



# Alienating assemblages: Working the carbonscape in times of transformation

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## Abstract

Energy geographers seem to agree that the carbon economy represents a symbiotic relationship between social and material components. There is less consensus, however, on how this symbiosis is best conceptualized. We critique the portrayal of carbonscapes as loosely associated, flexibly (re)arranged and easily enacted upon through small-scale radical innovation. Instead, we advocate for a historical materialist approach foregrounding people's relationship to nature and to each other through the wage relation and systems of social reproduction. By assuming the vantage point of petroleum workers, we show how geographies of (de)alienation can inform a politics of reconnection in the carbon economy.

## Keywords

alienation, assemblages, energy geography, labour, petroleum industry

## 1 Introduction

Human geographers have long been debating the nature of our oil-dependent societies. The degree to which energy systems are locked into carbon economies, the cultural embeddedness of petroleum products and the potential for democratic politics to permit decarbonization policies has been among the questions discussed. In a recent article, Haarstad and Wanvik (2017: 433) argue that the dominant discourse within this literature, epitomized by the influential works of Mitchell (2011) and Huber (2013), depicts a totalizing image of 'society's relationship with carbon. The

authors use this observation to criticize what they label a 'political economy tradition' within energy geography, as it unduly emphasizes 'the conserving and permanence-creating forces of capital and energy materialities' (Haarstad and Wanvik, 2017: 437). Haarstad and Wanvik (2017: 437) embrace assemblage theory and find

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it better suited to explain carbonscapes by reconceptualizing oil-dependent societies as loosely assembled systems of consumption, distribution and production, where ‘pockets of radical transformation’ can take place. The authors use examples along the petroleum value chain – oil price fluctuations and their effect on sites of bitumen extraction, protests against pipelines, and the emergence of sustainable urban consumption patterns – to show how carbonscapes are deterritorialized and converted.

This intervention can be seen as a recent addition to a wider debate within geography on the applicability of Marxist and poststructuralist perspectives in conceptualizing nature–society relations (Bakker and Bridge, 2006; Castree, 2002; Kirsch and Mitchell, 2004). It is not our purpose in this article to argue for or against Deleuzian geographies as such. Rather, we want to problematize the assumption that fossil energy systems are best understood as loosely associated and readily open for change. Although our main opposition to this assumption is of a conceptual nature, a criticism which will be elaborated below, there have also been political developments in the time following Haarstad and Wanvik’s (2017) intervention that arguably highlight some of the problems with thinking of carbon systems as loose assemblages. Among them are the 2018 *gilets jaunes* movement in France (Galí et al., 2020), and the bread and fuel subsidy protests leading to a revolution in Sudan in the same year, both catching the world’s attention. A lesser-known example is the political mobilization against toll roads in Norwegian cities in the run-up to the 2019 municipal elections (Wanvik and Haarstad, 2021). That election campaign also saw a strong backlash from petroleum workers against what they perceived to be stigmatization from climate activists and green politicians, colloquially known as the ‘oil shame’ debate (Jordhus-Lier and Houeland, 2021).

Each of these examples arguably illustrates how attempts by policymakers to treat parts of

the carbon system in relative isolation trigger deep resentment from people whose lives are bound up in the value flows of the petroleum industry. These attempts might not only be counterproductive to a particular policy agenda but also erode established forms of solidarity that can prove even more detrimental. As Szolucha (2019: n.p., our emphasis) argues, ‘[a]ttempts to disentangle resource developments from [their] social context and relationships can produce *alienating effects*’. Szolucha’s (2019: 6) usage of the term ‘alienation’ in this context seems to correspond to a community’s ‘sense of injustice’ or ‘loss of control’ but lacks further conceptual clarification. In what follows, we attempt to refine this idea by showing how a Marxist theory of alienation can offer a lens with which to understand the carbon economy.

Our intervention contends that a risk of intensified alienation is precisely why academic portrayals of loosely associated carbonscapes, and the political agendas they might invite, warrant critical reflection. This article begins with a consideration of the ontological implications of assemblage thinking in geography. We argue that by appropriating and adapting the concept of alienation (Dahms, 2012; Harvey, 2018; Jaeggi, 2014; Ollman, 1976), we can better understand how capitalist carbonscapes are ‘peopled and active’, to borrow Katz’s (2013: 31) description of societal structures. Using the petroleum industry as our backdrop, we then outline how alienation implicates different groups of people in each other’s working lives, consumption patterns and practices of social reproduction in ways that simultaneously mask and highlight interdependencies. These attachments are contested due to the ecological consequences of petroleum extraction and consumption, and because of demands placed upon petroleum extraction by current and proposed climate policies. In our empirical section, we investigate these contestations through a qualitative study of workers and union representatives from the Nigerian and Norwegian oil industries. In the conclusion, we reassess the

sociopolitical constitution of carbonscapes by suggesting that a geography of de-alienation, and a politics of reconnection, might represent a more progressive standpoint from which to advance a just transition than what the metaphor of the assemblage offers.

## II Alienated relations

Human geographers' critique of assemblage theory have often centred on its perceived tendency to 'obscure the relational production of difference and inequality' (Kinkaid, 2020: 465). Brenner et al. (2011: 235) have also warned that treating possibility and change as 'ontologically presupposed' limits the concept's explanatory capabilities. The same authors have criticized a tendency in assemblage geographies to abandon key concepts in the critical geography tradition – among those mentioned are exploitation and spatial divisions of labour (Brenner et al., 2011). By explicitly positioning their use of de-/territorialization and assemblage converters as a conceptual counterpoint to what they label 'political economy frameworks', Haarstad and Wanvik (2017: 445) could be said to represent this position in the context of energy geography. In contrast, other scholars have used the notion of the assemblage to conceptualize carbonscapes from a political economy tradition, foregrounding its qualities as 'a regime of accumulation and a mode of regulation' (Watts, 2012: 441). Watts's rendering is not blind to instability and change, however, when he describes what he labels 'the oil assemblage' as a 'vast governable, and occasionally very ungovernable, space' (Watts, 2012: 441, 443). Rather than reconciling these positions, we wish to introduce the notion of alienation as an alternative, and we argue more productive, lens with which to study society–nature relations in the carbon economy.

