

Oil, materiality and International Relations

International Relations
1–23

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DOI: 10.1177/00471178241231726

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Abstract

Oil is a major topic in International Relations (IR). However, the discipline has tended to focus primarily on the effects and impacts of oil, particularly in relation to conflict, war and empire, and on the international political economy of oil, such as the role of the large oil companies and the oil-rich producer states. This article offers a more holistic approach by adopting a new materialisms framework. This framework has the physical materiality of oil, and its agentic capacity to produce social and political relations over time and space, at its centre. This offers new perspectives along the material journey of oil from exploration, production to transportation, processing and consumption. This, in turn, provides a more differentiated history of oil as a material force that shapes human and political interaction. The benefit of this approach is that it requires IR to be in a more substantive dialogue with other disciplines, most notably with human geography which has a strong tradition of research on energy and spatiality, but also with other disciplines in the social sciences and with the growing body of work in energy humanities. In addition, adopting a new materialisms approach to the study of oil acts as a potential template for the study of other energy resources and products, such as gas and coal as well as renewables such as wind and solar energy.

Keywords

energy politics, materiality, new materialisms, oil, security

Imre Szeman said that oil was ‘hidden from plain sight’.¹ It is ubiquitous but invisible. Oil is produced in faraway locations and in small enclaves; it is transported seamlessly in ultra large oil cargo ships; it is processed in large refineries; and its consumption generates large-scale carbon emissions which are absorbed into the atmosphere. The petrol stations that dot the landscape are inescapable evidence of the existence of oil; but the

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myriad and complex ways that oil products permeate all facets of modern living is not so visible. 'Living without oil', a movement modelled on the Transition Towns initiative that promotes local inclusion, sustainability and resilience, constitutes an ideal of an oil-free life that is almost impossible for modern-day urban citizens.² As Mark Boyle, one of the advocates of this movement, asked himself before taking on this challenge: 'Can I really survive a city lifestyle with no toothpaste, no quick sandwich on the way to a meeting, no detergent, no synthetic footwear, no TV, no quick pint down the local, no washing machine, and almost no first-hand clothing'.³ The fact that oil is so difficult to live without is further seen in the fact that oil still takes the largest share of the energy mix at 31.2% of global primary energy in 2020 and this share has remained steady since 2010.⁴ Demand for oil is also still steadily increasing rather than decreasing, with the pre-pandemic demand for 99.7mbd in 2019 predicted to be overtaken in 2023 before demand rising subsequently to 104mbd by 2026.⁵

International Relations has an impressive record of analysing the complex impacts of oil on the international system. This has mainly focused on effects of oil for international politics, particularly in relation to conflict, war and empire, and on the international political economy with the activities of the large oil companies and the oil-rich producer states. This article provides a more holistic framework by adopting a new materialisms approach that reveals more of the 'hidden aspects' of the international politics of oil. Its intellectual foundation is in the physical materiality of oil, recognising that oil is not an inert and passive force but has agentic capacity. This new materialisms approach draws attention to how oil is assembled and disassembled across the value chain from exploration, production to transportation, processing and consumption. It offers a distinctive historical narrative of how oil as a material agent has interacted with the social and political over time. The new materialisms approach also requires IR to engage with other disciplines, particularly with human geography that has always had a strong focus on energy and spatiality, as well as with other disciplines in the social sciences, such as sociology and anthropology, and with the growing body of research in energy humanities. Applying the new materialisms approach to oil offers a template for the study of other energy sources and products, such as coal and gas as well as renewables such as wind and solar energy.

The article has three sections. In the first section, a brief overview of IR's contribution to the study of oil is provided before setting out how the new materialisms approach can enhance and enrich this tradition. This theoretical section covers key aspects of the new materialisms approach: the significance and meaning of materiality; the power of non-human agency; and the concept of assemblage as theorising the stability and instability of complex networks that emerge from the interaction of the material with the social and the political. The second section examines the complex ways that oil creates and co-produces different and shifting spatial assemblages, examining this through oil's global value chain, and demonstrating how sensitivity to these spatial shifts constructs a more nuanced and holistic view of the international politics of oil. The third section takes a more historical focus on how oil's assemblages have shifted over time and how this is not defined by a either a strictly linear or cyclical account. The conclusion reflects on the interdisciplinary challenges that the new materialism approach presents for conceptualising the IR of oil and the potentially fruitful applications to other energy sources and products.

