or B), then there becomes an equal chance of the wavefunction's collapse into particle form at one screen or the other. We recall that such bizarre quantum effects are only possible if the reality of the photon's existence between emission and detection is of a both-and type. Its dialectical existence in potential – ψ – is collapsed by the detection of the absorbing screen which also enables the wavefunction to retrospectively 'choose' which route it took, or, on Penrose's explanation, to 'feel out' the field and to decide which detector to reach. Now, if the absorbing screen is the retina of a nocturnal mammal or even of a human, it is the registration of this aspect of the material environment which plays the crucial part. To understand the significance of this possibility, one should begin with the material reality of the conscious brain's response to the light stimulus becoming the retrospective condition for the quantum event – the collapse of possibility into reality – and this occurring *without the need for consciousness* per se. That is, there could in principle be an absolute material continuity between consciousness and quantum level events preceding conscious registration, but whose detection by the retina occasions the collapse of the superposition.

A conscious response can be elicited by physical entities whose behaviour is controlled by the uncertainty principle, a response which is in the customary sense without original cause. To be sure, it was triggered by the impinging photons, hence there was an immediate cause. But the coming of the photons was unpredictable; therefore the ensuing sensation, the stimulus-response episode was causeless. (Margenau, 1968, pp.78-9)

Spontaneous thought here is, *almost* directly, *causa sui*¹⁸⁶, an expression of the freedom immanent within the universe, not as a denial of matter but as its affirmation.

¹⁸⁶ That is, there is an autogenetic event which immediately entails as a feature of its superjective projection, a conscious occasion.

The conscious response to the absolutely free ‘choice’ of the photon – its chance arrival at one detector (a retina) rather than another offers a glimpse of brains whose operations might have as a genuine and real feature of their process, the suspension of actuality, the working in superposition of absolute possibility which collapses at the point of decision. Whilst all this is still clearly a long way from inscribing the ontology of freedom across all levels, it helps in developing a picture of a material universe which is materially dynamic and profoundly dialectical: dialectically materialist without recourse to dualism. Lest one fears that this flies in the face of basic Marxism, this is not to claim that thought is free *of* the material conditions, but only to positively assert that *thought is a part of the material conditions* of any given process of abstraction.

Freedom implies novelty in any given system. Where events occur as an expression of the freedom immanent within the universe, there is not perfect inheritance through time, but the possibility of new nexūs taking shape, new subjectivities emerging. For Whitehead, living organisms, *all* living organisms, express this novelty; indeed it is the defining characteristic of living things that they *create novelty*. On this account, “the primary meaning of ‘life’ is the origination of conceptual novelty – novelty of appetition.” (Whitehead, in Sherburne, 1981, p.90) The living thing always expresses something of the irreducible unpredictability of the universe, its chance or freedom – rather as an attribute akin to its opposite, entropy¹⁸⁷ (Whitehead is in accord with Margenau on this point) – carried through nexūs upwards into the macroontological from its bases in the fundamental uncertainty of the quantum, an occasion being defined as “alive when the subjective aim which determines its process of concrescence has introduced a novelty of definiteness not to be found in the inherited data of its primary phase.” (Ibid., p.91) For Whitehead, ‘life’, then, cannot be regarded as a defining characteristic, nor exist in abstraction; it is in effect a name for

¹⁸⁷ Whitehead’s ecological account of the operation of entropy rather mirrors that of the green socialist Joel Kovel,(2007, pp.101-13) “A society arises from disorder, where ‘disorder’ is defined by reference to the ideal for that society; the favourable background of the larger environment either itself decays, or ceases to favour the persistence of the society after some stage of growth: the society then ceases to reproduce its members, and finally after a stage of decay passes out of existence.” (Whitehead, in Sherburne, 1981, p.92)

the novelty expressed by localised features of the universal society of electromagnetic occasions. Whitehead's belief that originality of response to stimulus and environment is exhibited by all living things "amounts to the doctrine that an organism is alive when in some measure its actions are inexplicable by *any* tradition of pure physical inheritance." (Whitehead in Sherburne, 1981, p.91) Here then, freedom or uncertainty is a characteristic definitive of all those parts of the universe which we call 'life', including but far from exclusive to humans. In this context 'tradition' or 'inheritance' means merely 'efficient cause' (something like the subjective experience of the subject-superject dialectic); novelty, then relates to the randomness, the self-causing nature of immanent freedom emerging from the material background. Among living things there is a tendency for novelty to engender complexity. The more life there is within an ecosystem, the more it complexifies, towards the greatest possible biodiversity (Mathews, 1991, p.85). As we have seen, greens (such as Orr, 2004) explain that complexity is not the same as disorderly complicatedness. In biological systems, emergent life tends towards not only diversity but interrelatedness, and thus ordered equilibrium. Here also there is common ground with the Bogdanotive tradition in Marxism. Insofar as this order is that of a society of enduring objects which allows for the subjective form of feeling, this passage concerns the *emergence of subjectivities* from disorder. This emergence does not take place solely at the somatic level (Ollman's level one) of reentrant neural mapping, though the interlocking societies of brain-cells, neural maps, brains-in-bodies, and bodies-in-econiches are all coalescences of order (systems) which represent currents within the larger emergent self. The level at which self-resides within the emergent order remains a matter of perspective: the solution to this question needs to be worked through from Marxist perspective in relation not only to living things in general, but also in relation to classes-as-selves (and indeed selves-as-classes)¹⁸⁸.

We have considered immanent freedom in the indeterminacy of the quantum superposition and the expression of novelty in the appetite of living things. But what of the free thought of humans in particular, that type of animal whose survival

¹⁸⁸ See page 243.

has been enhanced¹⁸⁹ by its ratiocination, and ‘higher order’ consciousness? Self-consciousness, awareness of and reflection on the ‘self’ must have some advantage for such mammals (Penrose, 1989, p.409). Indeed, at this point we begin to wonder if the freedom to speculate metaphysically and cosmologically serves humans in ways which we have not yet understood. Matthews (1991) thinks so, because for her, the adaptive advantages of consciousness lie in the ways in which it offers the possibility of a highly abstract and seemingly useless cosmological orientation towards our environments (see below). Many possible reasons for the emergence of consciousness have been proposed which space does not permit an examination of, here. A favourite, the benefit to a predator of ‘empathy’ with prey as a basis for consciousness, is eliminated by Penrose who argues that consciousness is not algorithmic – not about computation of probabilities – but that free *judgement forming* is the basis of human consciousness. Algorithms never attain ‘truth’, “[o]ne needs external insights in order to decide the validity or otherwise of an algorithm... I am putting forward the argument here that it is the ability to divine (or ‘intuit’) truth from falsity... in appropriate circumstances that is the hallmark of consciousness.” (Penrose, 1989, p. 412) Our very freedom to decide to act on the basis of our judgement of truth marks human rationality as a significant adaptive. The materialist claims that the capacity to resolve upon one course of action rather than another from the plethora of possible options mirrors the collapse of the wavefunction into actuality precisely because both have their origin in the immanence of novelty within the dialectical nature of matter itself.

Needless, to say, this claim is far from straightforward and is highly contested, for example by Gerald Edelman, whose line could certainly be taken as a critique of such a position as argued variously by Žižek, by Mathews, by Margenau and others. For Edelman (1992, p.212), physics is the “surrogate spook”, a “spectre or ghost”. Why so, and what is being haunted? Should this ghost be dispelled by Marxism in the same

¹⁸⁹ That is, enhanced in principle; as we will see, in practice the opposite seems to be the case insofar as human invention threatens our own demise.

manner as Stirner¹⁹⁰ and others' spooks of the past? Dietzgen for one is clear that a materialist focus on the operation of brains chases away the spooks of idealist speculation (1906, pp.61-2). Edelman's charge relates to the physicists' 'scientization' of mind in matter, his way of describing the panpsychist impulse at work within some physicists' discourse. He writes "of certain reductionist or panpsychist claims concerning the origin of consciousness that are sometimes made on the basis of physics alone." (Edelman, 1989, p.254) Edelman specifically levels his critique at Penrose, whom he says conflates the solutions to two problems, that of the failure of quantum mechanics at domains below Planck's constant (10^{-33} cm) where dimensions are so small that physical theories no longer apply, and the problem of the observer's mind as intimately involved in quantum mechanical measurements. For Penrose if the former problem were to be solved by a theory of quantum gravity, the latter problem – the nature of consciousness – might also be solved: "Truly, this is physics as the surrogate spook"! (Edelman, 1992, p.217) All this, says Edelman, avoids the intimate and unavoidable relationship between macroscopic anatomy and consciousness. In arguing an evolutionary sequence of events which leads from inorganic matter to consciousness and then to the development of natural science, Edelman presents a genetic epistemology, which is, in its way, perfectly reasonable and acceptable to materialists (we recall that like other Marxists, Unterman, 1914, in the somewhat more teleological style of an earlier era tried something similar). It is true that the emergence of consciousness required the evolution of neuronal group selection. It is also true that once it had emerged, the history of consciousness cannot be traced in terms of close descriptions of changes in the physical world¹⁹¹ because of both the impossible complexity of the task and the impenetrably unpredictable nature of matter and more specifically its self-awareness. But Edelman runs from the implication of his use of physics, claiming that "[a]dmitting quantum field theory as a basic description of the structure of the material world, we have no need to assume that its

¹⁹⁰ Derrida (1994, pp.129-130) sets up a contrast between Marx and Stirner on what it means to reappropriate ghosts into the body.

¹⁹¹ Edelman makes the significant point that "our nomothetic descriptions have arrived recently and... a scientific description of the world is a very late cultural acquisition." (Edelman, 1989, p.254)

laws are identical with those governing consciousness.” (Edelman, 1989, p.254) It is unclear what such a claim could mean without readmitting dualism. The laws and lawlessness of the quantum are not and could not be separable from material consciousness. Edelman also mistakenly conflates the moment of epistemological reconstruction directly with basic ontology. His argument that “quantum indeterminacy is not at the heart of the issue” (Edelman, 1989, p.261) of human freedom is made on the correct understanding that there were many eons required to move from the formation of elements in the early universe to the formation of human brains required for the emergence of free thought. Consciousness first emerged in vertebrate animals as a function of newly evolved reentrant brain structures; thus, Edelman argues, “the resulting consciousness is a property or capacity conferred on the organism by particular evolved parts of the brain, *not* by properties of material particles or of the whole brain.” (Original emphasis) (Edelman, 1989, p.263)

However, the level of analysis at which consciousness is regarded is significant: Edelman focuses solely on the ‘individual’ at the macroontological level, and has little regard for the collective, the political, the ecological or the ontological (the second to the seventh of the levels Ollman (2003a, pp.90-91) claims Marx uses in analysis) – Dietzgen’s ‘perspective of eternity’. If one accepts that humans have the capacity to make free judgements at all, it would be ludicrous to deny that this is made directly possibly by our possession of particular types of tissue, nerve fibres and complex neural structures, in contrast, for example, to invertebrates or trees which do not exercise the same kinds of free judgement-making capacity. Penrose or any other physicist would surely not deny this. Nevertheless, taking the lens wider, it is clear that indeterminacy exists in complex linear superposition which quantum physics suggests is everywhere resolved in the collapse of unfolding potentiality into the actual. But one also observes that where actuality is suspended and freedom persists within the macroontological material plenum, in the unresolved dialectical balance of potential and actual, it does so locally around those knots of matter associated with especially complex adapted parts of living ecosystems. In commonsense opinion, matter does not *choose*, choice is the act of free minds. But for the monist materialist, choice is written into the universe and in that it is a *single* material universe, then in a

sense, all matter ‘chooses’, down to the level of every entangled subatomic particle. How does this connect physics with neurochemistry? Both rest on the same fundamental ontology of immanent freedom, from the photon’s ‘choice’ of its path, to the brainwork of human decision-making. With the emergence of new subjectivities, creative freedom is expressed as matter’s superpositional opposition to its positional self. So, for example, to ask the question regarding the moment at which the individual infant becomes free, would be to seek for the soul’s entry into the body. Is it the moment the child recognises the for-itself of her subjective being, or the in-itself of her ability to exercise some control over her body? The moment of birth or that of conception? Or somewhere in between? All these solutions fail to recognise what Schelling made clear, that the *choice to be* has always already been made, the emergence of the free subject is but an expression of *pre-existing* material freedom. The same point could of course be made regarding the evolutionary origins of the defining characteristic of Marx’s (human) ‘species being’, the creativity which marks us as different from bees. Where do they lie? In the originary potential, the ‘rotary motion’ (Žižek, 1996, p.13) of the undifferentiated, unresolved universe.

As we ourselves, each one of us, emerge from the material background, we do so cumulatively and conditionally; “the relative and transient forms perceived by our senses are raw material for our brain activity” (Dietzgen, 1906a, p.83) out of which a general sense of unity systematises, classifies and coordinates itself as our selves. “The infinite variety of sense perceptions passes in review before our subjective mind, and it constructs out of the multiplicity the unity... out of the attributes, the subject” (ibid., p.84); not only the unity of the one universe but the unity of the subject as the for-itself of the universe. We work on ourselves, we make ourselves through the free activity of brainwork, and as such we are the material embodiment of a special kind of novelty – novelty of (material) mind, as well as the novelty of variational uniqueness within a selective system of random mutation.

In summary, it has been argued that freedom and indeterminacy are written into the fabric of the universe as a feature of its fundamental ontology. Whitehead claims that

this radical freedom is present in all things, but is uniquely manifested in living beings. Margenau and Penrose find it most clearly at the levels of the quantum and of the human mind. In contrast with the fatalism of a philosophical left once infected with a reductionist belief in an inescapable structural overdetermination, for Marxists such as Dietzgen, Bogdanov and Pannekoek – as in different terms for more recent autonomists and spontaneists – the freedom of humans to act in history as collective agents is also an expression of this fundamental ontology. From the quantum to the cosmos, Žižek argues, there is absolute possibility because of the suspension of the collapse of *potentia* into the actual. We may speak of those levels of analysis which encompass all electromagnetic occasions or indeed geometrodynamical spacetime *per se*, but humans are not gods, merely infinitesimally tiny specks of universal self-knowledge, and we have no vantage point from which to observe the All, only the language of *sub specie aeternitatis*. Insofar as it is not possible to stand outside of the universe, “*there is no universe as Whole: as a Whole, the universe (the world) is Nothing – everything that exists is within this nothing.*”¹⁹² (Original emphasis) (Žižek, 2002, p.181) This is no mere trope on Žižek’s part, the universe he describes is that within which the observer necessarily resides and is entangled. It is the universe suspended in absolute possibility. This ‘ ψ -universe’ exists only because there is no wider context to *register* its existence and effect its collapse into the real. In this sense, the ‘existence’ of the universe is of the same kind as the virtual world inside the box in Schrodinger’s thought experiment, posed on the edge of existence and nonexistence and containing both within itself: because of this dialectic, we are free. It exists / does-not-exist as *potentia* because it has no outside.