After having gone from being 'the central concept of the left' in the 1970s to finding itself 'outmoded in the age of postmodernity' (Jaeggi, 2014: xix), alienation theory has experienced a

minor revival in recent years. Across disciplines as diverse as international relations (Lu, 2020), environmental sociology (Dickens, 2002b) and social philosophy (Jaeggi, 2014) (albeit conspicuously absent from geographical theorizing), scholars have used the concept to understand reconciliation processes, fragmented and specialized divisions of labour, and the monetization of human relations. In her seminal work on the subject, Jaeggi (2014) defines alienation as a 'relation of relationlessness' between the self, social roles and the natural world. While philosophers like Jaeggi investigate the phenomenon from the vantage point of the individual, social theorists like Marx (1844) and Ollman (1976) have explored alienation as a systemic feature under capitalism. More recently, activists and scholars have used this theory to develop the notion of de-alienation as a political strategy (Barca, 2019a; Brownhill et al., 2012).

As a social ontology, the Marxist approach to alienation represents a counterpoint to assemblage theory. Scholars championing the latter tradition have found its 'relations of exteriority' particularly appealing (DeLanda, 2019: 11) by 'insisting on the autonomy of component parts' in social systems (Anderson et al., 2012: 177). This position contrasts with the historical materialist basis of alienation theory, at least in Bertell Ollman's influential rendering, whose book *Alienation* (1976: 26) devoted a full chapter to 'the philosophy of internal relations'. Here, the interdependence of parts within a social whole is interiorized in actors, sites and things. In the words of Cox (2013: 9, emphasis in original), '[w]hat is internal only comes to *appear* as external' under capitalism, and this interiorization occurs precisely through the process of alienation. The appearance of detachment is precisely what alienation critique decries. As an analytical agenda, it seeks to 'make visible connections among phenomena that would otherwise remain hidden' (Jaeggi, 2014: 22).

We have no desire to conclude this debate here but would encourage proponents of

relational exteriority to engage with our argument despite this ontological divergence. Assemblage theorists stress the ‘processes of composition’ required to hold assemblages together (Anderson et al., 2012: 172) and list ‘intensity of connectivity’ and ‘degree of solidarity’ among the emergent properties of social networks (DeLanda, 2019: 56, 57). Put differently, our critique of loose assemblages in the carbon economy could be read either as a difference in degree, from a position of external relations, or as a difference in kind, by appealing to interior relationality.

### III Four dimensions of labour alienation

Thus far, few geographers have engaged actively with alienation theory (among the recent exceptions are Chatterton and Pusey, 2020 and Harvey, 2018). In developing his concept of universal alienation, Harvey (2018: 140) scrutinizes Marx’s later works and discovers in them a form of alienation (albeit under different terms) that transcends the labour process and which ‘exists almost everywhere’, from debt traps and financialized selves to ‘outbreaks of popular discontent’ across the world. While this extended analysis is instructive in demonstrating the reach of alienated relations into capitalist consumption, we will in this article rather draw on Marx’s earlier work, where the alienation of labour takes centre stage. In *Economic and Philosophic Manuscripts of 1844*, Marx contemplates the emergence of private property, waged labour and the money system. The commodification of labour-power (and land) signals a ‘qualitative transformation’ (Dahms, 2012) of the relations between workers, their work, the product of their labour, and their relations to other workers. This transformation, we argue, offers a sophisticated framework for an analysis that speaks directly to the experiences we study and allows for an examination of the carbon economy from the vantage point of

workers, in a literature where firms, states and consumers attract much of the focus.

In abstract terms, Marx describes four discrete processes of labour alienation undergirding the capitalist wage relation, leading to ‘self-estrangement of man, from himself and from nature’ (Marx, 1844: n.p.). Let us consider each in turn. The estrangement of workers from the products of their labour (hereafter referred to as *product alienation*) means that workers stop relating to the use-value qualities of what they produce. Rather, these products become commodities for exchange in the market, lose their true meaning and escape the control of the people making them. Workers’ job security now relies on the market value of the product, which ‘is now in a position to control [them]’ (Ollman, 1976: 145). Alienation from the product occurs because ‘the activity which produced it was alienated’ (Ollman, 1976: 141). *Labour process alienation* thwarts workers’ ability to appropriate nature through the process of work, as it now happens under the control of a capitalist for the sake of producing exchange value.

From these two basic tenets, Marx deduces how waged work alienates humans from their life purpose (*human alienation*), both as individuals and as members of communities. Capitalism turns human societies into waged labour markets and establishes income generation as the constitutive principle of social reproduction. This process of instrumentalization conditions the development of the self and produces a ‘fetishized version of nature’ (Dickens, 2002b: 153), because ‘the natural objects to which [we are] related become the property of other men’ (Ollman, 1976: 151).

This brings us to the fourth process, *social alienation*, or in Marx’s words, the ‘estrangement of man from man’. Social alienation emanates from the competitive social relations of capitalist production and gives the theory of alienation an explicitly geographical frame. Since Marx’s time, an increasingly integrated world economy places workers in competitive

and collaborative relations to various globalized others – be they consumers, suppliers, competitors or investors – tying them into an ever-increasing complexity. The intensified alienation resulting from globalization has been elaborated in the work of Dickens (1997, 2002b), who in turn was inspired by the anarchist geographer Pyotr Kropotkin and his writings on regional specialization. According to Dickens, the increasingly complex mental division of labour and its resultant compartmentalization of knowledge produce alienation between different workers in different sites of production, distribution and consumption. These divisions are further deepened by ‘processes of individualization and categorization, whereby social categories, identities and classes are used to separate, control and exploit populations’ (Chatterton and Pusey, 2020: 32).

