Catching Up With Things?

Environmental Sociology and the Material Turn in Social Theory

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Abstract

Environmental sociology was born to study the interaction of human societies with the material world, yet the concept of matter has been neglected. Possibly for this reason, the material (or ontological) 'turn' taking place in social theory has involved the discipline more marginally than other fields. The relevance of new materialist positions to environmental sociology is addressed. On one side, the realism/constructionism diatribe is sidestepped by an understanding of knowledge and materiality as mutually constituted and incessantly remoulded, and of agency as distributed among human and nonhuman entities, hence humble and non-dominative. On the other, the traditional idea of critique is replaced by a case for affirmative, embodied practices, arguably exemplified by emergent environmental mobilizations. At a closer look, however, new materialist standpoints result embroiled with the Western metaphysical tradition, neglecting how today non-dualist modalities may end up supporting, rather than opposing, exploitative orientations like those emergent in biotech and climate policy. Environmental sociology should address the new theoretical tide with care, working on and with non-dualist standpoints without forgetting the unbridgeable gap between matter and its ontologies. To this purpose the theoretical heritage of the discipline, and namely Adorno's negative dialectics, may turn out valuable.

Keywords: ontological turn; new materialism; Adorno and negative dialectics; environmental mobilizations; ecomodernism

Introduction

Does matter matter to environmental sociology? Answering this question is not so obvious. On one side, the discipline was born to remedy the disregard of mainstream sociological thinking for the interaction of human societies with the material world. On the other, matter as a concept and a topic is hardly prominent in environmental sociology – much less than, say, in science and technology studies (STS). Materiality is arguably connected with a concept that is crucial to environmental sociology – nature. This concept covers at least three semantic fields: nature as the essence of an entity; as the opposite to culture and human artefacts; as everything there is (Williams 1980). Matter or materiality, then, can be argued to overlap with the third

meaning – nature as the whole biophysical reality, yet sits uncomfortably with the other two. Hence, one should be careful about using matter and nature as synonymous.

Consider also the theoretical swamp in which environmental sociology has long been embroiled: the realism/constructionism diatribe. In this context, matter seems to stand in opposition to discourse. Realists are such, one could say, precisely for their making a case for the mattering of matter. Yet, 'environmental issues and claims', on which constructionists focus, also refer to materiality and produce performatively material effects – you may end up with a nuclear power plant out of claiming its being 'greener' than coal. Vice versa, scientific evidences of the 'materialistic dimension of ecological problems' (Dunlap 2010, 23), which realists value so much, are in themselves discursive, rather than material, entities.

In short, matter certainly matters to environmental sociology, being in some sense its *raison d'être*, but precisely how – this is not so clear. Matter seems to work its way under the surface of the discipline, as a rather unloved concept to which any possible alternative is preferred: nature, environment, ecosystem services, and so on.

This could be a minor theoretical issue – who cares if environmental sociology replaces matter with other concepts? – if it were not for the material or ontological 'turn' which is going on for some years. Dating is always tricky. However, according to Dolphijn and van der Tuin (2012), 'new materialism' is an expression that some authors (Rosi Braidotti, Manuel DeLanda, Bruno Latour and others) begin to use it in the 1990s, independently of one another. At the end of the 1990s Mitchell Dean is already able to detect a tendency to move away from the idealist end of the idealism-materialism axis, and towards the materialist one, yet not in terms of a return to a traditional objectivism but of conceiving human actors 'as mutual constructed/constructing the other actors, including texts, graphs, buildings, money and machines' (Dean 1998, 191). The impressive growth of interest in the new theoretical perspective is testified by a bibliographical research that finds more than 5500 documents in the social sciences and humanities between 1989 and 2008 which include 'ontology' or some variant of this term, with an increase of more than 770 percent over that period (Van Heur et al. 2013). This trend has further increased in subsequent years, at least if one has to gauge from the burgeoning number of articles, books, collections of essays, discussion groups, conference sessions or whole conferences devoted to elaborating on materiality and ontological questions.

What is the place of environmental sociology in this picture? At the dawn of the new millennium Goldman and Schurman reported an emerging scholarship coming 'from the margins of environmental sociology and border[ing] on other areas of social theory production', for which 'not only must society be studied as constitutive of nature and vice versa, but nature must be understood as an actor with a conjoined materiality with society' (2000, 565). Today the 'return to materiality' involves environmental sociology above all at its intersection with fields, like STS, political theory, anthropology and geography, where this wave has taken considerable momentum. Yet, the issue is hardly marginal to environmental sociology. For example, as we shall see, rather than taking sides about or offering a conciliatory solution to the realism/constructionism diatribe, the material turn ostensibly sidesteps it, also disparaging critique as discursive deconstruction of

claims – as traditional to social sciences, including environmental sociology's contestation of unsustainable practices.