Spontaneity, autodidacticism and self-registration

¹⁹² Žižek makes the point in relation to Lenin’s theory of reflection, “This is where we again encounter the limitation of Lenin’s “theory of reflection”: only a consciousness observing the universe from the outside would see the whole of reality the way it really is. The very notion of the “whole universe” thus presupposes the position of an external observer which is impossible to occupy.” (Žižek, 2002, p.181)

At this point, some further brief consideration of the meaning of ‘spontaneity’ might be helpful. So deeply contentious has the English term proved among many Marxist tendencies that it would be remiss not to add some clarification in the light of the broad ontological case regarding freedom and indeterminacy which has just been advanced. This discussion somewhat pre-empts that on the self which follows, and is necessarily only the briefest of forays into this area of political theory. It would be easy to re-rehearse the infamous and extraordinarily well aired arguments between Lenin and the Western European followers of Luxembourg as well as Pannekoek, Gorter, et al. on spontaneity, a flavour of some of which was offered in relation to the parallel Lenin contra Bogdanov schism. Rather than do so, a quite contrary approach more in keeping with the ecosocialist thrust of this study might be to look briefly to deep greens’ mentions of spontaneity as possibly amenable to a Dietzgenite reading.

Naess’ use of the term is in relation to the experience of what have been called here, abstractions. That is, he wishes to make a distinction between the useful but limited constructions of physics and the spontaneous engagement with the total picture of the world available to us. This is, in a sense the other side of both Edelman’s story of large scale reentrant mapping, and Whitehead’s philosophy of the organism. How so? We experience wholes, says Naess, and these wholes are of great value to us for their coherence and immediacy. Such wholes are forests – internally complex, densely variegated, but nevertheless *wholes*. And, indeed, the trees within such a forest also represent wholes to the perceiver. The argument for the importance of such abstractions is for their immediacy, their surface, their spontaneity. Naess is not denying the reality that such experience must be entailed by the particular neurally selective ways our brains function such as to best adapt our species to our environment; neither is he denying that ‘wholes’ like trees abstracted from greater ‘wholes’ like forests are objectively constituted of molecules, atoms, subatomic particles and ultimately undifferentiated matter in Dietzgen’s extended sense (as coextensive with spacetime). In addition, neither of these accounts conflict with a dialectical reading of Whitehead’s philosophy of process as an ‘objectivist’ account of the concrescence of these complex societies of enduring objects – trees and forests.

But “[s]imple holism – the insistence that wholes are taken seriously – is not enough ... The argumentation must refer to experience, and spontaneous experience in particular. And it must acknowledge hierarchies of wholes and their non-external, non-extensional, internal relations.” (Naess, 1995d, p.245) For experience tells us something particular about the totality of trees, or forests, or indeed classes. It is that the presence to herself of the perceiver in the forest as entangled within a set of internal relations which include the forest reveals something of the fundamental ontology of these internal relations as being essentially monist. Naess, admittedly, writes of “gestalt ontology” (ibid.) rather than monist ontology, and in this context he is right to do in order to emphasize the inclusion of the spontaneous experience of the observer as the collapse of the epistemological into the ontological. Thus, this kind of spontaneity springs from the nature of the fundamental material conditions for the possibility of both observer and observed, subject and object. The experience of the class for itself is similarly related to a set of material conditions which allow for its possibility, but the reality of the experience of the working class for itself is that it is felt, under perspective, spontaneously. We are reminded that the ‘gestalt’ experience of proletarian solidarity is one strongly favoured by those ‘ultra-leftist’ currents in both the Netherlands and the USA who lauded Dietzgen. This is spontaneism, as preached by Pannekoek, or much later Glaberman (Glaberman & Lynd, 2002) and condemned by Leninist orthodoxy. Without wishing to become embroiled again in this debate, we should note that recent work by Lars T. Lih reveals something of the complexity of the difficult translation of the Russian *stikhiinost* (Lih, 2008, pp. 616-628) usually rendered as ‘spontaneity’, in *What is To Be Done?* and Žižek’s (2002, p.183-4) reading of spontaneity as a feature of a landscape of class struggle which inescapably includes those intellectuals who have usually been taken to be agents external to the working class. Both Lih and Žižek are closer in their interpretation of the pedagogical aspect of Party-as-Truth to Dietzgen than is Marxist-Leninist science, and, so they argue, Lenin was too. The ecosocialist lesson here is that spontaneity is a feature of the ontology of internal relations – ‘gestalt ontology’ as Naess calls it – which calls forth in the experience of the forest for itself or the class for itself something of the nature of indeterminate being, as just discussed.

It can reasonably be argued that the spontaneous subjective experience of oneness tells us nothing of basic ontology and more about the brainstate of the perceiver. For Marxists, like Bogdanov, Gorky or indeed Dietzgen who recognise the hold of theist versions of such ‘mystical’ experience, there is also a recognition that such subjectivism should be balanced against the rational materialism of monist cosmology. There is a dialectic here, for sure, but not the caricature that some Leninists proposed between an inchoate proletarian ‘mysterianism’ and a bourgeois intellectual philosophical analysis. Bogdanov and Dietzgen saw themselves as standing not merely within the class struggle (as Žižek proposes of Lenin’s intellectuals) but within the proletariat. In order for the spontaneous experience of ‘oneness’ to emerge alongside a philosophical adherence to the position of monist materialism, an understanding of the necessity of autodidacticism is needed. For the Dietzgenites, the working class autodidact is of crucial importance in synthesizing spontaneous experience with the sustained learning of ‘social democratic’ materialist theory into a ‘world consciousness’, without the requirement of the bourgeois teacher. Dietzgen himself is the model here, of course. So, in the Marxist tradition, there is a stronger sense of the dialectic of the subjective and the objective than there is in Deep Ecology. To a greater extent than Mathews, Naess’ caution over metaphysical speculation leads him to emphasize the subjective, hence gestalt aspect of spontaneity over the immanence of freedom within indeterminate dynamic materiality. In particular, he writes, “[a]n appeal to spontaneity, perhaps especially spontaneous experience in nature, is preferable to a detached view of subject-object relations.” (Naess, 2008d, p.199) For Naess, an experience arising spontaneously as a feature of a landscape or more generally from a material topology, which seeks to avoid dualism, can simply be asserted. Whilst there may be a similarity in approach here to Dietzgen and Pannekoek as well as a marked difference from Leninism, Naess’ spontaneism remains too much a matter of phenomena over ‘things-in-themselves’ to be entirely commensurate with Marxist spontaneism. However, as we have seen, Freya Mathews is far less cautious in her advocacy of a neo-Spinozist ontology, as informed by both physics (geometrodynamic) and panpsychist

subjectivism, and allows spontaneity to be written into indeterminate nature at a fundamental level. Yet, even she rarely recognises the dialectical nature of what sometimes seem like parallel claims regarding, on the one hand the spontaneous experience of the world, and on the other matter itself.

Monist materialists recognise that the intuition of freedom which is the basis of the registration of the expanded self or collectivity – the Self – for itself is not instantaneous, it is ‘learnt’ in some sense of this term which implies spontaneity (or autodidacticism) but takes as its condition of possibility the immanence of the essence of freedom in very nature, right down to the quantum level. It is important to understand and value the spontaneous without reifying it (as do, for example, some from the anarchist tradition). Spontaneity represents another way of regarding freedom, and registration of matter for itself at the level of conceptual feelings. But an over-reliance on the spontaneous can lead only too easily to mysticism, and idealism. This, we must agree, Lenin understood¹⁹³.

Becoming self: subjectification

Green socialists, like all radicals, require a body of theory which helps focus the activist, the leader and the pedagogue upon the material with which they are working, that is with the free emergent subject, under conditions structured by ecodestructive capitalism. More importantly, such theory better enables ecosocialists to work *on themselves*. Insofar as it is possible to transform oneself, the emotional, ‘spiritual’, cosmological and praxiological assistance of a set of theory which describes oneself and one’s material operations is potentially invaluable. This was certainly the position of the working class autodidacts of three quarters of a century and more ago. Many questions remain regarding the nature of the self. We are all too painfully aware that under the conditions of brutal and ecocidal twenty first century capitalism, the emergence of an integrated, active ecological self is far from automatic, indeed it

¹⁹³ Lenin’s claims regarding the bourgeois nature of spontaneism (Lenin, 2005, pp.705-713) might be understood in this context.

seems almost impossible. Yet it *is* possible, not only because the potential for freedom of thought is written into the matter of which we are expressions; not only because of the inspiring examples of green and ecomarxist, ecofeminist, and indigenous activists who embody such subjectivities; but also because the experience of change that we all feel offers a hope for the transformation in emergence of ourselves and others. Socialists can learn much from deep greens in relation to this activity of learning, as well as drawing on features of our own lost or forgotten theory and, of course the insights of science. The question posed of Naess by the ecosocialist wishing to learn from Deep Ecology is, what is this Self to be realized? Is it individual, class, species or ecosystemic unity for itself? For Naess, the self is a ‘fluctuating material’; something of the nature of an expanding and contracting circle taking in sometimes features of one’s environment such as home, sometimes one’s family, sometimes merely one’s body or some part of it such as one’s brain. This ‘shifting denotation’ must be regarded as crucial in any discussion of self-realization. Here the pedagogical aspect of generalised change comes to the fore: for Arne Naess, the expansion of the self is a matter of *maturity* – one grows into ecological subjectivity. However, his description of the constitution of the ecological self is undeveloped as compared with Mathews’, and leapfrogs the solid contextual understanding of Marxists’ class analysis in favour of an unmediated embedding in nature – something ecosocialists rightly recognise as at best only half the story, and at worst a ‘cover’ for continued bourgeois ideology. Naess does recognise the existence of a ‘social self’ though this has none of the depth and seriousness of the analysis of the Bogdanovites at the cusp of a new social reality in early twentieth-century Russia. Yet where his analysis is instructive, perhaps even corrective, is as regards that network of relations along which the contours of the self-flow, but which do not attain their value or significance directly in relation to the human world (though they are necessarily co-evolved with these). Naess reminds us that “[w]e may be said to be in, and of, Nature from the very beginning of our selves. Society and human relationships are important, but our self is much richer in its constitutive relationships.” (Naess, 1995c, p. 226) The communities within which we draw and expand the boundary of the self-include both human and non-human agents, *land communities* in Leopold’s terms, which sustain and support

the human (brain-in-) body. Eco socialists recognise this insight to a far greater degree than some unreconstructed Marxists. Ted Benton's work on human-animal communities is an example of such an approach (Benton, 1993, pp. 62-8)¹⁹⁴. This takes us right back to the nexūs of relations which shaped the impetus for chapter one – the crucial importance of recognising that societies, in both an everyday and a Whiteheadian sense, do not contain only human members. Ontologically, this is of unparalleled significance to ecosocialists. Networks of production, distribution and exchange include as part of their operation a huge range of nonhuman agents from beetroot to bees to beef cattle, and an understanding of any such abstraction must necessarily take these constitutive relationships into account, not merely as matters of economic significance but as an ontological feature of the set of prehensions which carry this abstraction forward. Human selves acting and living within collectivities that include nonhuman lives are constituted in and through relations with plants, animals and land communities. So what more can we say now about this emergent ecological self about which ecosocialists can learn from writers as diverse as Whitehead and Naess?

Naess' description of ecological selves shares something of the character of Dietzgen's account of matter. As we saw in chapter one, Joseph Dietzgen's frustrating, shifting employment of the term 'matter' has proved an understandable source of confusion and a sometime impediment to the adoption and application of his philosophy. We come across something similar in Naess' use of 'self', though to be fair to the more recent philosopher, Naess is far more consistent and rigorous than Dietzgen ever was. It is also perhaps to his credit that Naess' considerations of the self are often tentative and contingent, approaching the subject from different angles and bringing it into focus at different magnitudes such that new views can reveal formations. But, ultimately, 'self' fulfils a function for Naess which is not so different from Dietzgen's 'matter'. Sometimes referred to in its everyday (macroontological) corporeal sense, matter is substantive; it is the stuff of our experience and relatively easily differentiated into discrete agglomerations. But of course, Dietzgen often refers

¹⁹⁴ Benton argues that non-human animals are a *constitutive* part of human societies. Humans and non-human animals are socially interdependent as well as being ecologically interdependent.

to matter in its ‘extended sense’ as coextensive with all of spacetime, and incorporating all forces and attributes. Similarly, for Naess, “self (in the wide sense)” (Naess, 1995c, p.234) or simply (capitalised) “Self” embraces *all living things*, or indeed *all things*, such that its meaning is radically altered. The expansiveness of Naess’ ecological self is, in effect without any limit except that of the widest possible society of enduring entities. The entangled subjectivity of his largely implied ‘gestalt ontology’ is wholly inclusive. Naess talks of gestalts as a unity (in contrast to an abstraction) of all elements within a field and he argues that experienced spacetime itself – if such an experience is possible, as Schelling believed – constitutes a gestalt. A gestalt is impermanent, yet still able to attain something like Selfhood *as a whole*. The common characteristic of the gestalt, of all animals and plants and other natural objects is their generation and extinction¹⁹⁵. Selves, we recall, are regarded by Dietzgen and Whitehead as processes rather than things, and Naess concurs, echoing Whitehead’s sentiment that “[t]he individual selves are processes or aspects of processes, always changing, but always showing an important, limited continuity and permanence.” (Naess, p.197)

The *great Self* corresponds to the maximum deepening and extending of the *sva* [reflexive self] through deepening and extending the process of identification. In any case, the great Self is an *entia rationis*, not a concrete content or the set of all concrete contents – but it is still unclear if such a concept can even be defined without paradoxes. (Naess, 2008d, p.198)

There will certainly be those who say that such a ‘Self’ is meaningless, a term misappropriated and applied to a metaphysical concept quite at odds with its ordinary usage, a category mistake. Those in the Marxist tradition should not be so dismissive. Whether or not one is comfortable with the possible panpsychist implications of Naess’ ‘self in the wide sense’, Marxists and ecosocialists should recognise the

¹⁹⁵ For Naess, as in Mahayana Buddhism, the range of things “becoming Buddha” – or “realizing its Self” – is “beyond what common sense in our [bourgeois Western] culture seems able to digest. The meaningfulness of everything’s becoming Buddha is in part dependent on the disappearance of distinct things...” (Naess, 2008d, pp.196-7)

indispensability of the ‘for-itself’-ness of the working class for first-step political action, and some Marxists, such as Žižek (2010), are even increasingly happy to revive something like Marx’s 1844 species-being formulation to the service of a reinvigorated ‘for-itself-ness’ of the class-in-species, or, more accurately perhaps the dialectic of class as expression of species being and species-for-class. So, after all, if such ‘selves’ as the proletariat or the human species are viable working abstractions under perspective, and experienced in their ‘for-itself-ness’, then why not also a ‘world’ or cosmic Selfhood and self-consciousness?