#### IV Globalized (dis)connections

Much work on alienation has been concerned with our estrangement from social processes and roles. In this context, however, we take a specific interest in Marx’s (1844: n.p.) other concern, the estrangement of workers from ‘the sensuous external world’, particularly in the form of hydrocarbon extraction and climate change. In fact, each of the four dimensions redraws nature–society relationships, because workers relate to natural products according to their exchange value qualities, rather than for their organic materiality and their use values. Our relationship with non-human nature is also *extended through* globalized relations of production and consumption as ‘the resources we need now come from an environment in which the user does not have to live and on which she or he is not directly dependent’ (Dickens, 1997: 84). To appropriate Marx’s original formulation to this contemporary context, however, some qualifications are required.

For instance, non-human nature in Marx’s early work is mainly described as a positive

resource, ‘the means of life’, which enables workers to be productive and to socially reproduce. Little is said about how the nature–work nexus since pre-capitalist times have also been a source of ‘negative externalities’, to use the language of economists, or what biologists would call ‘negative feedback loops’. When human labour leads to environmental degradation, workers and their communities are threatened. All appropriation of non-human nature carries this risk, but it has become a hallmark of capitalist labour relations: ‘by producing slums, wastelands, dirty factories, and so on, such labour does as much or more to decrease the possibilities in nature for the fulfilment of man’s powers than it does to increase them’ (Ollman, 1976: 137). Workers are alienated not only from the positive use-value qualities of their work but also from the ecological impacts of their own labour (Räthzel and Uzzell, 2012). While urbanization and globalization have created metabolic rifts between consumption and waste (Wachsmuth, 2012), the effects of greenhouse gas emissions from workplaces, via atmospheric changes, on human and non-human life-worlds represent a truly global chain of events. This dispersed causality is likely to exacerbate the alienation of the workers involved.

Conversely, we should be wary of the tendency to describe alienation as universal and linear. The early industrial societies providing context for Marx’s theories were based on a naked exploitation that Burawoy (1985) later would label ‘market despotism’. In most of today’s industries, despite labour market deregulation and the proliferation of sweatshops, we cannot assume a linear relationship between an emerging commodification of labour and the increasing alienation of workers. Even Harvey and Ollman, who view alienation as premised on ‘an objective historical materialist basis’ (Harvey, 2018: 137), stop short of claiming that it is omnipresent: ‘Alienation exists *almost* everywhere’ (Harvey, 2018: 140, our emphasis) and ‘exhibit[s] differences of degree and form’

(Ollman, 1976: 265). Commodification and monetization of social relations often face specific struggles for de-commodification – the emergence of welfare states comes to mind – which allow many workers relative independence from exploitation in the workplace. Employment stability and social security offer workers the opportunity to develop their relation to, and to deepen their knowledge of, the non-human natures appropriated through work.

Now a final point of qualification. Contemporary knowledge societies carry a potential for connection and disconnection that Marx hardly could have foreseen. According to Dickens (2002b), knowledge represents both the cause of and the cure for the problem. While the modern division of labour fragments knowledge into highly specialized compartments of expertise, political efforts to link expert knowledge to ‘subordinated concrete, tacit, local and lay understandings’ represent an antidote to alienation (Dickens, 2002b: 205). The emergence of internet and social media represents both possibilities and obstacles in this regard. Online technology has the undeniable gift of fragmentation through ‘cyber echo chambers’ (Zebracki and Luger, 2019: 902). At the same time, the Internet’s unfathomable complexity enables connections between human and non-human processes far beyond the workplace. Labour activists’ use of wiki networks to ensure transparency in global value chains exemplifies this potential and permits us to be cautiously optimistic (Graham et al., 2017), even though this connectedness is deeply uneven. On the other hand, Huber (2018: 150) warns us that ‘no amount of labels or certification can overcome the alienation from production integral to the commodity form’. The fluidity of oil and gas products also complicates accountability (Mitchell, 2011), as manifested in campaigns against ‘blood oil’ (Watts, 2013).

The contemporary nature–work nexus calls for an updated notion of alienation where we recognize the social relations of work as simultaneously globalized, dispersed and fragmented,

affecting how working people and their communities relate to their resource base as well as to the socioenvironmental effects of their labour. Finally, we should not understand alienation as complete in its universality. It appears alongside its own counterpoint, the potential de-alienation or reintegration of workers into the environments in which they work and live (Brownhill et al., 2012; Macnaghten and Urry, 1995), enabled by partial de-commodification, enhanced knowledge flows and political mobilization. In short, alienation can be resisted.

## V Hydrocarbons and their peopled systems

From our departure in the competing visions of carbonscapes, we have introduced the concept of alienation as an ontological position and as a historical materialist theory of labour. We propose alienation as an alternative to the conceptualization of ‘sociomaterial entities as lacking a coherent core or strong internal relations holding them together’ (Haarstad and Wanvik, 2017: 446). By doing so, we are not insisting on the permanence of infrastructures and other use values, nor on the stability of this demonstrably volatile economic system.

Alienation rather mandates us to acknowledge the strength of the social relations of fossil capital. Hydrocarbons are embedded in peopled systems, where working people’s relationship to nature is instrumentalized through the wage relation, and where communities are interconnected through flows of value, and made dependent on a social wage based on the exchange value of petroleum products. Such a framework is arguably better equipped to explain the stark political resistance emanating from ‘ongoing processes of disassembly’ taking place around the world (Bridge, 2018: 18). It also provides nuance to this resistance and allows us to distinguish working people from firm-centric and often-used categorizations like ‘the interests of incumbents’ (Bridge, 2018: 18), ‘the car and oil lobby’ (Urry,

2013: 79) or, simply, ‘the fossil fuel industry’ (Haarstad and Wanvik, 2017: 446).