My argument, however, is not that the discipline should just catch up with the new vogue as quickly as possible. On the contrary, its relative marginality may result beneficial, offering an opportunity for a considered assessment of the strengths and shortcomings of the material turn, and a re-evaluation of its own theoretical heritage. In the following, I first outline some basic features of the new theoretical orientation, subsequently addressing their implications for environmental sociology. For scholarship in the material turn, non-dualist accounts of matter and human intermingling with the biophysical world reply to both the theoretical weaknesses and the dominative implications of dualist thinking. New environmental mobilizations seem to follow this rationale, replacing traditional contentious politics with practices that, by instituting different relationships with the materiality of things, challenge the circulations of global capitalism. At a closer look, however, the material turn seems a further iteration of the Western metaphysical tradition, neglecting how non-dualist modalities may support, rather than oppose, emergent exploitative orientations towards the environment. In this context, I contend, the heritage of critical theory, and namely of Adorno's negative dialectics, may result valuable. This apparently old-fashioned theory can help environmental sociology to effectively address a fast-evolving politics of nature where human intermingling with materiality is taking increasingly entangled and threatening forms.

Features of the material turn

The literature associated with the material turn includes a variety of approaches and fields of inquiry (Pellizzoni 2015). However, at least two shared features can be identified, which are particularly significant to environmental sociology.

The first is a rejection of the binaries traditional to modern thinking (nature/culture, mind/body, subject/object, matter/language, reality/knowledge, natural/artificial, sensuous/ideal etc.), which, as testified by the realism/constructionism diatribe, entail privileging one pole to the detriment of the other, in favour of a post-humanist outlook on matter, as lively, exhibiting agency. The material turn is often depicted as a reaction against the 'excessive power granted to language to determine what is real' (Barad 2003, 802). However, by no means this corresponds to a return to conventional forms of realism. Advancements in science and technology play a pivotal role in engendering new approaches. Scholars in the material turn stress the need for social theorists to take stock of how biophysical phenomena are increasingly conceptualized in terms of porous boundaries. All distinctions today seem to blur. For example, epigenetics challenges the gene/environment and brain/body dichotomies (Papadopoulos 2011). The inorganic realm is increasingly depicted as having vital connotations, while life is infused with dematerialized characterizations – textuality, information, codification (Keller 2011). Mining and processing of huge amounts of data generate unforeseen insights where knowledge and production of reality can hardly be distinguished (Calvert 2012), while the penetration of computational processes 'into the construction of reality itself' (Hayles 2006,

161) brings into question the ontological divide between machine and organism. In short, new materialists remark, if matter has been usually depicted as inert, stable, concrete, resistant to socio-historical change, an opposite evidence is emerging (Hird 2004). Materiality exhibits agency, inventive capacities, generative powers. It is a doing, an incessant becoming. The basic ontological condition is difference, or infinite variation (Grosz 2011).

An exemplary, and influential, expression of this view is Karen Barad's 'agential realism'. Barad regards phenomena not as representations of things but as things as such. Entities are continually reconstituted through material-discursive 'intra-actions', where neither the material nor the cultural aspect takes precedence. For example, the material set up of foetal imaging simultaneously supports and is influenced by a politics of individual autonomy and subjectivity. The foetus that the scientists can see as an object is also the foetus that law defines as an independent subject. Hence, 'the foetus is not a pre-existing object of investigation with inherent properties. Rather the foetus is a phenomenon that is constituted and reconstituted out of historically and culturally specific iterative intra-actions of material-discursive apparatuses of bodily production' (Barad 2007, 217).

Barad's notion of 'intra-action' should not give the impression that one is confronted with a mere restatement of the case for the intermingling of material and human agency made by Actor-network theory (ANT) and other versions of the co-production idiom widespread especially in STS. Compared to these, new materialist accounts tend to give matter a more foundational character (Clark 2011). Against ANT's symmetry principle, for example, one finds claims about the 'fullness of capacity' of matter (Barad 2003, 810); about how many manifestations of 'nature', from bacteria to geological dynamics, are indifferent to human interventions (Stengers 2008; Hird 2009); about how culture 'diminishes, selects, reduces nature rather than making nature over' (Grosz 2005, 47), the construction and combination of symbols and cultural meanings being 'an expression of a motility inherent to materiality per se' (Bennett 2004, 351). Some commentators find an unresolved tension in giving agential priority to a materiality simultaneously conceived as always contingently enacted (Woolgar and Lezaun 2013). Such criticism, however, fails to consider that there is tension only according to a 'thick' account of materiality, not if contingency itself is given agential primacy and if no ontological distinction is acknowledged to stand between abstract and concrete, cognitive and material, linguistic and physical.[1]