As Naess calls the self ‘*entia rationis*’, it is relevant to examine the ways in which the emergent self, or subject is an instrument for thinking about the world, a rational (conceptual) entity. That the subject is an abstraction from the universal we have already explained, but perhaps it has not been clear enough that any such abstraction is a fleeting moment of process: the impermanence of all things is important to emphasize. *Sub specie aeternitatis*, movement and change are everywhere and at all times, and whilst the punctuated equilibrium of evolutionary process is the norm, those moments of revolutionary transformation are significant. Revolutions of the self – or ‘internal revolutions’, to borrow a phrase – are features of the dynamic landscape. Both Marxists of a pedagogical bent (Dietzgen, Bogdanov, Lunacharky and so on) and Deep Greens recognise and expect such revolutions. Although in ecosophy “Self-realization” is the logically (derivationally) ultimate standard, Naess explains quite correctly that no permanent ‘self’ is postulated, not even the maximal ‘Self’ of expansive ‘Buddhahood’ or Romantic absorption persists as a conscious form, “the Self in question is a symbol of identification with an absolute maximum range of beings. Selves are frequently recurring entities, or “knots” in the structure of contents, but they do not have the concreteness of contents! Ego, self and Self are *entia rationis*.” (Naess, 2008d, pp. 195-6) The absolute impermanence of subjectivity at some level denies it a reality. A time will come when the universe reverts to unconsciousness of itself. In the present era, the universe knows itself, it is aware of

itself, it registers its presence in and through the “knots” in the fibre of the vast material plenum which we call human brains¹⁹⁶.

Our experience of “seeing ourselves in others” as an expression of class-consciousness or species-consciousness or even world consciousness might be taken as an entirely metaphorical operation: it could mean simply sympathy, or empathy, or some recognition of another (separate) subjectivity. But, this is clearly not Naess’ intention and such a ‘recognition’ would anyway fall far short of the kind of ontological solidarity required by Marxists’ accounts of abstract social labour as a *real* abstraction. The point is that such a recognition is a retroactive delivery of the possibility of a shared material subjectivity into flickering, shifting actuality, the possibility of an ontological nexus operating across a wide swathe of ecological relations. One might even draw a loose analogy here with neural maps. Just as the ‘whole self’ of the conscious human is an entailment of a set of complex material movements of energy across neural maps, the even larger set of dynamic material relations at work in ecosystems, representing great flows of energy through solar and biological networks within the intricate pyramid of a land community constitutes a self in Mathews’ sense. The dynamic topologies (and ultimately geometry) of both reentrant neural systems and reentrant bioregional systems can certainly be viewed materially as societies of enduring objects capable of emergence, novelty, transformation and metempsychosis. In both cases, a defining characteristic of these topodynamic systems is their appropriation of their environment for their own continuance; as complex structured societies, living things are also *open* systems. The interplay of living things with their environment takes the form of this appropriation

¹⁹⁶ When all brains have gone – human, animal, and those of the many millions of other sentient beings likely scattered through the universe, it will return to... what? Without awareness of itself it is utterly impossible for us to place ourselves imaginatively within the field of its cold existence (the illusion created by attempting to do so is rather like that of the suicidal lover who dreams of effect of his death on the loved one. For him, no such reality exists, nor ever could). To imagine that universe is to place within it the seeing eye of consciousness. None of this is to make of the universe an idealist construction: though impermanent, the material universe persists for a considerably longer duration than any conscious part of itself, and if we take Mathews’ view of a conative universe which may be termed ‘self’, then this is the longest lasting presence-to-itself which we know of.

into themselves. Indeed, an ‘entirely living’ open nexus¹⁹⁷ is Whitehead’s description of the continual possibility of absolute freedom¹⁹⁸. The thrust of Dietzgenian Marxism might be to favour the neurobiologists’ more ‘mechanical’ explanation over Whitehead’s on the basis of its solid materialism; but, it is essential to modify the mechanical by allowing freedom to permeate matter itself, in the manner of Margenau or Penrose, or, differently put, Žižek, regarding matter and ‘mind’ ‘democratically’ as both mechanical *and* free. That is, the material self exists both in *potentia* and in *actuality*. The living self is a dynamic open system – not a thing but a process: one could describe it as canalized mental originality, or as entailed novelty as long as neither are taken to imply a division of subjectivity and freedom from matter.

A narrative of the realization of Self, not as inevitable, not yet as teleological, but as a possibility which reveals the set of relations which sustain human and nonhuman life, might entail a set of unfoldings of the emergent infant consciousness, first into the subjectivity of primary being in itself; secondly as subject in itself within body and econiche; thirdly as subject *for* itself within class, within ecosystem, within the cosmos. When settling on a point at which to open this story, birth would seem to present itself as an obvious point, but this is

¹⁹⁷ But Whitehead’s description of this type of nexus as non-social suggests that it is also wholly separate from corporeality, thus potentially reintroducing the mind body problem he strives to eradicate. Nevertheless the ‘entirely living’ nexus must itself be a complex social environment wherein each of its members derives the necessity of its being from its intense prehensions. If enduring, an entirely living nexus is a ‘living person’ – for this term we can substitute ‘*self*’ to better effect the synthesis with Naess and Mathews – but here it is also necessary to part company with Whitehead’s overly metaphysical and nonmaterialist tone in his assertion that it is “not of the essence of life to be a living person. Indeed a living person requires that its environment be a living, non-social nexus.” (Whitehead in Sherburne, 1981, p.94) A self is nothing if it is not embodied and embedded and Whitehead’s insistence that the absolute novelty and freedom of selfhood are necessarily part of a non-social nexus is an unfortunate legacy of his monadism, one where ecosocialist and Dietzgenian ontology turns away from Leibniz and back to Spinoza.

¹⁹⁸ To be a living person, there must be a passage of occasions which Whitehead describes as ‘hybrid’ in character. These ‘hybrid prehensions’ are the defining characteristic of living persons. Such prehensions are hybrid by virtue of containing prehensions belonging to the mentality of another subject. This is the ‘canalization’ of originality, necessary so that personal mentality can be evolved and bound into the safety of the material organism on which it depends, because “though life in its essence is the gain of intensity through freedom, yet it can also submit to canalization and so gain the massiveness of order.” (Whitehead in Sherburne, 1981, p.94) We need not concern ourselves overly with Whitehead’s attempt to bind selfhood into materiality, except to say that ‘canalization’ begs a slightly different set of questions from the parallel term ‘entailment’. For the former, life, freedom and subjectivity appear to be ontologically prior to matter; in the latter case, matter appears to be ontologically prior to subjectivity.

relatively arbitrary. The material brain is the seat of the self, but as has already been mentioned¹⁹⁹, seeking the origins of conceptual novelty in the operation of an individual region of knotted matter – a little package of brain tissue – would be a fruitless exercise. Human (and nonhuman) eggs and sperm show no evidence of mind, and neither do very early embryos (Edelman, 1992, p.52). But if it is true that newborn infants do show some evidence of subjectivity, by what material interactions have the bases for mental life been established? This is a question which of course carries into early education, and becomes crucial in relation to the issue of the transformation of the emergent subjectivity towards an environment wherein its interactions are capable of maintaining a sustainable pattern rather than one based on increasingly dysfunctional misapprehensions of subjective autonomy. As we know, Edelman's basis for self is selectional and topobiological in the sense that developing sheets of nerve cells create an *environment* within which the drama of further cell stimulation and growth may unfold²⁰⁰.

The emergence of selfhood on this account takes a form little different from the gradual changes in other material environments. The uniqueness of every material occasion within its nested nexus allows for unpredictable patterns of survival and extinction among brain cells, just as among more complex societies of enduring objects, individual fruitflies or primates, within an ecosystem. The material ecology of the brain entails the emergence of a conscious self as an accident of variation and adaptation. This accident having occurred within the context of a delicate and impermanent life support system, the question of the possibility of the emergence of the self-in-itself comes to the fore. This is the process which Naess calls Self-realization, a process which socialists have been more comfortable to limit to that expansion of self-identification associated with the material abstraction, class. As

¹⁹⁹ See page 227.

²⁰⁰ Some cells fail to “pass on or retract”, “[i]ndeed, if they do not meet their targets, their parent cells may die. Finally, as growth and selection operate, a mapped neural structure with a function may form. The number of cells being made, dying and becoming incorporated is huge... The events I have described are selectional ones. Certain patterns of cells are selected from a variant mass of cells in a topobiological fashion... Selection not only guarantees a common pattern in a species but also results in *individual* diversity at the level of the finest neural networks.” (Original emphasis) (Edelman, 1992, p.64)

Ollman has pointed out (2003a), Marx's method actually employs heuristic expansions well beyond class, but it is at this level that most of his and subsequent socialist attention has been focussed.

Self-realization is a process of drawing into consciousness an awareness of the nested sets of selves within which one sits. If this is an 'expansion' of the self, it is a metaphorical one in the sense that no 'material' expansion occurs; there is for example, no dissipation of energy across an extended field. The wider selves (on Mathews' definition) of class, species, ecosystem are already materially present in the ways in which relations operate under conditions at any particular moment. But for the deep green, Self-realization effects a retroactive perspectival actualisation of a feature of this wider self for itself. The unique thing about human brain activity, unique at least within our solar system, is that it is able actively to participate in the collapse of possibility into the reality of such selves. Although the expansion of the sense of self for any particular human is a 'mental' act, and as such a piece of brainwork, its effect across its extended nexus is to set in train a field of prehensive possibilities which can result in the strengthening of material relations of labour and shared life which constitute a class or species, or ecosystemic identity. We see this where resilient communities of proletarian solidarity arise, or, perhaps where resilient cross-class²⁰¹ and cross-species land communities of transition to low carbon activity emerge²⁰². In each of these cases, a sense of a wider self is created, and, over a sustained period of strengthened material relations an actual collective self is potentially realised. There is a parallel here with the reality that where neurones fire together they wire together – this is a material fact; one might say, where people think together they link together: the largely contained, yet open set of energetic internal relations thus effected represent a living interspecies politico-economic microcosm of the Gaian or cosmic macrocosm.

²⁰¹ The politics of united fronts for transition to low carbon, though presenting a fascinating subject for study, are beyond the scope of this work.

²⁰² It will be argued later that each of these sets of internal relations are immeasurably strengthened by some of the other, that is, in the longer term a developed sense of both class consciousness and ecological consciousness are required to build viable collective nested selves.

For Naess, the answer to the question of the pedagogical in relation to Self-realization is fairly straightforward. There is a connection with both Schelling and Žižek's positions insofar as "[h]uman nature is such that, with sufficient comprehensive (all-sided) maturity, we cannot help but "identify" our self with all living beings". (Naess, 1995c, p.225) This somewhat deterministic formulation suggests that for Naess, as for Schelling, each abstracted human subject is at some level also always connected epistemologically as well as ontologically to the totality. The crucial feature of this proposition is the criterion "with sufficient (all-sided) maturity". Naess has hereby set a condition on the self-registration of each of a set of elements within a nexus for the realization of that nexus as Self. One might offer an ontological account in Whitehead's terms by saying that the concrescence of a self-sustaining society of enduring objects here depends upon the capacity of the society in question to positivelyprehend the superjective possibilities necessary to its concrescence, that capacity being related to the intensity and complexity of its internal relations. The fit between Naess and Whitehead is far from precise, because Whitehead's deliberate disregard for temporality means that his 'backwards' account of causality makes maturity the effect of a set of relations – maturation – the cause of which is that the set of conditions which constitute its possibility. But in a sense, this is what Naess is proposing too. Comprehensive and all sided maturity importantly encompasses a complex nexus of interrelations generative of political maturity, as well as a personal and familial maturity²⁰³. Thus the all-sided maturity required for the realisation of the Self as an expanded collective across class, species and ecosystemic levels requires a developed appreciation of the interrelatedness of levels of analysis and levels of being. This, surely, is the consequence of prolonged transformative experience of expansion across these fields *as a part of rather than consequent upon the emergence of the 'individual' self*. It requires an appreciation of the growth of the subject as both the product and process of brainwork-in-body-in-econiche, both by the subject themselves and in and through their network of social relations, via a process of subjective and cosmological orientation. The comprehensiveness of the integration

²⁰³ Naess singles out Heidegger for his political immaturity ("to say the least"!(Naess, 1995c, p.225)), Schopenhauer for his personal and Descartes for his immaturity in relation to non-human nature and animals.

demanded by Naess here is daunting, taking, for example, something of the integrated cosmological embeddedness of some tribal peoples as synthesised with the sense of collective labour engendered by the class conscious proletarian: Dietzgen's 'world consciousness'. The distance of the Western bourgeois atomistic mind from this Self-realization both materially and subjectively is the measure of the unviability of capitalist society and of the species, homo capitalismus.

The process of Self-realization is central to Deep Ecology as Naess (1988, p.259) conceived it, "*strong identification with the whole of nature in its diversity and interdependence of parts as a source of active participation in the Deep Ecological movement.*" (Emphases added)(Naess, 1988, p.259) The Self in its process of realization undergoes a kind of self-registration; one that occurs through maturation but which is usually hindered by social conditions and, as green socialists should clarify, which is now largely a matter of interpellation within capital²⁰⁴. However, whether we regard Naess' formulation above as primary or secondary to the one proposed below will likely depend upon the point from which one's political trajectory originates. It has been argued that green socialists can learn from Deep Ecology, but that the ways in which material relations are abstracted as features of the process of Self-realization can more effectively contribute to the sustained coexistence in equilibrium of species which include humans if the corrupting effects of capital are understood and included; thus, "*strong identification with one's class, species being and the whole of nature in its diversity and interdependence of parts as a source of active participation in the movements for the liberation of the earth, all of its species including the masses of all peoples and the global proletariat from the rule of capital.*" Nevertheless, the two formulations should not, in principle be opposed, as the various examples from the monist materialist tradition have putatively indicated.

Although Naess is certainly sympathetic to the kind of 'mystical union' with one's 'wider self' propounded by certain religious traditions, and, as we have seen, in Romantic philosophy²⁰⁵, he does not regard a mystical or meditational state to be a

²⁰⁴ In this sense, Naess' conceptualising of the process rather echoes Rousseau's famous dictum, "[m]an was born free, and he is everywhere in chains" (Rousseau, 1968, p.49).