Oil: IR and new materialisms approach

The study of oil within International Relations has always involved a significant degree of inter-disciplinary interaction between security studies, political economy and geography as well as with other disciplines such as sociology, anthropology, history and law.⁶ This reflects the internal tension in IR between being a discipline and being the synthesis of the 'international' across a range of disciplines.⁷ However, one of the ways that IR has made a distinctive disciplinary contribution is through its theoretical categorisations that help to structure the different approaches to the study of the international politics of energy. In this regard, the three traditional theoretical traditions in IR – realism, liberalism and Marxism – do have a heuristic value in identifying the dominant approaches to the study of the IR of energy.⁸

The first of these IR theoretical approaches, realism, is closely allied with the tradition of geopolitics in geography and has long been the hegemonic theoretical paradigm in IR. Both realism and geopolitics highlight the strategic importance of control of critical resources, with oil being viewed as one of the most important in terms of the national interests of states.⁹ Competition and conflict are thus viewed as an integral feature of the political economy of oil.¹⁰ The post-World War I great power partition of the Middle East and the drive of Nazi Germany towards the oilfields of the Caucasus are examples of this struggle for resources.¹¹ In IR, the realist approach critiques the liberal assumption that the global economy promotes peace and leads to cooperation. The oil-induced energy crises of the 1970s is taken as key evidence of this. It is not just that the assets of private companies were nationalised but also that the radical Arab states that formed the core of the Organisation of Oil Petroleum Exporting Countries (OPEC) would potentially use their new-found 'oil weapon' to undermine Western interests.¹²

This Western anxiety of the link between oil and insecurity re-emerged with the end of the Cold War. Michael Klare argued that it is 'resources, not differences in civilizations and identities that are at the roots of most contemporary conflicts'.¹³ Jeff Colgan has similarly demonstrated how oil-rich states, who also adopt a revolutionary and revisionist political agenda, have a significantly greater propensity for war and conflict.¹⁴ According to Colgan, it is thus not accidental that a number of the most prominent revisionist states, Russia, Iran, Iraq and Libya are oil-rich and have a track record of military aggression. Philippe Le Billon has similarly demonstrated that inter-ethnic conflict and civil war is much more likely when oil is found in a peripheral region, and which thereby generates a centre-periphery conflict.¹⁵ This is evident, for example, in the Niger Delta, the Aceh province in Indonesia and in South Sudan. In all these analyses, the common denominator is the way that the competition for oil generates insecurity and conflict. The realist approach also generally reflects the perspectives and interests of the oil consumers of the industrialised world and is an approach that is most influential during periods of heightened geopolitical tension.

The second tradition in IR, the liberal approach, accepts the realist claim that oil is linked with insecurity and conflict. But it dissents from the pessimistic state-centric prescriptions of realism and argues, in contrast, that the promotion of cooperation and interdependence can overcome the negative conflict-inducing logics of the struggle over resources.¹⁶ While the realist approach emphasises inter-state competition, liberal IR

highlights the ways in which the pathologies of control and aggression can be exorcised through devolving responsibility for the global oil trade to non-state actors, such as firms, services industries, trading houses, financial exchanges and allowing the market, rather than the state, to ensure security of supply.¹⁷ Regional organisations, such as the European Union, are praised for their role as benign supranational agents of this de-sovereignisation and desecuritisation of the oil trade.¹⁸ Oil is, in this sense, made inert and politically passive by its absorption into global markets. But this appearance of apoliticism disguises the fact that the liberal IR approach also prioritises the perspectives of the Global North. A notable example of this is the liberal-inspired theory of the 'resource curse' as afflicting the development record of the mainly Southern-based oil-rich states.¹⁹ The liberal solution to this 'curse' is to follow the Washington consensus and implement the neo-liberal prescriptions of privatisation, liberalisation and devolution to markets. Like the Washington consensus, the liberal approach to the IR has been strongest during the height of neo-liberalism in the 1980s and 1990s.