Importantly, we do not suggest that workers’ estrangement from their work or from nature is stronger in carbon extraction than elsewhere. Paraphrasing David Graeber’s famous notion of *bullshit jobs*, Harvey (2018: 141) laments ‘the rise of jobs that are exploitative and meaningless’ across the global economy. Moreover, oil workers’ knowledge of the socionatural systems in which they work is likely higher than among most workers in the service industry. Our point is rather that the alienation of labour in fossil-based industries takes on a particular sociopolitical expression at a point in time when emissions from hydrocarbons represent a global and existential threat. Before we provide examples of how labour alienation is expressed in specific carbonscapes, we will dwell on the possibility of examining alienation empirically.

## VI Researching alienation as lived reality

Is it possible, then, for social scientists to transition from a theoretical alienation critique to an investigation of how alienation is expressed in the working lives of people in the industry? The potential for *documenting* alienation through empirical research has been subject to a long-standing debate in Marxist theory. While some argue that human nature ‘exists only as an abstract potential’, and would not be accessible to empirical investigation, others claim that alienation is in fact experienced and therefore open to research (Archibald, 2009: 158). Within the latter camp, scholars differ on whether they treat alienation as an objective attribute of structural classes in society or whether they study it as detectable in the individual psyche or whether they employ behavioural or attitudinal measures of alienation or whether they detect alienation in qualitative or quantitative data (Archibald, 1978; Dickens, 2002b). Dickens (2002b) identifies a further methodological problem when asserting

that our estrangement from nature is a question not merely of how we relate to ‘the sensuous external world’ (Marx, 1844: n.p.) but of how we make sense of a messy and fragmented *social construction* of nature (including climate science and its popularizations). He identifies this problem as the source of many popular misperceptions, often involving ‘a projection of the relatively familiar, and indeed messy, social world onto the world of nature’ (Dickens, 2002b: 101). Nature is therefore not simply sensed but mediated via science and appropriated into people’s interpretative communities through the juxtaposition of expert knowledge and local knowledge (Fischer, 2000).

In the remainder of this article, we will investigate alienation as a lived reality in two petroleum economies. While we are committed to let the voices of workers and their representatives speak, we will be careful not to reduce alienation to workers’ self-designated role in fossil extraction or to whether they take responsibility for the emitting practices in which they take part. We will therefore combine first-hand accounts from oil workers in both countries with policy documents establishing the formal jurisdiction of the labour process. From November 2018 until January 2020, the authors have engaged in focus group conversations with representatives from five Norwegian and two Nigerian trade unions based in the oil industry as well as with a group of community-based contract workers and a group of (illegal) artisanal refiners in Nigeria. The conversations focused on environmental and climate issues and the need for industry transformation, on the workers’ sense of their role and responsibility in a transition process, and on their relations to other groups in society. We have transcribed and analyzed these conversations through successive stages of open, thematic and theoretical coding, where the codes developed in the last stage corresponded with the categories of labour alienation presented above. After providing some necessary context for these two distinct regions of the global carbonscape, we will

exhibit segments from these conversations that we believe speak directly to each of the four dimensions of alienation as expressed in the petroleum industry.

## **VII Social contracts and negative externalities**

The Nigerian and Norwegian oil economies began with the discoveries in the onshore Oloibiri oilfield in the Niger Delta in 1956 and the offshore Ekofisk oilfield in the North Sea in 1969, respectively. In the following decades, both countries have seen the petroleum industry evolve in ways that share some important commonalities. Both countries are significant exporters of oil and natural gas on the world market, with such exports constituting an important share of their respective gross domestic products and national export earnings. Early on, both countries established government-owned petroleum companies in the hope of securing a degree of national control and ownership over their respective natural resource bases. Consequently, state actors have instrumentalized the exchange value of oil and gas to establish social contracts with their citizenry. These arrangements have led Nigeria and Norway onto different development paths positioning the petroleum workforce in distinct ways within their own societies, with implications for how workers and their communities view the social contract in which they are part, and how they view the ecological implications of their labour.

In Nigeria, petroleum profits have generally been captured by the 'oil complex', consisting of state elites, oil companies, and local chieftainships (Watts, 2004: 54). An emerging welfare state based on petroleum wealth collapsed with the oil crisis and the following liberalization from the 1980s, thus undermining a nascent social contract (Seddon and Zeilig, 2005). While oil provides the state with nearly 80 per cent of its revenues, a majority of the population live in poverty. A fuel subsidy guaranteed cheap

fuel for Nigerians and contributed to a degree of legitimacy between citizens and the Nigerian petrostate. Labour-led popular mobilizations have succeeded in avoiding government attempts at subsidy removal and hence protect a limited and fragile social contract (Houeland 2020). In addition to the tens of thousands formally employed in the oil industry, many more rely on the petroleum industry for informal income or indirect jobs. However, the supply industry is small, and the Nigerian refineries have since the 1980s been neglected, making the country a net importer of refined products. Although oil workers are relatively privileged, their conditions are difficult and undermined by casualization and local conflicts (Houeland 2015). In the Niger Delta, environmental and social deprivation have led to violent and non-violent conflicts for resource control. In short, the Nigerian political economy is deeply oil-dependent, while the vast majority of people get little in return.

The Norwegian experience represents a stark contrast. On the one hand, petroleum profit has been instrumental in financing a well-resourced national welfare state through taxation and public ownership. We can characterize this dynamic as a strong social contract wherein petroleum as an exchange value remains a key tenet. On the other hand, the hydrocarbon value chain directly or indirectly provides decent work for up to 10 per cent of the Norwegian workforce. This relatively highly waged population is concentrated in, but not limited to, the west coast, and find their employment in operator companies offshore and on land-based installations, as well as in the petroleum supply industry and in local and regional economies reliant on this sector (Thune et al., 2019). Norway's modest yet well-functioning refining capacity makes it nearly self-sufficient in gasoline, but an abundant hydropower capacity means that its vast natural gas resources under the North Sea exported to European energy markets. Consequently, the Norwegian national



economy can be aptly labelled ‘petroleum-dependent’, a dependence that has increased since the 1990s (Thune et al., 2019: 5), epitomized by the colloquial question, ‘What will we live off after oil?’