²⁰⁵ Such as that of Schelling or Marx's early poetry – See appendix 1.

necessary condition for such union, indeed he wishes to avoid such terminology altogether. This is not only because of its association with obscurantism and vagueness but also for substantive philosophical reasons. The Romantics, like mystics, often posed ‘cosmic union’ as a total state, a *dissolution* of the self into the wider cosmic whole²⁰⁶. This is unhelpful from an ecological standpoint, because ecological systems require selves to operate at multiple levels simultaneously. They are bio-*diverse*, having many distinct but highly interrelated elements and, if they are to be viable, require such diversity to be sustained, and internal relations to be intensified, thus “Self-realization in its absolute maximum is, as I see it, the mature experience of oneness in diversity” (Naess, 1988, p.261). In *A Confession*, Gorky (1910) contrasts proletarian collective consciousness with mystical union: in the latter, the protagonist Matve opines, “my mind was enraptured when I disappeared, as it were, from consciousness of self, and ceased to be” (Gorky, 1910, pp. 277-8), whilst, as in ecosophical theory, “in this communion with men [the proletariat], I did not abandon myself, but on the contrary grew and raised myself above myself” (ibid.) This is an “oblivion of the self” (ibid.) of a sort, but one which only extinguishes isolation, not identity as part of a greater collective. Human subjectivities, associated with individual brains, necessarily retain a sense of corporeal selfhood as a transmitter of both DNA and ecological wisdom and competence whilst also recognising themselves as, often, part of actually existing wider selves, collectivities, networks, ecological and land communities – something of a conscious enactment of Edelman’s brain-in-body-in niche. Whilst the scope of the self fluctuates, Naess recognises that it is hard to maintain its maximal reach for very long whilst functioning within biological life; the transcendent state of the mystic or ascetic, for example needs operational support to avoid tipping over into self-extinguishing excess. Bluntly, the expansiveness of subjective excess has no adaptive-ecological advantage. Thus the awareness of levels must be maintained.

When Naess (1988, pp.261-2) tries to find other terms which will help to explain the process of identification of self at different levels, he alights initially upon ‘solidarity’ (in German ‘solidarisch’ and corresponding terms in Scandinavian

²⁰⁶ As we saw in relation to Schelling (page 97), this need not actually be the case.

languages such as his own Norwegian), but argues that solidarity presupposes identification. Solidarity might be thought of as a kind of praxis, in part a psychological phenomenon arising from active participation in common endeavour, something rather like the experience of abstract labour. Identification on the other hand has ontological import; as read monistically, it represents Naess' way of describing the more fundamental set of relations which define the dynamic parameters of abstracted unities at various levels within the single material plenum. Within socialist traditions, solidarity has, of course, been more usually associated with class consciousness and internationalism. This tradition is not at odds with Naess' proposition. Deep greens might balk at talk of class consciousness, but the reality remains that under the capitalist mode of production, classes are significant *ontologically*. Shared participation within waged labour shapes the reality of the connections between workers, and between workers and employers. Needless to say, within developed nations, the agrarian peasant economy to which some deep greens look has long gone, and the primitive communism of tribal societies isn't even an ancestral memory. So, where actions in solidarity with others occur, they are likely to be expressions of more or less inchoate class consciousness. Moreover, where actions in solidarity with particular nonhuman animal species occur, these too are likely to be expressions of a set of industrialised relations as exemplified by those with veal calves, live-export lambs, or laboratory rabbits. The point is that solidarity itself depends upon forms of identification which are themselves shaped by material conditions and very real flows of energy, labour and capital.

What some socialists fail to recognise in the green movement is that for Deep Ecology, Self-realization cannot be an individual pursuit, and in this respect there is space for the ideal of ontologically grounded solidarity to be shared and built upon. Importantly, Naess argues that any attempt at Self-realisation be achieved 'systematically', meaning that the registration of the self as subject within environment requires reciprocity across the interrelations working at different levels. At this point, green socialists should intervene to emphasize the extent to which class relations operate at the everyday level to divide humans against each other, and, at a deeper level, to open the rift between humans and the means of their own existence,

the life support and source of the means of production. From his understanding of the nexus of relations underpinning Self-realization, Naess derives the slogan “Maximise (long-range, universal) diversity!” (Naess, 1995a, p.80) Such a declaration may not look entirely convincing or comprehensible on a placard, but is intended as an application of Naess’ principle that “the higher the levels of Self-realization attained by any person, the more any further increase depends upon the Self-realization of others. Increased self-identity involves increased identification with others.” (Ibid.) In prevalent Western bourgeois terminology, what gets called ‘self-realization’ equates to Naess’ ‘ego-realization’ which “stresses the ultimate and extensive incompatibility of the interests of different individuals. In opposition to this trend, there is another which is based on the hypothesis of increased compatibility with increased maturity of the individuals. The compatibility is considered to have an ontological basis – compare the “illusion” of a separable self.” (Naess, 2008c, p.172) Where socialists have traditionally emphasised the realisation of the self through the working collective – as perhaps best exemplified by Bogdanov and the vperedists – the ecological movement, like the earlier Romantic philosophical movement, goes a step further and asks for a deep identification of individuals with all life²⁰⁷. However, it remains to the detriment of the green movement if its members fail to grasp the universal significance of class as structuring (though never determining) both consciousness and openings or ‘pathways’ for action in solidarity within capitalist relations of production.

²⁰⁷ A distinctive hallmark of Deep Ecology from Leopold (1949) onwards is its insistence that identification need not be limited to one’s class or one’s species. Indeed, identification need not be reciprocated and so can be with entire land communities, not in a merely topographical sense of places with which we are most familiar, but in Leopold’s ecological sense of a pyramidal community of energetic transfer across a myriad network of interrelations of dependence, predation and decay. Naess is closely related to Leopold and back to Darwin (2004) in this respect. The core of Leopold’s argument for the development of a ‘land ethic’ draws from Charles Darwin’s 1879 *Descent of Man* a sequence of *extending moral considerability*. The circles around which we have drawn the limits of our ethics have on Darwin’s and Leopold’s accounts, expanded gradually outwards from the familial and tribal group to encompass nation, ‘race’ and humanity as a whole. Ethics, as shared by a community, include as morally considerable members of that community of interdependent parts. “The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land.” (Leopold, 1949, p.204) At the risk of cliché, this is the ‘expansion of the circle of compassion’ along with its ontological aspect as entailed by the expansion of the self. Identification involves implication in a nexus of activity which of course includes the full range of relations necessary for participation within the land community – ecological relations of predation, reproduction and metensomatosis. In relation to humans’ participation in killing, Naess notes, for societies and persons who are integrated within their ecosystem, such acts of ‘alienation’ (he uses the term) from one’s greater self are redeemed by ceremonies and rituals which serve to indicate the gravity of the action and to “restore the identification”. (Naess, 1988, p.262)

Taking the ultimate aim of Deep Ecology to be ‘Self-realization’ (and understanding the capitalised form of ‘Self’ to refer to a comprehensively expanded subjectivity inclusive of all life forms), its problem is the leap from the everyday self – atomistic and egoistic – to the comprehensive Self. A marked strength of the Marxist tradition is its understanding of the need for the great masses of humanity to attain consciousness of themselves as sharing in common a participation in productive activity, in labour. In the young Marx himself, there are certainly suggestions that he recognised the layers of self-realization as the overcoming of alienation. In addition to writing of “*universal consciousness*” (original emphasis) (Marx, 1992, p.350), he presages its attainment with “*species-consciousness*” (original emphasis) (ibid.), as well as – indeed at this point to a greater degree than – class consciousness²⁰⁸. Class consciousness in effect ‘fills the gap’ between individualism and ‘Self-realization’, so long as it is not taken as many Marxists would assume, as an end in itself. That productive labour is subsumed to the operation of capital within its complex circuits of accumulation, distribution and consumption precisely politicises the subject-self. The ecological self is not, in this sense, a wider or more comprehensive subjectivity than the class conscious subject. The very system of capitalism has made possible the insertion of the human subject into the ecodestructive web of relations which so effectively disrupt and distort the ecological equilibrium that no meaningful subjective understanding or internalisation of these effects is possible for subjects and communities unless they recognise the material conditions which have made them possible. Thus to leap from individual to comprehensive Self without regarding as a critical intermediate act of learning the coming to consciousness of the class for itself, is to disable and delimit the Self. The Self which is not expanded at all of those levels with real ontological meaning is not nor cannot be capable of transforming itself or its relations to its environment. Is this too tall an order? Dietzgen’s example suggests that it need not be. His writings, and those of his followers espousing a ‘world

²⁰⁸ There is another whole study here in analysing the levels of consciousness Marx proposes. Unfortunately, it is not possible here to map Marx’s layers onto the Deep Ecological conception of self-realization, or the ‘world consciousness’ of the Dietzgenities which appeared in the historical hiatus before Marx’s searly writings were published. Such a project will have to wait for another day. We will simply note at present that there appear to be four levels of realization of consciousness in Marx – (i) individual or particular consciousness, (ii) class consciousness, (iii) species consciousness, (iv) universal consciousness.

consciousness' grounded in the everyday participation in social and economic interaction became a mainstay of worker self-education in early twentieth-century Britain. Many ordinary unschooled workers engaged in developing a new 'self', realised through conscious praxis at the coalface and in the classroom²⁰⁹. There is no reason to suppose that the many examples of personal reflection and self-learning undertaken as part of community reskilling projects associated with Transition might not be similarly turned to sophisticated Self-realisation if Deep Greens and leftists were to be as equipped to engage with cosmology as were a previous generation of Dietzgenian British Communists. Nevertheless, such movements if they are to be successful in sustaining humanity out of the period of ecodestructive capitalism need to learn to develop that sense of class consciousness or, at least in the first instance to consider and value the meaning of class, as did their autodidactic forebears.

Cosmological mis-orientation / mis-education / alienation

One suspects that some socialists, even green socialists, lack an understanding of the extent to which deep greens share their analysis of some of the obstacles to a free expression of human creativity, or Self-realisation. This is not the place to discuss alienation at length, much has been written on the subject of a depth and quality which it would be foolish to claim could be matched here. Ollman's (1976) account is probably the one which most closely matches the spirit of this study. But alienation as a concept also emerges in deep green writing as a barrier to cosmological reorientation and Self-realization. This needs to be acknowledged, and the parallel discourse briefly explored not as an end in itself but as a way of deepening an understanding of the manner in which 'world consciousness' might be effected. The

²⁰⁹ A fascinating glimpse of the potential for transformation offered by a reading of Dietzgen's *Positive Outcome of Philosophy* is offered by Catherine Feely (2010). In a fine example of the autodidactic power of Dietzgen's theory, Feely takes the diary of Chester builders' labourer and Dietzgen reader Frank Foster to show how, during the 1930's, the philosopher's thinking came to play a transformative part in his everyday decision-making. Foster's "refashioning of Dietzgen's cosmology into a programme of personal growth" (Feely, 2010, p.100) enabled this labourer to apply to matters as diverse as dancing and Imperialism a dialectical monist materialist worldview. Foster's diaries testify to the profound effect this reorientation had upon his life, at least during this period. He writes, "[a]lthough outwardly and indeed to a greater degree there does not appear to be any change in me since I have begun in the study of thinking, I feel in myself, greatly different from what I did previous to beginning to study" (Foster, in Feely, 2010, p.104)

focus remains the ‘self’ or ‘Self’ as emergent from that set of ecologically and economically unsustainable material relations which define the operation of capital across the nexūs of macroontological reality²¹⁰. In capitalist social sciences, self-realisation has been given a particular meaning and priority which entirely overlooks its nature as a processual feature of Self-realisation, narrowly tying it into an egoism-altruism dialectic which obfuscates the material reality of interrelated Selfhood. Contra *solidarity*, altruism (like philanthropy) is a bourgeois construction which suppresses identification by falsely postulating sacrifice of one’s own interests in favour of those of others, “[t]hus alienation is taken to be the normal state. Identification precludes sacrifice” (Naess, 1988, p.263) because, as Naess will argue, ‘identification’ is the ecosophical shorthand for the overcoming of alienation in enlightened ecological self-interest.

As regards alienation, the starting point for Deep Ecology is *not* humanity and its needs. Marxists might helpfully take a lesson in humility here, and acknowledge that the capital relations which deny the worker the expression of that fundamental freedom, which defines creative human emergence, also prevent the flourishing of many other species whose self-interest is sacrificed to the logic of profit. But humility set against the recognition that it is ‘we humans’ who set these capital relations in train, corrupting ecosystemic integrity and fighting and winning pyrrhic victories over nature. In contrast with some Marxist prometheanism, for the biocentric egalitarian, “*the equal right to live and blossom* is an intuitively clear and obvious value axiom” (Naess, 1995b, p.152), and here of course Naess has in mind all species, not merely humans. This is a principle rather than strictly realizable in practice, but importantly, Naess recognises that “[t]he attempt to ignore our dependence and to establish a master-slave role has contributed to the alienation of man from himself.” (Ibid.) The human’s alienation from himself, from his own species being is clearly a central plank of Marx’s early humanism, but, it must be remembered, was unknown to Dietzgen or the first couple of generations of Marxists within which

²¹⁰ But focus at this level should not preclude holding in mind the persistence of freedom and indeterminacy across levels.

historical gap Dietzgen's philosophy played an important part in taking Marxism to the level of the individual psychology (Burns, 2002), *without* recourse to alienation. If ecological dependence as an aspect of the material embodiment of the human in cosmic interrelation is implied in Dietzgen, then the rupture of alienation in which he might have believed could be closer to Naess' 'alienation of man from himself' in the first instance, than to Marx's higher level alienation from one's labour and its products. That is, for Dietzgen, and for his followers like Bogdanov, alienation as a term does not play a part in their formulation of a pedagogical response to the damage wrought on the individual psyche by capital, yet they recognise at the level of fundamental ontology that something is broken, and that the requirement of a cosmological re-orientation towards collectivity as a method of developing class consciousness and 'world consciousness' means confronting the pernicious disease of bourgeois individualism. Nevertheless, for Naess too, the higher levels of alienation as an expression of capital relations are present in his fleeting recognition that 'potentialities of self-realisation' are 'adversely affected' by the continuance of systems of oppression perpetuated by some humans against others, a phenomenon he quite rightly associates with class (Naess, 1995b). However, the necessary economic analysis of the bases of class division as a profound and fundamental feature of humanity alienated against itself is, as one might expect, unexplored in the deep green literature. This is an omission which Deep Greens will need to address. Whilst acknowledging the embeddedness of greens in patterns of labour which are destructive both in ecological terms and in their perpetuation of class relations, Naess (1995b, p.153) does not develop this point into a critique of capitalism per se. Nevertheless, there is something of a putative (anticapitalist) cosmopolitics in his assertion that "[w]hat may be called the dominant way of conceiving reality is roughly that of a vast supermarket stocked with individual things that are extrinsically related to each other: like primitive atomistic conceptions." (Naess, 1995d, p.244) Insofar as these relations are taken to be somehow external 'effects' of things in themselves, this is a bourgeois view. It is a cosmology which fails to recognise the collectivity of expansive selfhood. More profoundly, it is the tragic result of a humanity divided against the products of its own labour and at odds with the world.

That is, such a view is thoroughly alienated from nature. Naess' description of atomistic ways of understanding our experience of the world as 'the supermarket concept' is helpful in that it brings to the fore that characteristic feature of bourgeois society that it fails to recognise use value or indeed abstract labour precisely because of the wholly dislocated and reified experience of consumption as an individual *selfish* appropriation of the real. Naess wishes to marshal those forces of "the Deep Ecology movement...[who] are inspired by ways of experiencing reality which clash with this dominant way of conceiving reality"(Naess, 1995d, p.244) and, although it may be discomforting for some on the left and for deep greens themselves, this desire on Naess' part is surely an invitation to share in a process of learning and practicing an anticapitalist cosmopolitics which deepens and sharpens a collectivist subjectivity towards Self-realisation and world consciousness.