Another relevant feature of new materialisms is that, as Barad's claims above show, new accounts of materiality are often charged with normative implications. The argument typically runs as follows. Vitality of matter means that all entities in the world result from reciprocal 'concerns' or 'affections' (Stengers 2008), which imposes a post-humanist outlook on human agency, as disempowered and defective, distributed and assembled with nonhuman entities – hence also modest, careful and responsible. Acknowledging the intimate entanglement with, and the agential powers of, things, their capacity to surprise and disappoint expectations, 'can have laudable effect on humans' (Bennett 2004, 348), working as an antidote to their hubris and an invitation to a politics of care and hospitality (Clark 2011). This leads to a disillusioned outlook on criticism as deconstruction of arguments. On one side discourse deconstruction

reproduces the separation of body and mind, matter and language; on the other, the limited or precarious effect of many recent struggles shows how discursive criticism is yielding 'diminishing returns' (Clough 2003, 2). Change is not a question of remediation, which 'literally involves undoing what cannot be undone' (Grosz 2005, 28), but of (self-)transformation. The approach to critique inherited by the philosophical tradition is (to be) replaced by affirmative standpoints building on thingness and corporeality as sites of resistance, creativity, subversion of stable identities and positions. Non-dualism entails recognition of the ontological character of politics (Mol 1999; Holbraad, Pedersen and Viveiros de Castro 2014). Politics is to be approached no longer as a human struggle occurring in a material world provided with its own, given features, but as a socio-material struggle over the very constitution of what comes into being, as enacted in practices.

New materialist environmentalism

In sum, for new materialists, 'humans, including theorists themselves, [have to] be recognized as thoroughly immersed within materiality's productive contingencies' (Coole and Frost 2010, 7). Moreover, 'flat', immanent, affective accounts of the world underpin a new season of emancipatory politics, grounded on embodied practices (Amin and Thrift 2005).

This case has immediate implications for environmental sociology. One example comes from Arturo Escobar, who talks of new 'ontological struggles' in Latin America, against dams, oil drills, mining, deforestation, genetically modified crops; ontological in that they build on a denaturalization of Western dualisms in favour of perspectives by which 'all beings exist always in relation and never as "objects" or individuals' (2010, 39). Something comparable arguably happens in the North of the planet with recent developments in environmental activism, from food and energy movements (farmers' markets, community supported agriculture, food policy councils, community energy initiatives, the 'transition towns' network, etc.) to a 'new domesticity' of crafting and making (canning, sewing, mending, upcycling etc.). This emergent environmentalism, it is remarked, cannot be interpreted according to the usual post-materialist framework (Meyer 2015). Such initiatives share a commitment to building alternative forms of community organization and material flows, where individual acts of resistance are at the same time acts of institutional reconstruction, away from the circulations of global capitalism. Thus, environmentalism is no longer a matter of value shifts and their expected or actual effects on public policies and the market, but of 'new and practical embodiments of a new, vital, and sustainable materialism', grounded on the acknowledgement that we are 'far more being, or becoming, than thinking' and that major political interventions take place 'at the level of bodies and material practices' (Schlosberg and Coles 2015, 7, 9), where non-dominative relationships with the nonhuman world can be experimented and established.

Evaluating the impact of this new materialist politics, however, is not easy. For example, a review of literature on urban agriculture leads Debra Davidson (2015) to note a polarization between 'game changer' and 'windows dressing' readings. Yet, she stresses, the effects of urban agriculture are nuanced, with both

reasons for concern (including limitations to production, various sources of inequities, organizational fragility and insecurity of land tenure vis-à-vis urban development pressure) and for encouragement (including opportunities for direct contact with nature and cultural vitalization, evidence of disruption of conventional agri-food chains and the subversive character that all assertions of food sovereignty represent). Schlosberg and Coles, in their turn, note the capacity of dominant modes of circulation to assimilate alternative visions and practices, as the organic food case testifies, and a tendency in these practices to 'avoid more conflict-laden aspects of change', steering clear of 'agonistic political actions that are *also* necessary to supplant problematic and targeted circulations and institutions' (2015, 16, emphasis original). The future of new materialist movements, they believe, depends considerably on their ability to interweave affirmative practices and contestation, since 'one form of political engagement does not simply replace the other' (2015, 15). A conclusion subscribed to by other scholarship (e.g. Bosi and Zamponi 2015). However, this combination is not easily achieved. For example, analysing the transition towns movement in Flanders, Kenis and Mathjis (2014) find that support to the affirmativeness of practices is often coupled with 'defensive localism' (that is, protectionism, particularism and misrecognition of internal differences and wider social interests and connections) and diffidence towards confrontational standpoints, such as those of the Climate Justice Action movement.[2]

As Davidson remarks, one should avoid mono-consequentialist reasoning (evaluating urban agriculture's manifold expressions along a single parameter of consequence) and unreasonable expectations that the global industrial agri-business can be revolutionized singlehandedly by these initiatives. Yet it is hardly objectionable that, to date, there has been no significant impact of alternative forms of activism on dominant circulations of power, capital and resources. Even in Bolivia and Ecuador, where – also as a result of 'ontological struggles' – constitutional rights have been granted to the *Pacha Mama*, the Mother Earth, productivist and extractivist policies continue largely undisturbed (Gudynas 2010). No doubt, the presence of 'extraordinarily strong counter-flows of power' (Schlosberg and Coles 2015, 15) and the difficulties in coordinating and upscaling grassroots actions partly account for this. Yet, there is possibly more at stake. Looking at the case of Bolivia, for example, Franck Poupeau (2012) notes that the pre-eminence given to ethnic identity over social inequalities weakens the ability to challenge dominant relations of exchange. 'Indianist' politics ends up aligned with, or indistinguishable from, 'neoliberal multiculturalism'.