The other aspect that sets these historical experiences apart is the way the negative externalities of petroleum are framed politically. This political framing should not come as a surprise, given the nationally specific socio-materialities of these industries. While offshore extraction is gradually supplanting onshore activities in Niger Delta, the ecologically sensitive river delta remains a tainted landscape of dilapidated infrastructure, polluted waters and soil contamination. The combination of social and environmental injustices has fuelled non-violent (and later violent) resistance, targeting multinational oil companies in particular. Protesters have demanded commitment to a large-scale clean-up and increased control over jobs and resources (Obi and Oriola, 2018). Some environmentalists have called for ‘keep[ing] the oil in the ground’ (Turner and Brownhill, 2009: 121). As local communities continue to experience the oil industry’s ecological footprint in their daily lives, Nigerians mainly understand petroleum as a local environmental problem.

Workers in the Norwegian petroleum sector face the environmental threat of oil in a very different guise. An emerging climate discourse spearheaded by environmental groups, urban electorates and organized youth has effectively challenged the legitimacy enjoyed by the petroleum-based growth paradigm. Attempts by state and industry actors to promote natural gas as ‘climate-friendly’ (Lindseth, 2006) and to establish technological fixes like carbon capture and storage (Haarstad and Rusten, 2016) have failed to resolve the ‘persistently strong conflict between climate and energy policy goals’ (Tjernshaugen, 2011: 242). Reducing its domestic emissions became a more pronounced national political priority when Norway was among the first states to ratify the Paris

Agreement, and green- and youth-party organizations passed resolutions calling for an end date to Norwegian petroleum extraction as the 2010s drew to a close. Plans for offshore oil exploration outside the Lofoten and Vesterålen archipelagos ushered this conflict into the ranks of the trade unions, with the 2017 congress of the Norwegian Confederation of Trade Unions becoming the site of a stand-off between industrial unions and delegates supporting progressive conservation and climate policies (Houeland et al., 2020). Aside from the early political conflicts between fishing and oil interests (Ryggvik et al., 1997), offshore extractive activities have posed limited environmental threats to the mainland economy. Thus, hydrocarbons are primarily framed as a global source of climate change.

## **VIII From the vantage point of workers**

Against this backdrop, we can now start to explore how workers experience their roles and responsibilities in these carbon systems. From more than 20 h of focus group conversations with approximately 60 workers, we have chosen four quotes to guide us in this task.

### *I ‘As long as hydrocarbons come out at the other end’*

Oil workers take part in generating a product that, prior to refining and processing, contains no use value for themselves or for the societies they live in. The profitability of selling refined petroleum products on the world markets, on the other hand, exceeds that of most other industries (Appel et al., 2015). Refined products like gasoline represent a unique use value through ‘literally providing energetic force’ to societies of mass consumption (Huber, 2009: 476) and by allowing the ‘cheapening of all [other] use-values composing the value of labour power’ (Huber, 2009: 476). Product alienation occurs

because those who work to enable these use values in society themselves are subjugated to the laws of unstable oil and gas markets. Rather than viewing the product of their labour as a source of emissions, the starting point of oil and gas workers is its exchange value. This view in turn shapes their views on global warming, as research suggests a more widespread climate scepticism among oil workers than among other constituencies (Skarstein, 2020; Tvinnereim and Austgulen, 2014).

When workers in the Norwegian oil industry speak of their socioecological role, this conversation unavoidably starts with the product itself. In fact, they have no choice in the matter, as the social discourse on climate change is fixated on the materiality of oil. Workers describe the popular depiction of oil as a caricature: ‘as something black, God forbid, that people spill’ into local environments and, through human consumption of its refined versions, into the global atmosphere. It is primarily through product representations that workers in the Norwegian oil industry relate to various actors in the climate change debate. ‘Norwegian oil boils the Earth’, a recent campaign slogan by a leading environmental youth organization, demonstrates how responsibility is attached to the product qua national resource. Environmental organizations are eager to extend Norway’s responsibility from the extractive activity, which takes place domestically, to the bulk of emissions from end consumption in the world market.

For many working in the industry, this way of locating responsibility has become personal, triggering a series of opinion pieces and social media campaigns in 2019 known as the ‘oil shame debate’. In our conversations with Norwegian oil workers at the same time, they elaborate on many of the arguments from the public debate. They wish to place responsibility for end-use emissions with the consumer and insist that the high environmental standards in the Norwegian petroleum industry make Norwegian oil the best option for meeting the

world’s rising energy demands. They are also frustrated by an increasingly polarized political debate, where environmental activists whose lives are detached from offshore extraction wish to abolish their workplaces, and the perceived hypocrisy of environmentally conscious urban dwellers who continue to rely on non-combustion petroleum products.

Media interventions in the ‘oil shame debate’ started out as spontaneous initiatives by workers, but the underlying message (and some of its messengers) soon resonated with the media strategies of oil companies and business associations. Consequently, it is tempting to collapse all these voices into a coherent whole as ‘the oil industry’s carefully scripted narrative of its own inevitability’ (Haarstad and Wanvik, 2017: 446). As told from the vantage point of the workers, however, this was also a quest to make sense of their own job, its purpose, and by extension, of their role in a socioecological context:

I feel like you can be as good as anyone in driving the toughest and best environmental restrictions in the business. But it doesn’t really matter as long as hydrocarbons come out at the other end. (shop steward of the supply industry union Fellesforbundet)

Expressions of product alienation thus acted in tandem with expressions of social alienation (from other groups in society), and it was the climate change debate that brought them together. An oft-expressed lament among the workers was the geographical and emotional distance between industrial workers and other parts of civil society. Not only were they facing a highly mobilized environmental movement, they even met this opposition within the trade union movement (Jordhus-Lier and Houeland, 2021). Their rhetorical response was, on the one hand, to implicate these ‘others’ in a shared responsibility through pointing out how public sector wages and welfare services relied on the exchange value of petroleum. On the other hand, they drew a line between end-consumption

emissions (which they actively refrained from taking responsibility for *as* workers) and emissions taking place at their own workplace (which many accepted as their moral responsibility). But how do workers relate to the ecological ramifications of the labour process?