The question of what it is that one might be alienated from is of course a vexed one within the Marxist tradition. Marx's move away from the term alienation marked a gradual shift towards an understanding of human 'nature' as increasingly infected by capital, and unable to flee from its totalising power back and to an unalienated state. Nevertheless when Marx does use the term, most famously in 1844, he does so in such a way as to suggest a residue of his Romantic youth. One recalls that in the 'Economic and Philosophical Manuscripts', Marx makes much of the relationship between man and nature as an expression of the universality of both man and nature. Man is universal in that he is a "free being" (Marx, 1992, p.327) and this universality of his "manifests itself in practice in that universality which makes the whole of nature his inorganic body." (Ibid., p.328) Marx's oft remarked upon and much analysed concept of species being – which would necessarily require far more space for consideration than is available in this study – is grounded in an explicit universalism. Whilst his account is dialectical, the Marx of 1844 still adheres to a vision of man-in-nature which is close to Schelling's and, in its insistence that unalienated humanity is inextricably and somatically *of nature*, in his life activity and species activity, hints at Marx's earlier Romantic holism. For Marx, alienation is not necessarily a conscious condition, though of course, it can become part of

consciousness as an important precursor to the realisation of the subject as part of a class in itself. Naess would also have alienation as a largely unconscious condition. In this sense, it is structural rather than, perhaps, superstructural; the objective side of a more or less conscious subjective state. What this means is that alienated subjectivity is restricted in its scope, it does not encompass the full range of its potentially expansive interconnections across the nexūs of its concrecence. There is a negative and a positive way of looking at this. On the one side, this alienated self might be regarded as a limited collapse into real, a diminished homuncular version of what it could have been, a betrayal of free human potential (or freedom and potentia in general). On the other, the alienated self might be regarded as in suspension, a partial realisation of the actual in anticipation of full and expansive identification with the class, the species, the ecosystem. Both the active green and socialist movements²¹¹ have optimistically tended to foreground the latter, superjective or superpositional sense of the alienated subject, whilst acknowledging the closed, collapsed sense in which the former suggests a sclerotic self, the pathways of whose prehensive possibilities have become hardened and closed.

“The opposite of *identification* is *alienation*” (Naess, 1988, p.262) (Original emphasis), argues the ecosopher: ‘identification’, then, to use Naess’ term, is not a primordial *act*, for as Schelling noted, such an act will always already have happened with the ‘choice to be’. Rather identification should be understood as a *process* – something closer to a coagulation of feelings or Whiteheadian prehensions – wherein “largely unconscious alienation... is overcome in experiences of identity.” (Ibid.) Whilst not a little tautological, we begin to see where Naess is going with this: his ‘identification’ bursts the logjams, opening up the nexūs of ecological interrelations atrophied by industrial society, enabling an un-dammed selfhood to flow across and into other selves, a reestablishment of a shared dynamic of subjectivity. But what does this mean in material terms? In what sense might individual brains-in-bodies-in-ecosystems be said to reconnect? An answer Naess lacks is to be found in the reality of socially necessary labour as the value-creating expression of human freedom. Social

²¹¹ In contrast with, for example, the Frankfurt School and their successors.

labour offers a parallel with the networks of neurones in the brain – a set of energy flows which wire stronger and wider interconnections between reentrant or inter-reliant elements. The ecological nexus which is entailed by these connections between the knots of subjectivity encompasses the dynamic materiality of individual workers in common endeavour, but only persists as a society of enduring entities or ‘self’ insofar as it is nested within broader ecological systems – on this point Whitehead (in Sherburne, 1981, pp.78-9) and Mathews (1991) agree. To effect an overcoming of alienation in all its forms, the revolutionary unblocking of the pathways of energetic flow requires a wholesale reorientation of human thought towards integration, totality and collectivism, something that Dietzgen and after him Bogdanov understood well²¹².

We are, without question, waking up to a new period in humanity’s relationship with finite planetary resources. This has become a cliché. Žižek, for one, makes reference to the birth of the ‘Anthropocene Era’, not as a period but as a new reality, an ontic fact. Caution should be exercised here, and the lessons of humility learnt from the ecologists brought to bear. Humanity’s tenure on the Earth has been relatively short, and the utterly astonishing spike in our extraction of non-renewable sources of fuel, so vanishingly recent in geological terms, that it is *far* too early to propose a new Era on the basis of million-year predictions. From the perspective of perhaps only a few thousand years hence, any of our human ancestors who survive may be in a better position to judge whether a new era was entered in the explosive centuries following the industrial revolution. But where the ‘Anthropocene Era’, as an idea, does have an application, is as a means of drawing out something of the pathological self-

²¹² As an addendum to this point it would be worth mentioning ‘growth’. The economic policy of growth, espoused as much by traditional socialists and Marxists as by bourgeois economics is, Naess argues, entirely destructive. “It does not *prevent* growth of identification but makes it politically powerless. This reminds us of the possibility of significant *growth* of identification in the near future.” (Original emphasis) (Naess, 1988, p.269) Let us use Naess’ own denotation in relation to Self and capitalise the Growth which connotes expansion of the self, identification with collectivity and ecosystem and Self-realisation, in contrast with growth in the bourgeois economic sense implying increased throughput of natural resources with accompanying expenditure of non-renewable energy sources. Human Growth is possible only under certain conditions, and they are not those shaped by alienation from fellow species. Naess wishes to set Growth against growth; this is crucial point that green socialists *must* consider in establishing a viable twenty first (or as Naess would have it, twenty-second) century human society.

destructiveness of bourgeois individualism and its philosophical handmaidens. As such, if we may agree with Žižek (2010, p.246) that the Anthropocene became “in itself” during the Industrial Revolution, but “for itself” only when the awareness of global climate change crept upon us, what does this mean? The Earth becoming aware of its own finitude, its own presence for itself as a delimited space of possibility? A collapse of this possibility into the actuality of entropic decomposition; the sweet smell of selfhood in overheating decay? Any proposition of this sort acquires meaning only within the context of a dynamic panpsychist ontology of the kind developed hitherto. In lived reality, the Gaian subject of Mathews’ and Naess’ ecological self registers itself both at the quantum level, and at the level of the expression of indeterminacy within human brains. But the point is that this registration occurs as the expression of a process which takes place across a wide field of material possibility. As far as the planet is concerned, its ‘recognition’ of its finitude is written into every fibre of the wafer thin layer of life wrapped around its watery surface – that set of complex internal relations which define the ecosystemic resilience of a society of enduring objects cohering in such a way as to hold off entropy and, as Mathews would argue, express its conatus, its will to plenitude. And, as far as humanity goes, as Žižek puts it, the ‘for itself’ of our species, our ‘universality’ lies in our capacity to constitute ourselves in common and *consciously*, to become the collective basis for our own survival. As we become a ‘geologic’ force, an environmental factor dominating and shaping the field within which other entities come into or, mainly, pass out of being, humans embody not our ‘species being’ in some abstract sense, but the reality of capital living through us, and infecting the whole fragile living layer of the sphere. For what it is worth, at this point, Žižek is sanguine about the possibility that ecological collapse might trigger the demise of capitalism, indeed he appears confident that capital can turn ecological catastrophe into profit as it has done with war and disease in the past. Whilst acknowledging the ecological limits to growth, he argues (Žižek , 2010, p.277) that capital will find ways to turn these limits to its advantage: only the limits inherent to capital itself will prove fatal to its advance. The implications of this study would tend to suggest, to the contrary, that insofar as free human subjectivity remains subsumed to the functioning of capital, its cosmological

misorientation towards individualism, and dualist and idealist illusions will continue to lend it a confidence in its own separateness from the biological life support which it degrades. Economic determinism will get us nowhere, and it is only when the dialectic of freedom at the heart of matter is expressed through the spontaneous and autodidactic emergence of free subjectivities under conditions which allow for and foster such Growth as to enable revolutionary release of potential at multiple levels – subjective, collective, ecological – that humanity will create the novelty that unbinds the nexūs of nature and capital. That is, it is not simply that capitalism creates its own gravediggers, it is that those gravediggers must somehow undergo a great act of relearning, a cosmological reorientation so as to spontaneously love the earth in which they dig.

Cosmological orientation and induction

Green socialists need to understand the power and the significance of the philosophical, more specifically of the onto-political and cosmo-political. Of course, those who wish to work together towards a shared recovery of our human creativity in pursuit of ecological and social justice must be organised and disciplined. But the distance we still need to travel towards anything like an ecologically and economically sustainable society is so great that quick, technical and organisational fixes always seem like an attractive jumpstart to revolution. It goes without saying that such revolutions merely leapfrog straight to decadent hegemony if they fail to win and command the great mass of society. This study is not the place for detailed revolutionary strategy, being, rather, an exploration of the *ontopolitical*. When Lenin took five months (May – October 1908) at a key moment in European historical development to read Hume, Berkeley and Mach and write *Materialism and Empiriocriticism*, he recognised the importance of fundamental philosophy. We may disagree with his conclusions, but we cannot doubt that he understood the need to return to first principles in the way that many more recent strategists have forgotten. Neglecting the philosophical means relinquishing to those who would perpetuate bourgeois atomist confusion as a basis for social theory, the very understandings upon

which strategy can be founded. In recovering the need for first principles, and in retrieving from elements of shared histories, commonalities of purpose and solidarity, we also recover the bases for our collective life and point towards the cosmological reorientation required to sustain ecological equilibrium and human equality. ‘World consciousness’ and ‘cosmic socialism’, as first tentatively and clumsily outlined by Joseph Dietzgen and his followers, along with ecosophical monism/panpsychism can be understood as a vitally important facet of the radical Marxist-ecosocialist onto-political recovery.

Dietzgen and others in the next generation of Marxists such as Pannekoek, Bogdanov, and the young Gorky saw the political as inseparable from the cultural and religious, and, often in a more or less determinist way (Unterman, 1914), a biproduct of evolution²¹³. Whilst many communists unintentionally made of Marxism or Leninism new religions, Dietzgen propounded such ideas as a conscious aim of ‘social democrats’, acknowledging the driving force that these ‘bases of knowledge, feeling and behaviour’ could provide in steering society towards a new economic formation. As we have seen, his pedagogical project was for a wholesale realignment of social values, attitudes and beliefs towards the cosmos, for monism and collectivism. In some respects there was nothing unusual about Dietzgen’s approach within the nineteenth-century context. His forebears among the Romantics, and socialists from Saint-Simon (1799) onwards had expounded utopian religious ideals; even the arch-materialist and atheist Büchner had a religious bent (Gregory, 1978, p.165): his sermonising on materialism rather prefigured and probably influenced Dietzgen’s similar activity. However, Dietzgen is an anomaly in his adherence to an immanentist philosophy of freedom or, as we would have it, emergence; and his ‘religiosity’, his peculiar panpsychism remains distinctive within Marxism. Whereas socialists for a good many generations now have tended not to promote their ideals as a belief system, if at all preferring to present the rationalist case for the philosophical bases of

²¹³ To an extent, some twenty-first century neurobiologists, like Edelman, concur with this last point: “human evolution is accompanied by the coevolution of culture, which provides a relatively rapid and powerful means of change affecting the bases of knowledge, feeling and behaviour.” (Edelman, 2006, p.66)

equality²¹⁴, or to work within established religions²¹⁵; greens have been far more willing to follow in the utopian footsteps of the early socialists in expounding their beliefs as a new faith, even as a religion for the 'New Age'. David Peat's charge (1987) that historically the political Left has ignored the human 'left' (the left side of our brains, representing the unconscious) at the expense of rationalist-cognitivist discourse (our 'right'), certainly has some parallels with the strategic efforts of the vperedists (of whom Peat no doubt knew nothing) to reorientate politics along an affective axis as well as drawing on bases in physics. However, some contemporary Marxists, such as Žižek (2010, p.258) are surprisingly sympathetic to Peat and others' New Age vision of societal transformation: the model presented is 'nonhierarchical', 'synchronic', 'telepathic'²¹⁶ and 'co-operative'. This, says Žižek, could be a vision of Communism if freed of its spiritualist delusions. Like the Dietzgenites, Žižek clearly sees some merit in exploring the cosmological reorientation offered by a new 'materialist religion' of society.

In contrast with worldviews of most twentieth-century socialists, Naess' (1995a, p.79) identification of the 'philosophical homes' of many deep ecologists reveals a set of orientations which are largely religious. Rather than holding to post-Enlightenment critical and analytical traditions, deep ecologists, Naess claims, more often come from backgrounds in Christian philosophy, in Buddhism, Taoism or Baha'I, and in general from positions closer to the Romantic than to the rationalist tradition²¹⁷. Ecosophy operates in a way which attracts believers, rather like a new (or 'New Age') religious philosophy in calling for an active connection to be drawn between claims about the ultimate state of being, and claims regarding ways of living. That is, it does not deliver 'ought' from 'is', but reads 'oughts' into the fundamental stuff of the universe: echoes of Romanticism again here. However, '[e]cosophies are not religions in the

²¹⁴ The 'Schelling of Marxism', Ernst Bloch provides an interesting mid-century exception.

²¹⁵ Christian socialism, liberation theology, etc.

²¹⁶ One wonders whether the intended meaning here is 'collectivist' in a way which proposes a panpsychist 'class-brain' or 'species-brain'.

²¹⁷ In particular, Naess considers Buddhism as the closest to Deep Ecology of the religious traditions. These links are explored by others (Henning, 2001) and won't be developed here.

classical sense. They are better characterised as general philosophies, in the sense of total views, inspired in part by the science of ecology.” (Naess, 1995a, p.79). The parallel between the ecosophical project and that attempted by the neo-Machist socialists who also drew their influence from Dietzgen should be clear. For both, a resurgence in global justice (for humans and non humans) is engendered by a re-equilibration of patterns of consumption and production around an energetics of sustainability and equity, and a psychological re-embedding in patterns of conscious cosmically-orientated identification, integration and collective living. Bogdanov understood that for the many such a project would require a long term strategy for redirecting humans’ ‘natural’ religious and cosmological impulses towards a new spiritual vision. Naess recognises that supporters of Deep Ecology have some way to go towards enabling others to articulate in a systematic way their ecological holist spiritual vision. In this respect, Bogdanov’s cohorts made considerably more headway, drawing as they did upon a far more clearly understood political strategy and a basis in the initial expansion of the self into the concrete collective of the proletariat. As the twenty first century progresses, the necessity to find a language which will enable connected communities to articulate a ‘world consciousness’ will become increasingly clear. In particular, as each new generation, as each *individual* human person emerges, the question of their conscious orientation towards the nexūs of life and labour which support them will be crucial to their own viability.