The issue is hardly marginal. The closer is the link instituted between theoretical standpoints and political implications – if new understandings of (human intermingling with) matter are supposed to explain and underpin a new emancipatory politics – the more relevant the outcomes of this politics become for supporting the theoretical case. Inconspicuous outcomes ask (also) for theoretical inquiry. This inquiry, however, should avoid getting embroiled in the never-ending controversy over the pre-eminence of 'context' versus 'conduct' (Bevir 2007) – the extent to which individuals have agency over the cognitive and moral grammar of their own choice, as characterizing a given historical period – that surfaces any time the current transformations of governance are addressed, from political consumerism (Pellizzoni 2012) to the creative class of cognitive capitalism (Suarez-Villa 2009) or the new citizenship of biological rights and

responsibilities enabled by advancements in the life sciences (Rose 2007); a controversy somewhat reproduced in Davidson's contention that the neoliberal leanings which some commentators find in urban agriculture (for example because it locates solutions to social problems within the market rather than the state, and because it further obscures politics with discourses of individual and community self-help) do not account for its multiple expressions, rationalities and meanings. I will therefore proceed differently.

The other side of new materialist politics

A fundamental claim of new materialism, we have seen, is that non-dualist accounts of materiality are provided with an emancipatory import. If dominative modalities are traditionally attached to the binaries central to Western humanisms, then – so the argument goes – a post-humanist outlook on matter and cognition, things and human sense-making of things, as dwelling and mixing up in a single plane of immanence, should engender non-dominative effects. In a world of relentless change, devoid of established (op)positions (subject/object, mind/body, language/matter etc.), power can find no solid hold. If becoming and flows trump being and blocks, or knots (Bennett 2015), domination is bound to be eroded from the ground.

Yet, things are not so easy. Independently of whether new materialist outlooks are to be regarded as actual truth claims or 'catalysts to a changed perspective' (Washick and Wingrove 2015, 65), their reliance on scientific evidence in questioning earlier accounts indicates that truth aspirations are not ruled out. They are rather shifted to a meta-ontological level (Heywood 2012), where at stake are not claims about the 'whatness of things' (Woolgar and Lezaun 2013) – their stable identity – but about their contingency, their endless becoming, their continuous emergence and sinking. From this perspective, the material turn results less revolutionary than it seems: rather than a radical departure, it looks a further iteration of the Western metaphysical tradition that Foucault calls the 'analytics of truth': the search for an access to universal truth. A most relevant implication for environmental sociology is that this leads to neglecting an emergent politics of nature where non-dualist modalities seem to be increasingly performed in the pursuit of goals that reproduce and intensify the hubris of Western modernity.

Consider, for example, carbon trading. This is more than an application of the cap-and-trade approach. Carbon trading builds on the assumption that, once a conversion rate between the 'global warming potential' (GWP) of CO_2 and other greenhouse gases is defined (courtesy of the IPCC, and despite a lot of uncertainties and speculative reasoning), reducing one of these gases anywhere in the world can be regarded as materially equivalent to reducing CO_2 here. In this way, the intractable complexity of the real impact of different quantities of diverse gases emitted in opposite parts of the world at different times is transformed into a matter of calculation (MacKenzie 2009). Yet, what is exactly GWP? It is a conceptual abstraction like money, since it works as an exchange rate. However, for carbon trading to be more than an economic fiction or a mere financial game, it must be also a physical phenomenon, something happening (or prevented from happening) in the atmosphere. So GWP is simultaneously real and virtual, material and symbolic, a concrete

thing and a conceptual construction. Premised on the commodification of the atmosphere is precisely this fluid constitution.

Consider also biotechnology. The fundamental feature of biotech, notes Eugene Thacker (2007), is the combination of biology and informatics. 'Life itself' becomes simultaneously matter and information, presence and pattern, 'wet' and 'dry', real and virtual, moving fluidly from living cells to test tube, to digital databases. Accordingly, biotech patents designate ontologically ambiguous entities, oscillating between materiality and virtuality, thingness and cognition. By regarding a living entity as an artefact if its basic functional parameters can be controlled (thus reproduced), they establish a correspondence between information and matter, so that rights in property over information can be subsumed into rights in property over the organisms incorporating such information, and vice versa (Calvert 2007). Moreover, the claim that patented artefacts are indistinguishable from nature for any practical purpose entails a further ambivalence: artefacts are identical to, yet also different (more usable, more valuable), than natural entities. Like carbon trading biotech thrives on ontological fluidity, or indeterminacy.