The third IR approach draws from the Marxist or radical tradition and is the approach which most strongly challenges the dominant Northern bias of both the realist and liberal approaches. The principal intellectual claim is that, following Lenin and Hobson, imperialism is driven by capitalism's need to control the raw materials of the periphery.²⁰ The history of oil is, from this perspective, a classic case of the late capitalist imperialism and the associated embedding of a global structural relations of exploitation.²¹ In the 1960s and 1970s, dependency theory developed to show how trade in resources played a central role in structuring relations of neo-imperial subordination of the periphery by the core.²² In the post-Cold War period, much of the critical attention on the international politics of oil has been on how US neo-imperialism has gained in strength since the end of the Cold War.²³ The US-led Gulf Wars of 1991 and 2003 are viewed from this perspective as exercises in US imperialism to control oil supplies.²⁴ For example, David Harvey has called the invasion of Iraq in 2003 as the 'new imperialism' and just the latest example of the US seeking to maintain its superiority and supremacy through control of the oil of the Middle East.²⁵ For Raymond Hinnebusch, the end of the Cold War and the withdrawal of the Soviet Union from the Middle East has reduced the power of resistance of the states and peoples of the region, making them unable to counter the imposition of US hegemony and neo-imperial domination.²⁶

New materialisms; materiality and agency

In comparison with the themes of these principal IR theoretical approaches, the main innovation or insight of the new materialisms approach is a methodological one – to focus attention on the material and the non-human rather than instinctively to prioritise the human and social. Taking such an approach follows a more general 'material turn' in theorising in the Social Sciences. In IR, this 'material turn' had its major influence on the discipline in the mid-2010s as a counter-reaction and critique of the dominance of more ideational constructivist and post-modern approaches.²⁷ Since then, the new materialisms approach has been incorporated into the broader 'relational turn' in IR that brings together 'non-Western, non-Newtonian and critical humanist orientations'.²⁸

The new materialisms approach does not originate from within IR but draws from varied non-IR disciplines and intellectual approaches – human geography, political ecology, science and technology studies, biopolitics, post-humanism and vitalism.²⁹ What binds together this diverse and varied collection of work is the need to rethink materiality: to assess how social power is exercised by materials; to understand what effects material qualities have on social relations; and to articulate new perspectives on how matter relates to the ‘political’.³⁰ One of the central claims made by the new materialisms approach is that conventional social scientific approaches separate and isolate the socio-political world from the material and non-human world. According to Coole and Frost, the cause of this marginalisation of the material is embedded in Western philosophical traditions which identify ‘language, consciousness, subjectivity, agency, mind and soul’ as distinct from and superior to ‘mindless matter’.³¹ In contrast, the post-human and new materialisms approach demands a deliberate re-assertion of the active role of matter and a recognition that material objects and bodies can themselves be affective, active and be a source of political significance.

This notion of the power and agency of the material is the first distinctive feature of the new materialisms approach. It involves the assertion that objects and non-human bodies have their own agency and dynamism and that the ‘stuff of politics’, the objects, materials and forces around us ‘help constitute the common worlds that we share and the dense fabric of relations with others in and through which we live’.³² Objects and things thus actually help shape human interaction. They contribute to the defining of the political communities we live in and are integral to the social and political interactions that shape conflict and cooperation. Matter is not the ‘dead, inert passive matter of the mechanist’ but the ‘materialisation that contains its own energies and forces of transformation’.³³ Jane Bennett calls this ‘vibrant matter’ – a metaphor which challenges the traditional political analysis of seeing matter as dull and inert and human life as vibrant and alive. For Bennett, inanimate things have the ability ‘to animate, to act, to produce effects subtle and dramatic’.³⁴