## 2 'But not the perspective of the outer environment'

Alienation from the sociomaterial product is related to, but analytically distinct from, alienation in the process of extracting, refining and distributing it. While Marx (1844: n.p.) read into labour process alienation a formal ceding of control over the 'very act of production', this alienation has since then taken myriad technological and juridical forms. A highly technological and capital-intensive oil and gas industry represents a prime example in this regard, with ongoing processes of digitalization substituting crafts with codified scientific knowledge (Dickens, 2002a).

If technology mediates workers' relationship with nature, law further institutionalizes their socioecological responsibility. Zbyszewska (2018b: 3) has argued that 'labour law's domain and jurisdictional boundaries have been fairly narrowly constructed' in ways resembling how the socially reproductive work by women has been excluded from the institutions of formal labour. This 'modern separation of social (including labour) and ecological concerns into distinct legal fields' (Zbyszewska, 2018a: 3) has proved persistent, with the limited exception of 'regulations pertaining to health and safety at work or rules prohibiting work under certain dangerous conditions' (Zbyszewska, 2018b: 20).

The notion of labour process alienation encourages us to consider the formalization of worker accountability in legal frameworks. Again, Norway represents an illustrative case. Through a strong social contract, organized labour has traditionally assumed social responsibilities within and beyond the workplace. The work done offshore on the continental shelf,

however, has often proved anomalous, representing a test case for 'labour law's exclusion of nature' (Zbyszewska, 2018b: 11). Since the industry's inception, offshore workplaces have been subject to partial and contested inclusion in existing labour regulation (Ryggvik et al., 1997) through the establishment of a separate inspection authority responsible for occupational health, safety and environment (OHSE) issues.

Policy documents reveal how a series of limitations and omissions have defined the environmental dimension of OHSE in particular ways: distinguishing between inner (workplace) and outer (non-workplace) environments; between accidental and intended emissions; and between marine and atmospheric eco systems. This last distinction caused the Petroleum Inspection Authority, rather interestingly, to describe a serious gas leak on the Goliat field in 2016 as having 'no emissions to the outer environment' (OAG, 2018: 100).

These OHSE limitations have excluded workers' representatives from decision-making and formal responsibilities regarding the environmental impact of their work. As an indication, in 2004 and 2010, official committee reports exempted shop stewards and OHSE officers from their review of rights and responsibilities relating to the outer environment. This exemption was despite dissent from the committee's trade union representatives (Ellingvåg, 2021). In focus group conversations a decade later, shop stewards in the industry reflected the same role perception:

My experience is that neither the OHSE officer nor the shop steward champions the environment as their issue. Occupational health and safety issues we do discuss, but not the perspective of the outer environment. (member of the electricians' union El og IT)

While this position has long been tolerated, it is proving increasingly problematic as both sides of the Norwegian industrial relations system face calls within their own ranks to engage more fully

with the climate change discourse, for instance, through green collective bargaining and the development of a green industrial development plan (Bjergene and Hagen, 2020).

### 3 'The land no longer yields'

Earlier, we defined human alienation as the process where workers' productive relationship with nature no longer constitutes a creative activity but is instrumentalized and reduced to income generation. We also argued that this process occurred not only at an individual level but also across communities and national societies. As Dahms (2012: n.p.) points out, 'each generation internalizes the level of alienation reached by the previous generation'. When the production, distribution and consumption of petroleum are socialized over time in a society's structure of social reproduction, the instrumentalization of petroleum as income is no longer simply a matter for workers and their families. National oil addiction ensues when 'the improvement of modern society depends on the ground rent captured from the state's underground territory' (Valdivia, 2008: 462). This dependency also shapes emerging discourse around climate change, creating distinct national versions of the 'jobs versus environment dilemma' around the world (Räthzel and Uzzell, 2011).

In contrast to fisheries and farming, petroleum extraction evolved *as* wage labour. In Norway, the oil companies often recruited from less commodified forms of labour in agricultural and maritime economies locally, and many farmers kept their farms while entering wage labour offshore (Ryggvik, 2018). In Nigeria, few local farmers or fishers have found work in the industry. The oil economy has not only caused inflation but has also undermined agriculture through environmental spillages (Turner, 1986). If the relation between waged work in petroleum and ecological destruction presents itself through the discourse of climate change in the North Sea, it initiates quite a different

dynamic among the people whose livelihoods are entwined with onshore extraction in Nigeria.

In the Niger Delta, oil spills, gas flaring and soot have profound consequences on human bodies and on the local environment on which they live – on man's 'organic body' as well as on his 'inorganic' one, to use Marx's 1844 terminology. Workers in the focus groups depict their work as hazardous and unhealthy, causing reduced life expectancy, cancer, respiratory illness and sterility. For many local communities, petroleum extraction gives to a few with one hand and takes from many with the other. Access to formal or informal job opportunities is offset by soil contamination and poisoned waterways, which undermine agriculture and fishing. This devastation of natural use values represents a deep-seated human alienation and serves as a further push into the money economy:

Those that fish, lots of fish have gone deep sea, if you go to this shallow river here, you can't fish nothing. The fish are gone. Then those that farm cassava, yams and all that, the land no longer yields. What do you think will become of the people? They resort to alternative ways of survival. (Nigerian community contract worker)

Workers and communities experience a lack of control over their own lives, and poverty serves as the basic tenet in worker narratives. Because the oil companies offer relatively few decent jobs, the 'alternative ways of survival' referred to in the quote above often transcend formality, if not legality. Attempts at mobilizing against petroleum companies and extraction have largely been fruitless, leading to a state of resignation. Hence, people have resorted to informal ways of extracting value from the petroleum industry. Local women use gas flares to dry their cassava, while artisanal refineries employ numerous people in siphoning crude oil from the pipelines and processing it for sale in informal and formal petroleum markets. These workers, 'the guys in the creeks cooking this crude oil illegally', are assigned much of the

blame for the polluted environment by white-collar union members, providing us with yet another example where estrangement from nature fosters estrangement between social groups (social alienation).