A similar situation characterizes also solar radiation management (SRM) geoengineering approaches. SRM aims to reduce the net incoming solar radiation, either by deflecting sunlight or by increasing the reflectivity (albedo) of the atmosphere, clouds or the Earth's surface. Proposed methods include launching giant mirrors into space, spraying sulphates into the stratosphere, and making clouds brighter by spraying seawater into the air. Therefore, there is nothing particularly 'high tech' about SRM. Its peculiarity lies elsewhere. Since the goal is 'to affect statistical constructs such as "global average temperature" through intervening into an earth system which is highly chaotic and in a constant process of formation' (Macnaghten and Szerszynski 2013, 466), not only the intended effects are by definition indeterminate, but the character of such indeterminacy (whether it resides in the reality of climate dynamics or in the virtuality of conceptualizations) is blurred. Any straightforward idea of 'control' vanishes as a result. Rather than keeping a system within predefined parameters one can at best develop the capacity to react and adjust on the spot, moment by moment, to its swerves. In this way SRM initiatives take the shape of 'real-life' experiments (Krohn and Weyer 1994) where, however, the real and the virtual, the material and the ideational, have no clear-cut boundaries.

What these examples show is a peculiar understanding of ontological fluidity, or indeterminacy. For long time, in physics, chemistry, biology, economics, computer science and elsewhere, growing acknowledgment of the import of indeterminacy has been complemented with coping strategies, claiming capacities of handling in spite of incomplete characterizations of the state of affairs (quantum mechanics offers an obvious example). Yet an opposed account has been gaining momentum in the last decades, reaching now, as the examples above (and new materialist theories) testify, a full-fledged expression. This account regards the biophysical world as characterized by disorder and instability, such features representing the basis of its dynamism and liveliness, of the capacity of organic and inorganic matter to change, taking novel shapes and structures. Accordingly, it is not, as previously assumed, by seeking control through closure, regularization and prediction, but rather by acknowledging and 'surfing' the unpredictable, contingent, emergent constitution of matter, that humans can pursue their goals. The fluidity of subject/object positions does not

limit but rather expands the scope for intervention. If knowledge blurs with, rather than operating on, matter, the resulting compound reframes ignorance or indeterminacy as internal differentiations through which reality can be further remoulded, rather than barriers to purposeful action.

Today, therefore, we are confronted with instrumental orientations towards the material world the premises of which no longer reside in Western binaries. This perspective is perfectly expressed by what can be regarded as cutting-edge neoliberal managerial thinking[3]. According to Nassim Nicholas Taleb, systems based on knowledge, control and predictability are fragile. Antifragile systems, instead, are those which stand randomness, uncertainty, volatility and errors. They deal with, and indeed 'love', unknown unknowns, benefitting from indeterminacy and disorder. Non-predictive decision making allows 'to deal with the unknown, to do things without understanding them – and to do them well', since 'we are largely better at doing than we are at thinking' (2012, 4).

This is precisely the assumption that, for Schlosberg and Coles, characterizes new materialist grassroots mobilizations, yet the argument it is enrolled to support is opposed: on one side a case for restrained, non-dominative human-nonhuman entanglements; on the other, the celebration of a hyper-capitalist brave new world. Of no lesser significance is to find in Schlosberg and Coles' paper a quotation from Latour. The French scholar stresses that human development requires 'a process of becoming ever-more attached to, and intimate with' (Latour 2011, 17) the nonhuman. Fine. Only, the quotation comes from a book on 'post-environmentalism' published by the Breakthrough Institute, a neoliberal think tank[4] (in)famous for its strong anti-environmentalist, anti-renewables, pro-nuclear, pro-biotech, accelerationist and trans-humanist position.

It may be worth considering briefly this position. The basic standpoint expressed in the Institute's *Ecomodernist Manifesto* (Asafu-Adjaye et al. 2015) is that humankind has flourished despite growing damage to natural systems, such damage being itself the consequence of human dependence on the biosphere. Hence, we can and should do without nature: its conservation is more a matter of aesthetic and spiritual values than of utilitarian ones. Human societies can and should increasingly decouple themselves from biophysical systems, thanks to technological advancement. In other words, to escape pending threats of climate change, the Anthropocene is to be intensified and accelerated. This position seems to reproduce at its highest classic Western objectivism. At a closer look, however, one realizes that the hypertrophic role assigned to technology, as effectively capable of replacing nature (completely, apart from nostalgic aesthetic or moral commitments), depicts a total blurring of the human and the nonhuman. The historical record of human transformation of nature is reframed as a testimony that nature is what we want it to be. Technology replaces nature because it is ultimately indistinguishable from it. Better, technology produces nature as an internal differentiation – what is let be, as deliberately (yet always provisionally) unexploited possibilities.

A clue that this is not a standpoint peculiar only to right wing think tanks but a broader trend is offered by the growing success of the notion of resilience and the gradual shift of its meaning, from how much disturbance a system can stand without changing its status to how able a system is to benefit from instability. Crawford Holling's influential model of adaptive cycle (Holling and Gunderson 2002) regards resilience 'not as a fixed asset, but as a continually changing process; not as a being but as a becoming' (Davoudi 2012,

304). Any sense of limit, which is intrinsic to the allegedly cognate notion of sustainability, disappears. Moreover, resilience is mainly considered a descriptive, politically neutral concept or approach, the distinction between the unexpected and the contentious or the unwanted fading away together with any sense of cause or origin of events, as well as of choice or direction (Pizzo 2015).