It is far from certain that human evolutionary adaptation has equipped us well for the ‘Anthropocene’ world, but, the arguments of the evolutionary psychologists notwithstanding, we do not, nor should we base our arguments on the ‘nature’ of the human as established on the plains of the Pleistocene. Our subsequent cultural co-evolution with our changing environments makes such commentary relatively meaningless. As Edelman comments, “the brain and body are embedded in the environment (or econiche)... [But] once language emerged in human evolution, our knowledge and its development, as well as our evolutionary path, depended on culture... *culture is not equatable directly to the environment or econiche.*” (emphases added)(Edelman, 2006, p.55) That is, our cultural orientation may *or may not* best

enable our survival. Capitalism, and the social and cultural forms of bourgeois atomism and individualism it entails *do not* orientate us towards the cosmos in ways which align us with flows of energy within the open, nested ecosystems which sustain us; capitalist social formations tend to create cultural expressions which overflow the human econiche, lacking any humility with regard to the ‘culture’ of nature, and reducing creative impulses in artistic or other forms of labour to questions of ownership. One might go so far as to say that our cultural cosmology, along with our economy, is killing us.

Both deep greens and Joseph Dietzgen’s cosmic socialists call on us to reinvent the human as an expanded Self, a universal subject whose orientation to the universe is grounded in a felt sense of interconnectedness within a single material plenum. For Žižek, “[t]he most appropriate name for this emerging universal subject may be species.” (Žižek , 2010, p.248) And who is this new subject, this ‘species’? Our species comes into view as a level of being, in Ollman’s terms, a boundary of identity and condition of an abstraction, at the point at which we, humans, become conscious not only of the simultaneous impossibility and probability of our demise – its complex linear superposition among others – but of its immanence and reality. Our ‘for itself’ marks the end of our species. Can this be true? Not entirely, for the ‘species’ in question is not merely the human, but a particular type of human. Humans have at many points throughout our history understood our place in the universe as singular and unique yet entirely interconnected, without this ‘for itself’ marking our necessary demise. The species coming to an end is *homo capitalismus*, human capital, the mutant strain whose rapid adaption to a particular environment of its own co-creation has led it down an evolutionary blind alley. If, this ‘being for itself’ of our species reveals itself not in our universality but in our particularity as a vulnerable species among others, it does so only insofar as we are a species infected by capital, the transhuman progeny of the environmental conditions within which we have mutated.

Dietzgen’s followers – particularly Bogdanov – were right, too, in asserting that under the material conditions of capitalism, pervading, misdirecting, corrupting and

interrupting the flows of energy across our biosphere, the ‘for itself’-ness of our species-being begins with *class*. “[*T*]he *Whole is contained by its part*, i.e.,... the fate of the Whole (life on earth) hinges on what goes on in what is formally one of its parts (socio-economic mode of production of one of the species on Earth).” (Original emphases) (Žižek, 2010, p.249) Žižek puts the problem directly, and in a way that deep ecologists have not yet come to terms with; “the common sense reasoning which tells us that, independently of our class position or of our political orientation, we all will have to tackle the ecological crisis if we are to survive, is deeply misleading: the key to the ecological crisis does not reside in ecology as such.”(Ibid. pp.249-250)

This is not to say that in and of itself the issue of maintaining and strengthening ecological interrelations is not of huge importance; it is, rather, to refocus our attention again on those relations which have come to define most human interaction with other species (as well as with each other) – capital relations. Philosophically, there is much of value in Deep Ecology, and much in common with cosmic socialism; but the advantage that the latter has over the former lies in the fact that we currently live on a capitalist planet. Monist materialism dogmatically asserts ‘it’ before ‘I’, but casts the ‘self’ wide, understanding that the ‘it’ is already corrupted by capital, and that the ‘I’ of my class identity is already ‘out there’. Ecocentrism, or biocentrism is the right solution in principle to long term survival, diversity and equilibrium; but to attempt to expand the self from individual to species to land community without recognising that the set of relations which most immediately define humans’ daily activity are class relations is to invite the continuation of ecocidal bourgeois rule. There is no royal road to Ecotopia that does not incorporate class consciousness within world consciousness. Let us expand on this point, just a little more.

For Naess, Deep Ecology’s part in political life is to reject “the human-in-environment metaphor in favour of a more realistic human-in-ecosystems and politics-in-ecosystems one.” (Ibid., p.452) This clearly marks a contrast with the Marxist tradition with its ontological prioritisation of mode of production. Green socialists should agree with Žižek that to subsume the political into the ecosystemic is a mistake, unless this formulation is understood in a very particular way. Specifically,

our planetary ecosystems are now so bound up with effects of human productive activity, that such activity plays a *constitutive* role in their own functioning. An ecosystem includes within its operation all those interrelated features whose dynamic spatiotemporal placements sustain the integrity and resilience of its unity. From the infinite range of possible data within the plenum, the system positively prehends only those which lend it coherence. The activity of humans has had the effect of fracturing this unity by relatively increasing or diminishing the possibility of positive prehension on the part of the ecosystem. The nexūs of internal relations which define the system become infected by the effects of capital through human activity leading to loss of diversity, in particular biodiversity, and reduced potential for intensity of complex relations among internally related elements. Under these conditions, politics is not in-ecosystems, it *is* ecosystems. Žižek is quite right that in the sense that the total system becomes corrupted by the mode of productive activity, by which element of that system, that dynamic comes to define the system itself. Class politics become cosmopolitics. This is not to say that deep greens have nothing to contribute to the political and philosophical understandings of ecosystemic relations – clearly they do! – but without a critique of the mode of production, such contributions fall short of what is needed for humans in collectives to begin to transition away from the pathological individualism which pervades consumer societies. We will not dwell on those many aspects of Deep Ecological politics which have been sharply at odds with ecosocialism – to do so would not be in the spirit of re-learning a common philosophical heritage. Let us assert that there is a case to be made that features of Naess’ politics are amenable in principle to synthesis with leftist policy and practice. His insistence on the equality of the goals of the ecological movement, the peace movement and the ‘social justice’ movement certainly testifies to a vision “that includes the elimination of large scale human ... subjugation” (Naess, 1995e, p.447). The way in which Deep Ecological political interventions aim towards this end differ significantly from mainstream socialism and Marxism: Deep Ecology ‘generalises’ each aspect of politics such as to append to policy areas and statements the intent, “for not only humans, but other living beings” (Naess, 1995e, p.452): for example, resources for not-only-humans, but other living beings; or life quality for not-only-

humans, but other living beings. This expansiveness has been much criticised by ecosocialists, but has distinctive merit in a feature it shares with Dietzgen's (and Bogdanov's) socialism; that is, in making its political case, biocentrism "uses *not only* arguments of the usual rather narrow kind, but also arguments from the level of a deep total view *and,*" (original emphasis) (ibid.) given the environmental context which we now understand rather differently a century after the high point of cosmic socialism, "with the ecological crisis in mind." (Ibid.) That is, Deep Ecology can contribute to a *cosmopolitics* of global transformation. The profoundly revolutionary character of this philosophy should not be underestimated. Nevertheless, radical environmentalism is all too often unclear about the political necessity to maintain a broad coalition of those forces whose interests are identical with the universal interest – that is, the great masses of the global working class²¹⁸. Even given the justifiable ecocentric desire to include nonhuman species as equal partners in political strategising, any move away from anticapitalism, with a concomitant and inevitable widening of chasms of power and wealth would threaten not only human survival but that of very many other species as well. Naess' focus on long historical time in reorientating the masses of global society is right, but his prescription is not. There simply is no "green pole" lying between red and blue. Such a fantasy is dangerous. However, Naess' own optimism and those glimpses he offers of a better future (no less fragmentary or elusive than Marx's distant projections) belie the illusion of a left-right 'balance'. Rather, he sounds more often like a utopian socialist²¹⁹ of the earlier nineteenth-century²²⁰. Naess' better world is 'not remote' but neither is it just on the horizon. We have some distance yet to travel before we detect the skyline brightening, and the days ahead are dark. Like Bogdanov, Naess sees the momentous change in human conscious orientation that is required extending over historical time – "[h]undreds of

²¹⁸ Given uneven development, sometimes, of course, in alliance with the peasantry.

²¹⁹ A position affirmed by those of the Biocentric Left tendency of Deep Ecology, such as David Orton (2008) and David Greenfield (2008)

²²⁰ Here, for example, he is speaking of the bright twenty-second century which calls us: "Will there be conspicuous consumption? Of course! But what is conspicuous, and what will secure prestige and wonder in that century, will require only moderate energy to achieve. Several tremendously important things will be different: there will be no political support of greed and unecological production. A tolerance of severe social injustice based on differences in levels of consumption will have disappeared." (Naess, 1995f, p.466)

years! Interim strategies need to be developed. But in no way does this excuse the present complacency. The extreme seriousness of our current situation must first be realized.” (Naess, 1995a, p.69)

The momentous changes that must be wrought are initiated with every child born. The freedom and creativity of the human child, so easily crushed, also offer the fragile daily hope of survival. When Penrose, in rather hackneyed terms implores us to remember that children are ‘natural philosophers’ (Penrose, 1989, p.448) he does draw our attention to the fact that young children are unafraid to pose basic questions about consciousness and the universe that adults may suppress; questions regarding, for example, the biggest and smallest possible things, or whether our whole body thinks. This may be very important as regards the capacity of a society to orientate emergent self-consciousness in and as part of something larger, collectives and ecosystems. The fundamental problem arises when there is a mismatch between on the one hand the basic interconnectedness across levels, and, on the other, a failure of consciousness to register its interconnectedness. For young children, it is simply not the case that they conceptualise their own subjectivity as outside of or separate from the familial, social and environmental features of the topography they inhabit. The emergence of their own volition is achieved without ‘mentally’ severing the material ties which entwine them in myriad ways into their context, because that volition, that freedom always already existed within the basic universal stuff out of which they – we – are constituted. Those of us within the developed nations are familiar with that process of condescence involved in reaching maturity which gathers into a sense of atomistic individuality the selected experiences of our fragmented and commodified lives; the bourgeois belief in the discrete adult ‘I’. This is a material effect of brainwork under conditions of capitalism. Epigenetic and cultural factors begin to modify the paths of individual human brain map formation even before birth, and immediately after birth “enormous selectional changes will occur in the synaptic populations of the central nervous system” (Edelmanm 2006, p.56) as the particular form of conscious subjectivity characteristic of capitalist social formations hardens into place, collapsing potential into alienated actuality. Neuroscience tells us that “a

large portion of brain development is stochastic and epigenetic – that is, is strongly influenced by the fact that neurons that fire together wire together.” (Edelman, 2006, p.55) Just as well-known changes during childhood such as the diminishing ability to easily acquire new languages are accompanied by great changes in the distribution of synaptic connections, so our orientation to our social formation locks in place ways of being and communicating in and with the world.

The child becomes herself within a culture which more or less shares a cosmology (Mathews, 1991, p.136). That cosmology shapes how the child thinks about her or his place in the universe, in the collective and in-herself. As the movement of her thoughts are shaped by this environment, they can move with it or against it. They can be sustained by the environment or they can be washed away. They can acquire some resistance to entropy – resilience – only if they exist as part of cosmologies which themselves move within the flow of the yet larger systemic play of greater ‘selves’ – ecosystems. In other words, the child’s emergent thought-self, or self-consciousness can move with and as part of the collective, and of nature in (as part of) its becoming in-itself for itself, or it can falsely imagine itself an atom, an individual. The unsustainable and pathological system we call ‘capitalism’ generates cosmological confusion. It inculcates in the child a sense of themselves as discrete, consumer, producer subject. It teaches them the lie of separateness. It breaks the resilience they would otherwise have built as part of collective larger communal and ecosystemic selves. It teaches them that they are not the collective, the class; that they are not the human, the animal, the river the forest, the soil. It teaches them that they are just themselves. The new human is torn between all this and the experience of the body in ecosystem. As so many green and red educators from Rousseau through Lunacharsky to Illich and today’s generation from Kahn to Jensen have testified²²¹, in this struggle of schooling, for the emergent subject, the collapse usually seems to win out over the

²²¹ I am rather loose in my definitions in claiming Jean Jacques Rousseau, Anatoly Lunacharsky, Ivan Illich, Richard Kahn and Derek Jensen for red and green educators (I know the last of these would object). My reasons for so doing would require another book, but the reader may be able to infer some of these from much of what has appeared in previous chapters.

potential for ongoing transformation into the free universal Self that the child always already is and could be²²².

Dietzgen (1906a, p.155) established an inductive basis for his materialist morality, emphasising contingency, historical necessity and relative right, looking to societies distant in time or place – Egypt, Palestine, China – to illustrate his perspective before turning on European bourgeois society. He is consistent; the anthropological gaze he casts over the moralities of Hebrew or Turkish people is applied as rigorously to his own society: “the rules of bourgeois society are supposed to be far more sublime. Our present day institutions and moral codes are either regarded as eternal truths of nature or reason, or as permanent oracular expressions of a pure conscience.” (Dietzgen, 1906a, p.155) If one were to recast this formulation in relation to the ethical dilemmas of today, the question of ecological orientation becomes, again, one of material necessity and relative right. Dietzgen does not mention happiness; rather his relativist analysis rests very largely on the ways in which needs are met and survival ensured at different levels of societal development, “*regulating the conduct of man towards himself and others in such a way that the future is considered as well as the present, the one as well as the other, the individual as well as the genus.*” (Original emphasis) (Dietzgen, 1906a, p.148) This study has not been the place to discuss Dietzgen’s ethics; however, it is important to recognise something of the relationship between consciousness as applied to problems of a ‘moral’ nature, and the material conditions, cultural and more broadly environmental, within which such consciousness emerges. Because of the clear and unavoidable connections between the objects of sense perception and the patterns of reentrant neuronal mapping evolving in individual brains, a monist materialist might confidently predict that bourgeois societies with their production of commodities for profit rather than need would generate an ‘aggregate’ conscience among humans, to use Dietzgen’s term, which would likely

²²² Gorky in his Bogdanovite god-building phase illustrates this situation with an episode wherein the children of millworkers are allowed to sustain their absolute potential for freedom whilst playing in woods near the factory: “Each of them is a vessel of the living Spirit; each can contribute to the thought which emancipates us from the thralldom of our doubts...” (Gorky, 1910, p.264) and in a paean to educational progressivism and self-realization, “only give children time to develop freely, and not transform them prematurely into beasts of burden, and they will freely and boldly illuminate life from within and without with the splendid glow of their youthful audacity of intelligence” (Ibid.).

settle into patterns of individualist and atomist moral thinking amenable to personal acquisition of the unnecessary but desirable social rewards of the society. And so this has proved. However, to complain about the unecological morality of the masses would be to misunderstand the nature of the problem. *We are interconnected*, in labour, patterns of predation and resource and land use, and ontologically. A moral failure to recognise this material reality requires deep pedagogical intervention towards moral and cosmological reorientation, something which proves harder as neurological material ossifies into maladapted patterns of functioning.