Even actors mobilizing for ecological restoration in the Niger Delta struggle to reconcile the exchange value of petroleum with its effects on the natural landscape. Faced with longstanding opposition from the Ogoni people, Shell discontinued oil extraction in Ogoniland two decades ago but left a network of pipelines and oil spills. Local mobilization has led to a clean-up process, but the Ogonis remain divided on whether their long-term aim is an oil-free future or whether oil production ought to restart under local control and ownership.

#### 4 'Norway should shut down'

Rather than viewing carbonscapes as either coherent totalities or rupture-prone instabilities, a geography of alienation can point us to the uneven and dispersed attachments characterizing people's relationship with hydrocarbons. Therefore, social alienation takes on a particular set of expressions in a petroleum industry that 'disentangles its activities from the web of social relations by enclaving its operations, by moving offshore, by employing subcontractors, and by limiting access to their data' (Szolucha, 2019: 2). In contrast to the Norwegian petroleum experience, this 'strategy of disentanglement' typifies fossil capital's engagement with local communities across what Watts (2012), with particular reference to the Niger Delta, labels the 'oil frontier' in the global South. This portrayal is echoed by Ferguson (2005: 380), who observes how 'capital "hops" over "unusable Africa"' to set up disconnected enclaves of fossil extraction.

Social alienation means that petroleum workers in different locations around the world inhabit complex and contradictory roles in the carbon economy: in a contractual tug-of-war between oil companies and their suppliers

(Ryggvik et al., 2018); between formal and informal labour markets (Houeland, 2015); and, importantly, in their relation to end consumers of petroleum products (a group which they can claim membership in themselves). The politics of climate change mitigation has paved the way for an intricate blame game, where responsibility is placed along the hydrocarbon value chain: between oil workers in different fossil-based sectors or firms; between different oil-producing regions and national labour markets; and, finally, between consumers and producers within and beyond each national labour market.

Nigeria and Norway are part of a global carbon economy that is fundamentally unsustainable. Emissions trends are not on course to reach the 1.5°C goal set in the Paris Agreement of 2016 (Crippa et al., 2020). Consequently, 'restricting fossil fuel extraction may have both economic and political advantages compared to conventional end-of-pipe approaches' (Muttitt and Kartha, 2020: 1025). Phasing out petroleum extraction would set in motion a series of geographical dilemmas, however, scaling up the social alienation expressed within each country to a game theory of global ethics, epitomized by a question that often surfaced in our focus group discussions: 'Who should shut down first?'

We discussed the phase-out dilemma in both countries, knowing that even social scientists trying to address this question rigorously are unable to provide clear answers (Le Billon and Kristoffersen, 2020; Muttitt and Kartha, 2020). Raising the discussion proved fruitful, in that it brought the lives, roles and responsibilities of workers in two vastly different carbon economies into direct conversation. Unsurprisingly, each group took their own situation and future income generation as a vantage point for developing a line of reasoning.

Unionized workers in Norway were eager to narrate the product itself, and the labour processes on the Norwegian shelf, as representing 'the cleanest petroleum' on the world market. An important component of this narrative was

the workforce, uniquely competent in carrying out safe and environmentally sustainable protocols needed for a green transition. Petroleum extraction elsewhere was portrayed not only as dirty but also as abundant and ready to replace Norwegian petroleum supply if the latter was withdrawn from the market. Workers also emphasized the democratic legitimacy of the Norwegian carbon economy, referring to its role in the social contract and using this trait as an argument against a phase-out.

When Nigerian oil workers tackled the same question, they legitimized their concerns through a ‘development mandate’. In their opinion, if given the option

Norway should shut down. The reason is that those [...] who are of the opinion, respectfully, that Nigeria or Africa, should shut down, I am not sure they’ve really taken [account] of the social and economic situation of what that will generate. (shop steward of the blue-collar union NUPENG)

A similar argument, ‘prioritizing extraction where it can lift people out of poverty’, can be found in the phase-out literature (Muttitt and Kartha, 2020: 1029). Both academics and Nigerian oil workers seem to agree that the wealth and institutional capacity of countries like Norway make them better equipped to fund and implement an early energy transition. Norwegian workers, on the other hand, use the same traits to argue against industry closure: if Norway phased out their extraction, authoritarian regimes would supply unmet demand without using the revenues to ‘build societies’.

In both cases, our question also opened up for nuance. For instance, the ardent support for the development mandate expressed by white- and blue-collar union representatives gives way to doubt and objections in conversations with community contractors. The petroleum industry offers this group less job security, lower wages and worse conditions. Many also experience ecological destruction first-hand in their local communities. For several contract workers, this

destruction tilts the balance of the trade-off – ‘let the oil be in the ground’ – at least until Nigeria has the institutional capacity to extract in a socially and environmentally sustainable manner. Union representatives in Norway also recognize the moral obligation to include global development needs in their argumentation, acknowledging the complexity of the geographical phase-out dilemma. But rather than leading them to the same conclusion as that of the Nigerian trade unionists, they defended their role in meeting growing energy demand in developing countries.

## IX A politics of reconnection

Energy geographers seem to agree that fossil energy resources are ‘engrained in our political-economic and cultural systems’ through a symbiotic relationship between social and material components (Calvert, 2016: 113). There is less consensus, however, on how this symbiosis is best conceptualized, and on the nature and strength of these relations. This lack of consensus translates to a matter of *explanation*, as scholars seek to provide the debate with rigorous theoretical concepts, and of *expectation* in the political realm, insofar as these ideas inform ‘processes of political subjectivation’, organizational strategies and, hopefully, regulatory interventions to combat climate change and environmental destruction (Barca, 2019a: 208).