If Adorno and Horkheimer would hardly have imagined such a blunt expression of reason's hubris as the *Ecomodernist Manifesto*, the point is that one would be hard pressed to find any crucial difference between the Manifesto's claims and, say, Rosi Braidotti's celebration of the 'dynamic, self-organizing, transversal force of life itself […] conveyed by current technological transformations' (2013, 61), as a potency where life transmutes into technology and technology into life – apart from her professed anti-capitalist position. This is possibly why Schlosberg and Cole enrol Latour in their case for new materialist environmentalism without recognizing the meaning his statement takes within its own context. In short, a close attachment to and intimacy with the non-human does not seem to warrant the non-hubristic, emancipatory orientations claimed by many scholars in the material turn, being compatible with quite different standpoints. The new materialist case for careful and respectful encounters with a lively world and a politics of nature that reproduces and intensifies the traditional orientations of Western modernity share the same account of matter. In this framework, modesty and restraint become a question of personal lifestyle choices, rather than something dictated by the ontological character of the world.

Looking back to go forward: Adorno's negative dialectics

The preceding considerations suggest that environmental sociology should think twice before buying into the way matter is made to matter in the material turn. The crucial point is the assumption that domination is grounded on the pretence to predicate something stably determinate about things (hence on definite mind/body or subject/object positions, as pertaining to conventional realist or constructionist outlooks); an assumption that emergent approaches to materiality prove increasingly questionable. Domination, rather, builds on the pretence to say what reality actually *is*, to know what is its actual constitution, even if such constitution consists in an aleatory conjunction, an indeterminate potency, an infinite variation, an indifferent alterity. The basis of Western hubris remains the analytics of truth, whatever its declension. The ambivalence of non-dualist accounts of matter and human agency testifies precisely to that.

The conclusion is that, if environmental sociology wishes to properly address materiality in the context of a politics of nature where human intermingling with the biophysical world is taking increasingly entangled and arguably threatening forms, it should try a different route. Different – but not opposed. There is no way, I believe, to get back to realist or constructionist accounts, after STS, new materialist and other scholarships' work in denouncing the inconsistencies of binary thinking. A strategy, then, can be to reconsider a perspective that belongs to environmental sociology's theoretical heritage: the 'philosophy of praxis' of Marx, Lukács, Adorno, Horkheimer and Marcuse. As Andrew Feenberg (2014) argues, these thinkers share a crucial non-dualist tenet: that major theoretical problems and antinomies (beginning with the subject/object

and reason/materiality binaries) are embedded in, and express, major social problems and antinomies; hence, it is impossible to tackle the ones without addressing the others. Flat ontologies have been accused to be politically 'quietist' (Söderberg and Netzén 2010). Certainly, their typical focus on locally emergent phenomena makes it difficult to tackle large-scale processes and power differences consistent over space and time, as praxis philosophers do. Even more importantly, the latter combine non-dualism with an acute sensitivity for the tensions ever present within and between the material world and human practices. This conflictual, or dialectical, aspect can hardly be expunged from reality as metaphysical thinking, as some new materialists contend (Cheah 2010).

I think it is especially Adorno that environmental sociology should consider for an updated theorization of matter. This not so much because *Dialectic of Enlightenment* has fundamentally contributed to establishing core themes and setting the discipline's critical attitude, but because, more clearly and decisively than other philosophers of praxis, Adorno seeks to overcome binary thinking while simultaneously steering clear from any short circuit between claims about reality and reality 'itself', any alleged merging of concept and matter, which for him corresponds to identity-thinking – and identity-thinking is the source of Western dominative and destructive hubris.

The intimate and ambivalent relationship of nature and history is at the centre of Adorno's intellectual enterprise. Intimate: for Adorno 'human history is always also natural history and non-human nature is entwined with history' (Cook 2011, 1). Ambivalent: the efforts to subjugate natural forces, which consigns humans to technologically-mediated ones that crush them ever so much strongly, stems from a natural instinct for self-preservation; yet nature contains and promises also freedom and peace. This double register brings Adorno close to present feelings and preoccupations – possibly more than any other scholar in the Marxist tradition.

There seems to be an obstacle to actualizing Adorno, however. His loyalty to the conceptual equipment of philosophical idealism (nature/society, subject/object etc.) seems to put him at odds with non-dualist cases for process and becoming. Yet, as Axel Honneth, among the others, has stressed, Adorno's conservatism is intentional. Since language's capacity of conceptual abstraction is for him a crucial driver of domination, changing language does not automatically solve the problem. He therefore prefers to use 'new configurations of formerly historically given linguistic material' (Honneth 1995, 108). So, for example, when Adorno talks of objects, he means matter, things, living bodies.