There is an adaptive advantage to the adoption of patterns of thinking about the world, including moralities which have co-evolved with a cultural environment aligned with its ecosystemic life support. Cultural learning beyond mere schooling works to shape the development of the consciousness of the emergent individual, not only of their own emergence, but of the conditions of the possibility of their coming to be, conditions which coevolve with their own patterns of thinking. There is in matter itself, the potential for education not only to know oneself, but to know the environment which is one's extended Self, as part of which one's brain co-evolves in a materially integrated set of complex ecological interrelations: "brain-in-body-in-econiche" not as an idea, but as a lived experience of one's own Self-realization.

Whilst bourgeois society militates against the production of monist thinking, there is a paradox here. When labourers learn *for themselves* as a function of the activity they undertake, it is possible for them to live a dialectic of isolation and collectivity. Much the same thing potentially applies to the child engaged in productive activity. Where autodidactic learning emerges, at the workbench (where for example both Spinoza and Dietzgen developed their ideas) or in the mud of the child's garden, the immediacy and spontaneity of creative labour suggests to the autodidactic worker-learner the living nexus which connects their activity with that of other workers and other species. But both Spinoza and Dietzgen effectively worked under conditions of artisan²²³ production; their lens-grinding and tanning workshops were not places of

²²³ Arguably even petit-bourgeois, despite Dietzgen's reputation as an honest proletarian. In truth, Spinoza's work was more petit bourgeois than Dietzgen's.

brutal suppression of creativity, not mills or factories. The child at play in the mud of the garden absorbed in the movement of the woodlouse, forgetting for a while which is she and which is the crustacean similarly is not subject to the alienating rigours of schooling. As generations of councilists, spontaneists and autonomists have known, workers' spontaneity under repressive conditions of highly intensified capital relations, require careful nurturing. But the potential for freedom exists, because it has always existed.

If we parochially focus on our own planet²²⁴, it is right that the future of ecological relations does not lie first and foremost with ecology, but with economy, not because the latter takes ontological priority, it does not. But the enforced – let's call it *alienated* despite the difficulties with the term – activity of humans, in the factory, on the farm, in the school, tends towards a subjective sense of the fragmentation of the whole, a pathological, alienated cosmology. The moment of epistemological retrieval and reconstruction of the whole necessarily starts with the originary consciousness of unity. For some workers across the world, such unity may be glimpsed in the vestiges of the ancestral memories of primitive communism, for others, the folk memory will be of the resilience of local communities. But for most, such memories have passed into history. That world of relative equilibrium was swept away by the revolutionising power of capital. And it is thus in the potential for unity in class and in species relations which the current crises throw up that we find hope for world consciousness in the not too distant future.

Conclusion

In contrast with the idealist or theist, Dietzgen calls for a consistent critique of all moral values from a materialist perspective: “whoever regards, development, education, and blessedness on earth as man's life purpose, will not think that the questioning of the assumed superiority of traditional morals is irrelevant,” (Dietzgen, 1906a, p.155) he implores, with typical semi-religious zeal. Enlightenment and

²²⁴ Alexandr Bogdanov did not maintain such a 'limited' focus, though of course his exercises in extra-terrestrial collectivist god-building (Bogdanov, 1984) were always intended as reflections on our own benighted world of capital (see Bould & Miéville, 2009)

freedom consist in no more than dispelling illusions regarding “some “best world”,” and recognising the conditions which have enabled our coevolution, restoring us to “the definite practical interests of our time and personality. At the same time we are thus reconciled with the world as it really is, because we no longer regard it as the unsuccessful realization of that which ought to be, but rather as the systematization of that which cannot but be.” (Ibid.)

Here is a paradox. The great act of learning which constitutes coming to be for oneself may also be a great forgetting. As each of us as humans in Western bourgeois society learns what it is that constitutes the ontological basis of our subjective integrity, we cauterize the arteries which connect us to our life support: such are the many and complex channels which tie us into place and space that relatively little constriction can rapidly prove catastrophic. We come to imagine that we are isolates; we learn a strange orientation in opposition to that ultimate underlying Schellingian choice of the universe to be, and the always already made choice of every self, from subatomic particles to planets to be *within* this universe. Our own learning/forgetting takes place within material conditions which are neither of our choosing nor within our capacity to wholly reshape; the conditions of the developed capitalist countries in particular typically engineer a pattern of self-identification which must, if Edelman is right produce meta sequences of reentrant mapping conducive only to a maladaptive separation of significant parts of higher conscious functioning from the reality of interconnectedness. The infant’s brain is integrated with the world differently to the adult’s²²⁵: During that early phase of emergence²²⁶, Naess argues, the

“newborn, of course, lacks any conceptions, however rudimentary, corresponding to the tri-partition – subject, object and medium. Probably the conception (not the concept) of one’s own ego comes rather late, say after the first year. First there is a vague net of relations. This network of

²²⁵ Something genetic epistemologists from Piaget onwards have well understood.

²²⁶ That which Piaget famously called the sensori-motor stage (Piaget, 1972, pp.20-24)

perceived and conceived relations is neutral, similar to what in British philosophy was called “neutral monism”.²²⁷ (Naess, 1995c, p.231)

The ecosophical project of Naess and Matthews strives to perform a retrieval of lost memory. As a subjective experience, and an autodidactic act, each of us inspired by the conscious drive to world consciousness or universal consciousness is “trying to work out this basic sort of crude monism anew, not by trying to become babies again, but by better understanding our ecological selves.” (Naess, 1995c, p.231). The movement is from the conditions which would allow the development of a conscious awareness of the whole as a felt reality, sometimes but not necessarily through the positing of the whole at a theoretical level into the rebirth of a Self-realization as wider subjectivity. We recall Marx’s well known formulation in the passage of the 1844 Manuscripts on communism, “[m]y *universal* consciousness is only the *theoretical* form of that whose *living* form is the *real* community” (original emphases) (Marx, 1992, p.350). The real and the theoretical are out of joint, because the universality of human species-being is set against the lived reality of capital, delimiting and holding back our expansion into what we should be – our universal selves – “whereas at present *universal* consciousness is an abstraction from real life and as such in hostile opposition to it.” (Original emphases) (Ibid.) Thus to suppose that the process of realization of the universal Self is not profoundly political would be a mistake, and remains an omission made by too many among greens and deep ecologists. The material conditions, including crucially the balance of class forces and the actuality of productive activity, loosely shape the parameters of the development of the thought which becomes Self-realization. This is brainwork, and differs little from other forms of labour. The material, neural activity of complex brains cannot but be the activity of brain-in-body-in-econiche, and this environment cannot but be a coevolutionary function of interaction between systems of natural – including human – production. The organisation of masses into classes along lines which ontologically fracture the unity of human species activity constitute the ground on which those interactions take place which abstract infant subjects along boundaries drawn around

²²⁷ See Russell, 1984, pp.15-33

individual bodies, families, classes or nations. Naess expresses the political point (rather characteristically) briefly, thus: understanding of the Self as immanent within all being and inseparable from nested nexūs of concentric selves “has not had favourable conditions for development, since prior to the time the Renaissance glorified our ego by placing it in opposition to the rest of reality.” (Ibid.)

It may be in keeping with Naess’ expressed intentions for ecosophy to claim an Ecosophy- ψ (for an ecosophy of potentia and superpositionality) or an Ecosophy- Δ (an ecosophy of commodity fetishism) to contrast with or complement his own Ecosophy-T. Naess was keen to emphasize that every adherent of Deep Ecology will develop somewhat differing models grounded in their own sense of place. He is nevertheless unhappy with the possibility proposed here, that just such a place might be the class-location of the raced and gendered subject of capital. Here Žižek is correct that the key to the ecological crisis does not reside in ecology as such: the lived actuality of capital as a basis for an ecosophy of eventual transformation is one which Naess cannot easily acknowledge. Yet perhaps the possibility of the production of an ecosophy (‘Ecosophy- Δ ’) on the part of the capitalised subject speaks to the internality, the immanence of the ecological *and class* relations which form the environmental cradle of the transformative learning which makes ecosophical identification meaningful. “The process of identification is sometimes expressed in terms of loss of self and gain of Self through “self-less” action. Each new sort of identification corresponds to a widening of the self, and strengthens the urge to further widening, further Self-seeking” (Naess, 1988, p.263) Selves come into being under conditions which obstruct their realisation, when these conditions embody relations which affect alienation. The infant born into capital is interpellated through the relations of capital into which she is born. Capital flows through her relations with parents and teachers and infects the child to such an extent that development towards full identification with fellow human beings is so often stymied. Classmate is set against classmate, often not deliberately or intentionally but as a function of an alienated and alienating system wherein the imperative of ‘adding value’ to the child – to their capacity to act, function and ultimately labour – within a capitalist society

necessarily withholds the expansion of the child's self into wider Selfhood. This natural growth is, for Naess, best represented by Spinoza's *conatus in suo esse perseverare*, which is "not a mere urge to survive, but to increase the level of *acting out... one's own nature or essence*, and is not different from the urge toward higher levels of "freedom" (*libertas*)" (Original emphasis) (Ibid.) The conditions under which this growth and development are allowed such that the child becomes a viable, integrated self-realising example of a self-in-body-in-econiche are, under capital, highly restricted to say the least. The connection one to another between members of a class are choked off and cauterised and those between humans and other non-human animal species even more so, such that the becoming Self of the infant might never be realised, leaving a stunted atomic subject-in-itself which has never had the opportunity to become subject for itself, or, more importantly subject for its-Self.

Absolute freedom consists in consciencizing fundamental monism, the ontological becomes the epistemological in the greatest possible coherent mapping within the brain-in-body-in-econiche reaching out across spacetime into unfathomable Selfhood. This is surely both a mystical and revelatory vision and one which is charged with the necessity of action in the world to protect the selfhood of all other modes against the maladaptive prehension of highly truncated, sclerotic feelings – a highly negatively prehensive selectivity – entropically forced upon us by the delimiting circuits of capital cauterising the possibilities of freedom through its severance of superabundant prehensive ψ -state probabilities

Recall that Dietzgen is insistent that his philosophy regards human and political development from the viewpoint of eternity. Naess regards the possibility of such a viewpoint emerging through the process of personal realisation in and through reading, dialogue, active solidarity; the viewpoint of eternity "may suddenly break forth" (Naess, 2008f, p.267). This might be equated to a religious conversion – something with which the cosmic socialists and god-builders could concur – a sudden 'jump' from a position of anticommunism or climate change denial towards ecologism, or green socialism (or the reverse loss of faith). None of this is

incompatible with the idea of a gradual transformation²²⁸, for the stronger the cognition of absolute freedom as the basis of material existence, the more conscious one is of oneself as immanent with freedom. In defence of the gradualist interpretation of Spinoza on the realisation of freedom, Naess considers it

“unlikely that any change in the abstract *conception* of the world and the ego can permanently change the person. We have to observe behaviour and attitudes during work in the community. The new conception may be an inspiration and a source of strong motivation, but it would normally take years, I think, to change the structure of the interactions between person and environment.” (Naess, 2008f, p.272)

This is deeply significant for green socialists in pursuit of a pedagogy and practice of transformation. The phase of epistemological reconstruction of communities, of nations and cultures may be long, and this is reflected in the process of personal transformation necessary to the attainment of an ecological Self, of freedom and world consciousness. Registration as a moment of self-in-Self recognition for itself is significant politically only if the environment within which registration occurs allows for the possibility of the development of the self into Self through collective action. The emergent subject is significantly, though not irredeemably, hindered in their sustained and gradual attainment of Self-realisation in ecological solidarity by the deeply penetrating relations of capital operating to prise open and divide subjective ‘I’ from ‘I’ and you and her and it. A new lived conception of the universe requires an active and sustained relationship with nature of a kind kindled and fostered within the Deep Ecology movement, and a human species-unity against bourgeois individualism of a kind once relatively successfully maintained among many communist cadres. Put another way, the great obstacle to individualist bourgeois human selfhood is an underlying possibility of ontological solidarity which may “break forth” in the identification of the human with her child, sister, comrade, fellow living being, ecosystem or planet.

²²⁸ The evolutionary model of punctuated equilibrium allows for both.

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Appendix 1

The Romantic onto-poetics of the young Marx

This appendix represents a brief foray into the influences bearing on the student Marx. If any inheritance of Romantic monism is to be identified in his writings and legacy, it might be useful to identify, them as having appealed to his youthful sentiments. It is Wessell's contention that the Marx with which we are more familiar from the end of the 1830's onwards is "so to speak, a "fallen-away" Romantic (like many Germans in the 1820's and 1830's). Marx's bitterness was not aimed at the desire for redemption (on the contrary that was his romantic heritage – a heritage he never surrendered); it was aimed rather at the failed gods of Romanticism." (Wessell, 1979, p.24). Yet in his quest for new saviours to transform the world and within it each man, we can locate an early Romantic influence. Evidence of just such an influence can be found in texts of Marx largely unpublished until the second half of the twentieth-century, and is well documented in a range of scholarly analysis. A brief résumé will thus serve here to exemplify the point.

As an undergraduate in 1836, half of the lectures Marx attended were on artistic subjects (McLellan, 1970, p.42). The intellectual milieu within which Marx moved was dominated by the Romanticism of Schelling and Schlegel "whose lectures on Homer and properties were among Marx's favourite" (ibid.) and it is thus unsurprising that the young Marx embraced Romanticism in its literary and philosophical forms, and set about writing both poetry and disputations which reflected the mood of the time. Nothing of Marx's Romantic theory survives. He certainly wrote a piece influenced by Schelling in 1837, referred to below, and also intended in the Spring of 1842 to produce an essay "On the Romantics" (Marx, 1975d, p.387) but it is not known whether this was ever completed – certainly, of the four articles he "most actively... continue[d] to work on" (ibid.) at this time, only one was actually published, *De Romanticis* was not. However, it is Wessell's (1979) contention that Marx's many poems of the period to 1837 do reveal some of the Romantic philosophical themes which dominated his thinking, and which informed aspects of

his later thought. The poem *Creation*, for instance, suggests a dynamic cosmos, where “[e]ven space and time do not constitute a “dead” geometrical continuum but are described in terms suggesting life.” (Wessell, 1979, p.71)

“In the distance moved on light waves
An uncreated creator-spirit.
Worlds billow, life gushes forth,
His eye circles eternity.
The all-animating rule of his glances
Burns itself with more firm magic into forms.

Spaces undulate, times roll gently,
Praying to his countenance...”