Our critique is directed at the portrayal of carbonscapes as loosely associated, flexibly (re)arranged and easily enacted upon through small-scale radical innovation (cf. Haarstad and Wanvik, 2017), because we believe this particular application of the assemblage concept is fraught with analytical and political contradictions. In this article, we have presented an alternative, historical materialist approach to the study of relations in the carbon economy, based on the concept of alienation. Thus far, we have focused on the analytical strengths of this approach, and have illustrated these empirically.

In this concluding section, we will suggest how diverging ontologies in energy geography also have political implications. In a moment of political polarization – where the threat of climate crisis risks being overshadowed by social conflicts around the crisis response, where mitigation efforts are operationalized by nationally determined contributions, and with sectors of the economy in open conflict about the meaning of a just transition – these questions truly transcend academic discourse.

While we should be careful not to overstate the distance between these positions, there is arguably a tendency to employ assemblage thinking to mobilize a *politics of radical innovation*. Centred on notions of rupture, destabilization and disassembly, this form of politics tends to treat opposition either as defensive incumbency (Bridge, 2018) or as a populist resistance ‘from the “outside”’ (Wanvik and Haarstad, 2021: 6). A politics of radical innovation is typically based in urban consumption systems (e.g., Dijk et al., 2018; Lange and Bürkner, 2018) but can also be seen in the efforts by international financial institutions to encourage national fuel subsidy reforms in Nigeria and other developing petrostates (Coady et al., 2019), with little regard for the role subsidies play for social reproduction among workers and the poor, nor for the lack of viable welfare alternatives (Houeland, 2020). What these initiatives arguably have in common is that they treat sustainability transitions and political resistance as ontologically and temporally separate phenomena, even though acts of resistance sometimes are welcomed as constructive (Wanvik and Haarstad, 2021).

Geographies of alienation, on the other hand, tend to lead us in a different direction, to a *politics of reconnection*. Framed in this way, the guiding metaphor for the carbonscape is the peopled system rather than the loose assemblage. Rather than conceiving of alienation as an all-permeating and universal feature of global capitalism (Harvey, 2018), the geographies of labour

alienation outlined in this article are situated, partial and contested processes. Because the commodification of labour power never achieves a complete breach between work and nature, it is always faced with possible and actual processes of de-alienation. Outside the discipline, the concept of de-alienation has already inspired work on gendered commons (Brownhill et al., 2012), democratized resource extraction (Szolucha, 2019) and ecological labour movements (Barca, 2019a). Along the hydrocarbon value chain, de-alienation will be achieved only when actors acknowledge their interdependence with others (Brownhill et al., 2012) and when they start assuming ecological responsibilities for labour and consumption practices in ways that transcend the narrow mandates of liberal democracy (Huber, 2019a).

It is beyond the scope of this article to elaborate on how a politics of reconnection can inform energy geography in general terms. To illustrate our intention, we will rather reflect the promise held by an ambitious agenda of reconnection between collective actors representing communities producing petroleum and those actively involved in transforming consumption practices. There is no lack of proponents for alliance-building of this kind, for instance, in scholarly calls for ‘energy democracy’ (Becker and Naumann, 2017), ‘working-class environmentalism’ (Barca and Leonardi, 2018) or ‘blue-green alliances’ (Snell et al., 2009). The authors of this article have themselves been involved in facilitating encounters between unionists and environmental activists in Norway and Nigeria and are well aware of the deep-seated challenges involved in establishing dialogue between actors based in different member-based communities and historical mandates.

We suggest that the potential for such political alliances in part rests on the willingness of workers and trade unions to assume ecological responsibility over the labour process, an approach that has historical precedent in what Barca (2019b: 229) labels an ‘ecology of class’.

This is not a straightforward process and will likely be resisted by managerial prerogatives and existing labour law (Zbyszewska, 2018a), and possibly by unionists themselves. Still, we suggest that a refusal by organized labour to heed the confined mandates of existing OHSE regulations will strengthen the legitimacy of worker representatives in relation to that of environmental activists. This strengthened legitimacy can open up exciting pathways, such as labour's involvement in clean-up campaigns in the Niger Delta, or in the reskilling of oil workers on the Norwegian west coast. Similarly, member-based social movements mobilizing around environmental rights and concerns must be acknowledged as legitimate actors in the development of energy systems and industrial development paths. To build legitimacy in this realm, environmental activists must be able to break out of the narrow confines of consumer identities and electoral politics. They must also acquire and generate relevant knowledge and expertise.

This pursuit of a politics of reconnection hinges on our ability to tackle two fundamentally geographical dilemmas. The first is how to redesign social contracts in ways that leave a role for industrial labour, and for people bound up in fossil energy systems through the wage relation and through systems of social reproduction. As we have shown above, these social contracts are often national in character and have historically placed energy workers in a privileged position that is now under pressure. How can a politics of reconnection include industrial labour in its class-based and ecological movement? Attempts to build political alternatives to existing energy systems have often grappled with the role of these groups in a broader coalition. Sweeney (2017) and Huber (2019: n.p.), for instance, can be described as cautious at best on the potential for including this critical constituency, the latter suggesting that 'a working-class environmentalism could better align with rising militancy in more low-carbon care sectors

like health and education' than with 'established building trade unions and fossil fuel industrial workers'. To the oil workers we have spoken to, this exclusion cannot be reconciled with their own notion of labour solidarity nor with their role in their national social contract. The second dilemma facing this agenda is how to render principles of fairness, as they relate to poverty, development, colonial heritage, and gendered and generational solidarity, into workable solutions for a global decarbonization of the petroleum industry. Again, we uphold the potential of dialogue between otherwise alienated communities, such as oil workers in the Niger Delta and on the Norwegian continental shelf. The methodological nationalism built into the Paris Agreement easily lends itself to defensively national discourses of ecological responsibility. While researchers can play their part in facilitating the encounters between fossil energy workers in different countries, global union federations and transnational social movements arguably have a more important role in constructing this form of global climate solidarity.

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