Aside from terminological differences, Adorno's closeness to the new materialist case is evident. For him subject and object, thought and matter, are enmeshed from the outset. The thing manifests itself always as an object of knowledge, yet this happens in an asymmetric way that gives primacy to the object. He notes: 'The subject is also an object, which means that the subject cannot be thought independently of the object, whereas the object can be thought independently of the subject' (1973, 183).[5] Primacy, however, does not mean a new hierarchy, since the object 'cannot be known except through consciousness, hence is also subject' (1998a, 249). On one side, therefore, the subject is also bodily, physical, like the object, and the concept has non-conceptual, sensuous, material constituents. Humans are mimetic beings, like all organisms,

and mimesis means 'a going over to the unfamiliar other' (Sherratt 1998, 60). On the other, the object shows itself only through conceptual mediations. For Adorno, in other words, 'all immediacies are mediated' (Bernstein 2001, 245). Moreover, conceptualization helps finding similarities and equivalences in things, which is an operation needed in order to act (Adorno 1973 11 ff.; 151 ff.; Bernstein 2001, 33 passim). Hence, the problem is not the conceptual apprehension of matter per se, but 'the identitarian and subsumptive form that mediation has historically taken' (Cook 2006, 726) in the relentless expansion of the desire for control and manipulation of the world. The problem is that an objectified reality reproduces mimesis in a repressed form (Horkheimer and Adorno 2002), whereby the subject's perceptions and representations are projected onto the object, obscuring the latter's alterity.

Jane Bennett, who is one of the few new materialists to engage directly with Adorno, acknowledges that her 'attempt to depict the nonhumanity that flows around but also through humans' (2004, 349) is at odds with Adorno's account of the friction between concept and thing – the non-identity between the two, the latter's refusal to be entirely captured by the former. Yet, she maintains, 'a moment of "naïve realism" […] is indispensable for any discernment of thing-power, if there is to be any chance of acknowledging the force of matter' (2004, 349, 357). This is precisely what Adorno contests. For him, to avoid identity-thinking one is to refrain from any naïve realism, any assumption of immediacy, any short circuit between matter and cognition (Adorno 1973, 184 ff.; Bernstein 2001, 245 passim).

The subtlety of his argument seems to elude Bennett and other readers. Bennett contends that 'Adorno's invocation of the object is not a claim about a thing-power distinguishable (even in principle) from human subjectivity' (2004, 363). Similarly, for Steven Vogel, even if one posits difference rather than identity as primary, 'it is always thought itself that thinks this difference' (1996, 82). To avoid the primacy of thought, therefore, Adorno has to appeal, aporetically, 'to an immediacy underlying the subject's acts of mediation'; an ability 'to make sense of an object independent of the conceptual, which in this sense means independent of the subject's activity' (1996, 79). Both Bennett and Vogel, in short, find disconcerting Adorno's idea of grasping matter in a mimetic way (especially through the somatic experience of suffering), while recognizing that matter is accessible only 'as it entwines with subjectivity' (Adorno 1973, 186). The mediation that Adorno has in mind, however, is the opposite of identity-thinking. The method he proposes, 'determinate negation', focuses on specific contradictions, the emerging incompleteness of individual concepts. The remainder in them offers the possibility to overcome their limits. 'The false, once determinately known and precisely expressed, is already an index of what is right and better' (1998b, 288). Yet one is to resist the temptation to translate this into new identifications: truth 'is a constantly evolving constellation' (1998c, 131),[6] the approximation of matter and concept, experience and thought, as an 'infinitely given task' (1998a, 253). Determinate negation, in other words, contests any affirmative pretence about matter, of which Adorno in fact never provides a full-blown account (Cook 2011).

In spite of affinities (the primacy of matter; the sensuous grounds of conceptualization; the dynamic and co-constituted character of object and subject), Adorno's divergences with new materialism are therefore crucial. The priority of non-identity does not correspond to the primacy of difference, or infinite variation. If

difference has ontological primacy, then matter has no ultimate consistency; hence, it can be whatever one wants it to be (as 'breakthrough' ecomodernists maintain). Non-identity, instead, depends on the friction between matter and concept, the latter being unable to grasp the former because of its ontological 'thickness' – rather than fluidity and insubstantality. For new materialism, moreover, what counts is the enactment of the world through contingent assemblages. For Adorno what counts is the remainder of this enactment; what remains unacknowledged and unaccounted for. New materialists stress that things *could* be otherwise, and are astounded by 'the vitality of immanent forces that flow through us as well as course over and under us' (Bennett 2004, 364). Adorno stresses that they *should* be otherwise, and searches for glimpses of a different world. And if new materialists seek 'to contest and re-form unjust and hegemonic forms of organization' (Bennett 2015, 83) through embodied practices, Adorno warns against the eschatological role of practices, stressing how thinking is already a doing, its relation with praxis being of discontinuity – they are 'neither immediately one nor absolutely different' (1998d, 276).

The negativity of Adorno exposes him to the critique of ultimate sterility and irrelevance (Vogel 1996; Feenberg 2014). However, as said, his account of negation is not totalizing and abstract but determinate and concrete. This suggests specific pathways for critique and opposition. For example, regarding biotech, an elective target becomes the assumption – the machinic, assembly-of-parts character of organisms – that allows to conceive of genetic functions or performances as isolable from the thick networks of relations, both intra- and extra-organic, in which they are expressed, and that underlies the simultaneous diversity and equivalence established between 'natural' and genetically modified organisms (the trick that justifies at once the presence of property rights and the absence of specific regulations). Similarly, ongoing tensions and contradictions can be detected in the measurement and commodification of ecosystem services (Dempsey and Robertson 2012), which offer points of attack on their integration in corporate policies as 'regenerative' assets against growing economic and environmental turbulence. A major task becomes also to disembroil, in new materialist practices, the local from the localist, the politically innovative from the lifestyle, according to how sensitive these are to the human-nonhuman entanglements and constellations that cross individual, group and conceptual confines.