(Marx, 1979, p.227)

The notion that the universe, rather than representing a static geometry, is imbued with life, offers a glimpse of a dynamic oneness which prefigures materialist monism, and indeed geometrodynamics, but also sits comfortably within German Romantic idealist philosophy which presented an “organic and vitalist conception of the world” (Cornu, 1957, p.12), extending the mystical notion of unity in God to nature, superimposing it onto Spinoza’s philosophy to proclaim various creeds of panpsychist or pantheistic monism. Romantics, then, did not regard the world as an ensemble of externally controlled things working as a mechanism, but rather as the manifestation of a single life animating all beings, “holy primeval thoughts... Veiled by form.” (Marx, 1979, p.227) In Romanticism, Marx found a transcendental explanation of change – the goal of transformation *in* the world being liberty as an expression of divinity – and of rational transformation *of* the world as a result of the will of men in effectual action, going beyond egotistic individuality and exalting the greater (national) ideal which called on man to subordinate his private interests to the public (Cornu, 1957, p.15). The French Revolution exemplified the new concrete problems of the integration of the individual into the nation, which, Cornu argues, Romantic

philosophers operated on at a higher level of abstraction to consider the possibility of acting upon the world to transform it through the totalising activity of thinking, this framed in terms of the surrendering of the individual “I” to the integrated whole. Thus, whilst profoundly idealist, Romantic monism marked the way for a transition from a metaphysical to a world historical and dialectical view based on the possibility of a dynamic of internal relations – the action of one upon all and vice versa – which envisages man as fundamentally creative of the world, if he would but become a part of a greater oneness of unfolding creation, rather than attempting to egotistically act against God and nature. For Wessell, Marx’s poetry is characterised by a longing for just such a universal “oneness” in things.

“Be only unlocked to love,
You, stars, eternal seat of the eternal,
As I mildly pour myself into you,
May my soul’s light strike out of yourselves.”

(Marx, 1979, p.227)

In these early literary experiments Marx constructs a Romantic cosmogony, a feeling of unity with the cosmos. In poems such as *Creation* he is “absorbed... into the universe” (Wessell, 1979, p.11). It is not difficult to find in this Romantic Marx, many of the elements which inform Freya Mathews’ and other later ecosophical writers’ ‘nested’ selves, open to the dynamic of the universe (Mathews, 1994, pp.96-7) blazing with “sublime meaning”, these are the vanishing selves which are realised in negation, becoming in their return to God/Nature, which Marx represents almost as an erotic union:

“You return again to the master.
You are no longer.
By man’s look of love hotly embraced
You vanished in him and he in me.”

(Marx, 1979, p.227)

Like the ecosophical self (discussed in chapter 7), the Romantic self cannot be premised upon an assemblage of parts, pieced together to construct a whole. This anti-mechanistic vision defies the increasingly estranging industrial spirit of the age to reassert a unity which must be created whole, as in Marx's poetry of ontogenesis, and, recalling Spinoza's conatus, as viewed ecosophically through systems-thought, Mathews adds, "[a]nd the whole [self] can presumably only be created whole by the wider system, of which its existence is a function." (Mathews, 1994, p.103) Marx's vanishing self, and the Creation from which it emerged are a single becoming-substance divided against itself and striving for the reuniting embrace of negation. As Remak comments, the role of the Romantic project in late eighteenth and early nineteenth-century Germany, as expressed by the youthful Marx, is to "attempt to heal the break in the universe, it is the painful awareness of dualism coupled with the urge to resolve it in organic monism, it is the confrontation with chaos and the will to reintegrate it into the order of the cosmos" (Remak, in Wessel, 1979, p.23)

For all this, the world Marx experienced was not one of the unfolding reunification of Creation, but of increasing disunity, the emergence of new divisions within society; of the essential creativity which expressed the one Creation stripped away as man (or, as he would later realise, the emerging class) became subject to the alienating force of the new forms of production during the first years of the century. "The problem was how to transform an estranged, objectified world into a manifestation of subjectivity...It is in this connection that the philosophy of Fichte opens the door to a comprehension of the theoretical reflections of the early Romantics such as... Schelling." (Wessell, 1979, p.24) Here the connection is with Fichte's vision of philosophy as explaining reality as a function of subjectivity which was borne to the young Schelling, and transcribed into his 1794-6 essays admired by Marx. However, even Schelling's earliest work marked a significant development from the wholly subjectivist position of the student Marx and towards materialism and dogmatism. The subjective side of subjectivity-as-reality is expressed in the works of Schlegel, Novalis and indeed the young poet Marx in terms of the sense of connection between finite self and infinite whole. This is a living relationship with a symbolic universe

within which life is staged as art and best expressed in poeticised form; “Veiled by form and poetic word” (Marx, 1979, p.227).

Appendix 2

Lenin and Plekhanov contra Bogdanov and Dietzgen

When Lenin lined up beside Plekhanov to attack the philosophy of Machism, he did so across a deep political divide. How was it that Lenin could have sided with the leader of Menshevism against the passionate and committed Bolshevik Bogdanov? For Ilyenkov, the situation can be explained quite simply if one considers that Plekhanov was one of the few Russian Marxists “who sharply and steadfastly came out against philosophical revisionism.” (Ibid., p. 289) Given that the most prominent Marxist critics of Plekhanov were Bogdanov and Lunarcharsky, Lenin felt there was a real danger, well documented in his correspondence, that an impression might be given that their philosophy represented the Bolshevik position.

If, as Lenin believed, Machism was a form of subjective idealism, deeply damaging to the interests of the proletariat, he had to take a firm stand and once and for all purge Bolshevism of its influence. “Further silence in the realm of philosophy would only be of use to the Mensheviks and their tactical line in the revolution” (Ibid., p.290). So, during this crucial period, from February to October 1908, Lenin immersed himself in philosophy. However, far from being removed from the everyday political struggle, Lenin’s philosophical work was absolutely a political intervention. Lenin believed that if the philosophical bedrock were not in place the future of Bolshevism would remain unsteady, for in philosophies, “as in a seed, or as in genes, are concealed the still undeveloped, but sufficiently clear contours and features of future positions (and disagreements) concerning the most stirring problems not only of today, which have already taken shape, but of tomorrow, which have barely begun to show in outline.” (Ilyenkov, 2009, p.290). Thus he waged philosophical war with the Capri group of Bogdanov, Bazarov, Lunarcharsky and Suvorov. The moment was crucial, the momentum of the bourgeois revolution was fading, and Lenin feared that the decay of class-consciousness would be hastened under the influence of Machism, as the Capri group “were making the heads of the people who had come to believe them

absolutely unfit for... the scientific Marxist comprehension of the lessons of the defeated revolution.” (Ilyenkov, 2009, p.294)

The philosophical battle was not merely one between the materialism of Lenin and Plekhanov on the one hand and ‘subjective idealism’ on the other. Ilyenkov contends that although Plekhanov had argued strongly against Machist revisionism, and had revealed the shortcomings of this philosophy and its “pretensions to innovation” in ‘updating’ Marxism, he remained unaware of the full danger Mach’s followers posed. In Lenin’s view, Bogdanov’s was an assault upon the nature of ‘matter’, upon which depended all other aspects of the Marxist worldview. This threat to the Marxist understanding of matter came from the leading scientists of the time, and implied a subjectivism and relativism which was deeply worrying for Lenin, and liable to corrupt all forms of scientific thinking from ecology to physics; in Ilyenkov’s more recent terms, idealism of the kind proposed by the Machists would have informed the ‘point of departure’ for analysis of “the fate of the earth or the fate of one’s country, the problems of genes or quarks quantum mechanics or the foundations of mathematics, the mysterious origins of personality or the mysterious origins of life on earth” (Ilyenkov, 2009, pp.301-2).

In resolutely taking the side of ‘dialectical materialism’, Lenin opposed matter to consciousness. Ilyenkov writes, “‘Consciousness’...is the most general concept which can only be defined by clearly contrasting it with the most general concept of ‘matter’, moreover as something secondary, produced and derived.” (Ilyenkov, 2009, p.302), and here is where the dialectics of Lenin diverge irreconcilably with those of Dietzgen, something Lenin himself is quite explicit about (Lenin, 1948, p.249). As we have seen, whereas Dietzgen sets matter against itself, Lenin defines matter in opposition to non-material consciousness. Thus, although Lenin is in the uncomfortable position of having to defend Dietzgen because of his direct association with Marx and Engels, he must reject Dietzgen’s monism which clearly and directly informs the thinking of Bogdanov and the Machists. But what is the nature of this influence? After all, whilst Bogdanov et al are derided as ‘idealist’, Dietzgen’s philosophy is a ‘monist materialism’.

Lenin penned a short chapter on just this question. He responds in excoriating terms to the Russian Machist reading of Dietzgen as denying causal dependence to things themselves (Lenin, 1948, p.157). Whilst Dietzgen is far from clear on this subject, the retrieval of his ideas proposed in this study comes closer to the ‘deviationist’ (and now long forgotten) Mr Helfond damned by Lenin than it does to Lenin’s own reading of Dietzgen. The philosophy of internal relations implicit in much of Dietzgen’s monism necessitates a reconceptualisation of ‘cause’ as we have seen, in that at the very least there can be no single chain which leads directly from one event to another in a universe which is absolutely and inseparably interrelated. (On this question, Whitehead has proved invaluable.) Thus it is Helfond’s and the Machists’ alleged *misappropriation* of Dietzgen which leads to his finding favour, as Lenin puts it, with ‘reactionary philosophers’, into which camp he must place Bogdanov. Having several times placed Dietzgen right alongside Marx and Engels and co-founders of the philosophy of dialectical materialism (see, for example, Lenin, 1948, pp.247-8), Lenin is bound to tie himself in knots to explain those passages in Dietzgen’s writing which might appear to espouse a version of idealism because of the manner in which he expresses the accommodation of thought within matter as an aspect of a single overarching substance. In a sense Lenin is demonstrating the activity for which Marxist Leninist orthodoxy becomes notorious, that is exercising a particular kind of selectivity in the establishment of the correct ‘line’ and retrospectively reading into prior alternative, formative positions a ‘deviation’ which would lead inexorably towards reaction. In this case, it is the parameters of a correct reading of (the most inexact and imprecise) Dietzgen which are defined by the (subsequent) consequences for the revolution of the Machists’ use of the philosopher. Given the nature of Dietzgen’s writing, it should not be surprising that those bent on the methods of early century physics should have found within him a source of great interest, just as in the twenty first century the attention of leftist ecologists might be lent to his writing for an archaeological search for shared features of deep green and ‘social democratic’, monist materialist ontology. There is no end to the game of finding sources of ‘deviation’. Whilst those (‘Leninists’) who find the source of revisionist heresy in 1955 or 1924 might deny the possibility that within Marx’s own writings live the

tensions, paradoxes and differences in emphasis which could tend towards wildly heterogeneous political responses, Lenin himself comes dangerously close to the source with Marx's contemporary.

“Our profound Machists avoid an analysis of each individual proposition of Dietzgen's *materialist theory of knowledge*, but seize upon his *deviations* from that theory, upon his vagueness and confusion.” (Original emphases)(Lenin, 1948, p.252)

In treating Dietzgen as a possible source of Bogdanovite deviationism, he needs to firmly establish a 'truth' amongst the muddle of his writing and so to assert that, in essence, Dietzgen differs not at all from Engels or from Marx on fundamental questions of philosophy, a task which requires a bravura effort at line-drawing and redaction. The clearest example of this is Lenin's ruling out of order Dietzgen's 'broadening' of the concept of matter, alongside an endorsement of those passages where Dietzgen "insists" (Lenin's word) on a contrast between thought and matter (Lenin, 1948, pp.251-2) However, in relation to lesser points Lenin must allow that Dietzgen did indeed *deviate*, because Marx himself suggests such a possibility in his correspondence to Kugelmann. That Marx leaves open which features of Dietzgen's work he finds demonstrate "a certain confusion" (Marx, in Lenin, 1948, p.252), provides Lenin the necessary opportunity to read back into Dietzgen the sources of the positions taken by Bogdanov which Lenin understood to be politically dangerous in the period of retreating bourgeois revolution: "it is not difficult to answer this question... Dietzgen's *confusion* could lie only in his *deviation* from a consistent application of dialectics, from consistent *materialism*, in particular from *Anti-Dühring*." (Original emphases) (Lenin, 1948, p.252) If, as seems certain, Lenin is here referring to *The Nature of Human Brainwork*, Dietzgen's deviation precedes the text – *Anti-Dühring* – from which he deviates by some years.

For Bogdanov and Lunarcharsky, social consciousness was taken "as a premise not subject to further analysis and as the foundation of their theory of knowledge" (Ilyenkov, 2009, p.303): the collectivist anthropism noted earlier. Whilst Ilyenkov agrees that social consciousness precedes individual consciousness, he reiterates Marx's basic position that social consciousness is not primary, but follows

social being, that set of relations which are material and determined by the economic structure, the mode of production. Dietzgenites re-read Marx in a monistic manner here to redefine 'determination' as communicative, a reversible equation.

Ilyenkov also makes the connection, albeit fleetingly between Bogdanov's thought and Spinoza's, this latter an influence Dietzgen explicitly acknowledges. Ilyenkov writes of Spinoza that he "includes thinking among the categories of the attributes of substance, such as extension. In this form it is, according to Spinoza, characteristic also of animals." (Ibid., p.304) Here then, "[t]hought arises *within and during the process of material action* as one of its features, one of its aspects, and only later is divided into a special activity... finding 'sign' form only in man." (Emphases added) (Ibid.) In contradistinction with Lenin, this marks thought as fundamentally a material process, though Ilyenkov fails to acknowledge clearly this point of divergence, focussing rather on the Machists' emphasis upon the 'sign-symbolic'. Here he intends to show that Machism, as a form of idealist positivism yields entirely to the power of symbols whilst failing to recognise their secondary role in the processes of the material production of thought. However, in doing so, he unwittingly comes far closer to Dietzgen (and thus to the foundations of Bogdanov's thought) than he would wish to acknowledge, in his solidly materialist account of thought in general. Importantly from the point of view of ecology, in so doing, he recognises Spinoza's non-anthropocentric account of thought.

At the core of Ilyenkov's orthodox dialectical materialism is the basic assertion that matter is "counterposed equally to the individual thinking brain and to the collective 'thinking brain of mankind', i.e., to 'thinking in general', to 'consciousness in general', to 'the psyche in general', and to the 'spirit in general'." (Ibid., p.306) This, of course, places mankind as a fundamental ontological category outside nature or matter. If this makes Marxist dialectical materialism incompatible with ecology, it does not rule out a compatibility between ecology and those other strains of Marxist philosophy which were opposed and suppressed by Leninism. Because it is precisely the question of the incompatibility of dialectical materialism with the physics of the day which lead some amongst the Bolsheviks (Bogdanov, Lunarcharsky et al) to turn away from Hegel and towards Mach as natural scientific ground for their philosophy.

If Ilyenkov's reading is correct, the fundamental difference between Machism and Dietzgenism on contradiction is one where Dietzgen lines up much more closely with Lenin. There is certainly a strong positivist argument grounded in physics that contradiction does not exist within matter itself, that such a proposition represents and 'ontologisation' of a linguistic phenomenon. For Machists, contradiction exists as an epistemological and discursive phenomenon only, "*taking place solely in the realms of ideas, abstractions and thinking*, but by no means in things..." (Original emphasis) (Berman, in Ilyenkov, 2009, p.313) Such a position differs markedly from that of Dietzgen in that he 'insists' that matter is absolutely all encompassing, such that insofar as contradiction occurs at the level of ideas, it is also material contradiction. We have attempted in chapters 1 and 5 to make sense of this proposition by reference to the contradiction at the heart of quantum physical understandings of particles.