Conclusion

Environmental sociology was born to address the relation of social affairs with the biophysical world. In this endeavour the concept of matter has hardly played a relevant role. This is possibly a reason why environmental sociology has been only relatively invested by the 'material turn' in social theory. The latter is of primary importance to the discipline, to the extent that it accounts for and elaborates on major changes in how biophysical materiality is understood and dealt with. However, I have highlighted problems that seem to undermine the possibility of effectively addressing the new politics of nature within this framework. Failing to recognize that non-dualist approaches may underpin more restrained and respectful encounters with materiality but also intensified dominative thrusts seems no negligible shortcoming. In this sense,

environmental sociology's relative marginality to the material turn may result advantageous, as long as it allows a considered assessment of the latter's strengths and weaknesses, and as long as it promotes a reconsideration of its own theoretical heritage.

Adorno's theory is the object of endless discussions and interpretations. Yet, one does not need to become a specialist to draw important insights, such as those outlined in the preceding section. Compared with Adorno's time, identity-thinking has changed, or intensified, in a peculiar way. It is no longer a question of obscuring how subject and object, or human cognition and materiality, contribute to each other, but of the removal of any distinction between knowing and making, being and becoming, which opens the way to unprecedented hubristic thrusts. I believe, however, that Adorno's basic argument stands, as does his methodological suggestion.

Adorno maintains that the only hope for a more harmonious relationship with nature, a glimpse of which is offered by the experience of beauty in nature and artwork, is to acknowledge and build on the imperfect matching of matter and cognition, thing and concept – not as with conventional understandings of the revisable status of scientific claims, where the disclosure of truth acts as an ever-postponed future that allows for dominative orientations and 'organized irresponsibility' (Beck) in the present[7], but as an ontological gap inbuilt in the human condition.

Using its own theoretical heritage to work on and with the material turn for a thorough elaboration of materiality and human agency, environmental sociology has an opportunity to get at the forefront of social theory and to considerably strengthen its critical capacity vis-à-vis the challenges of the new politics of nature.

Notes

[1] Also, while new materialism shares with critical realism the idea of an empirical world co-produced in the encounter of human agency with matter, it rejects the latter's multilayered account of reality, where materiality and causal mechanisms underlie sensible phenomena.

[2] The novelty of mobilizations based on 'direct social action' (that is on directly transforming specific aspects of reality, rather than claiming something from the state or other power holders) should not be overstated. They were observable already in the 1970s. Then and now, moreover, coping strategies in the context of the crisis mix up with political or ethical motivations. Yet, their growing

saliency in the profoundly different context of globalized capitalism cannot be dismissed. As it cannot go unnoticed that direct social action is today less confrontational than it was in the 1970s (Bosi and Zamponi 2015).

[3] This is in the sense that it expands on a classic neoliberal claim: namely, the unpredictable and ungovernable character of socio-material reality, the market being for this reason the only effective institution for handling resources and allocating values (Dardot and Laval 2014).

[4] Describing the Breakthrough Institute as neoliberal seems accurate, given its argument about the 'planning fallacy' of embedded liberalism and its case for market-driven innovation within a regulatory framework ensured by institutions like the WTO, the World Bank and the International Monetary Fund (Nordhaus and Shellenberger 2007; Asafu-Adjaye et al. 2015).

[5] This is different from Lukács's theory of reification, which in criticizing objectivity gives primacy to the world-making capacity of the human agent (something to which 'breakthrough' ecomodernists would most likely subscribe), or from Habermas's theory of communicative rationality, which traces a divide between the social and the natural. As for Marcuse, his affinities with Adorno are conspicuous, yet relevant differences include the latter's more sceptical consideration of social movements as triggers of new socio-material relations. Considering how the 'New Left' and environmentalism have embroiled with post-Fordist capitalism, Adorno's caution testifies to the far-sightedness of his outlook, which no doubt would regard unsympathetically also the current celebrations of the emancipatory, vital powers of new subjectivities (the multitude, the impersonal, the common, the assemblage, the creative class etc.).

[6] Constellation is an important notion in Adorno. Constellations emerge because 'the determinable flaw in every concept makes it necessary to cite others' (Adorno 1973, 53). Constellations do not withdraw from conceptualization but through concepts shed light on the history of objects, suggesting also some of their potentialities. They use concepts 'to assemble narratives about aspects of these histories' (Stone 2008, 59), without exhausting them and predetermining their destiny, as happens when matter is assimilated entirely to difference, variation or becoming.

[7] The well-known trick is to legitimate technologies on the grounds of knowledge deemed reliable and to reject liabilities for accidents and 'side effects' on the grounds that scientific knowledge is always limited and perfectible.

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