In terms of the IR of oil, the innovation of a new materialisms theoretical approach is that it does not start with the human and social effects of oil – such as insecurity, markets, empire or capitalism. Rather, it starts with oil as ‘vibrant matter’, not inert and passive but active and dynamic and an agent in its own right. It follows from this that the nature of the agency can, at least partially, be revealed through identifying the physical and material qualities of oil. Although this is rarely done in IR accounts of the politics of oil, it is evident in works in other disciplines.³⁵ A particularly good example of this is the contribution of Balmaceda who has revealed the agential power embedded in the physical qualities of oil through comparing oil’s physicality to that of the other main fossil fuels – coal and gas.³⁶ As such, adopting the new materialisms approach to the study of the IR of oil offers the potential for a more comprehensive and holistic framework of analysis.

The starting point for thinking about oil’s materiality and its agentic qualities is in its natural form. In contrast to the common perception that oil is homogeneous, easily quantified and measured, and is defined by its scarcity, crude oil is more accurately described as heterogeneous, difficult to quantify, and as abundant and overflowing. Its heterogeneity is evident in the various forms that crude oil can take. Although people generally

know the smell and look of oil, mainly from filling up their cars, crude oil is made of many different types of hydrocarbon molecules and comes in different forms, ranging from a gaseous methane or ethane to liquid gasoline, to highly viscous bitumen.³⁷ Crude oil also includes other unwanted materials, such as sulphur, nitrogen, metals and salt. As a result, crude oil is differentiated in multiple ways, the main ones being in terms of density (oil with more hydrogen is lighter); the amount of sulphur ('sweet' having less, 'sour' having more); its viscosity (how it flows); its acidity and the presence of metals. There are over 200 different grades of crude mainly based on their oil fields. There is also an important distinction between conventional crude oil, which is sufficiently liquid to be pumped out and refined directly, and unconventional crude oil that is recovered from sand and rock.³⁸ All these different forms have radically different production costs. While trade in oil is based on a handful of 'benchmark' crudes, the complex variations in quality from these benchmarks determines the market price.

Just as crude oil comes in many different forms, the science and economics of measuring and quantifying oil is similarly complex. This can be seen in the distinction between resources (the amount of oil that can be physically present in a geological formation) and reserves (the oil that has been regarded as technically and economically feasible to extract).³⁹ The problem is that the former is at best a subjective estimate, formed using incomplete information; and the latter is continually changing as a result of shifts in the price of oil and with changes in technology.⁴⁰ The role of oil prices on reserves calculations can be seen in how high oil prices in the 1970s and 2000s resulted in oil companies investing in, developing, and bringing into production new oil fields in different parts of the world, such as Brazil, Canada, Alaska, the Black Sea and different parts of Africa. The distinctive role of technological innovation can be seen most dramatically in the US where advances in fracking, horizontal drilling and seismic information made possible the shale oil revolution that radically revived the fortunes of US production.⁴¹ The counting and quantifying of oil is far from a simple task and is refracted through the knowledge practices of economics and geology that render oil as knowable and actionable.⁴²

The heterogeneity of oil and the difficulty of calculating its presence means that it is more appropriate to consider the materiality of oil through the prism of plenitude rather than scarcity. Oil is a liquid form that is unruly and tends to overflow unless there is significant investment in capital, equipment and scientific knowledge. Historically, oil companies and producing countries have been exercised about the problem of over-production and the dangers of excess supply and a collapse in prices.⁴³ Oil cartels have been developed, whether that be the Seven Sisters or OPEC, that have sought to limit production. The prism of oil's plenitude also qualifies the 'peak oil' thesis that assumes that the future geological scarcity of oil will lead to a reduction in supply.⁴⁴ It is generally recognised now that peak oil will occur due to constraints on demand rather than supply. The concept of 'stranded assets' illustrates this well – this is new form of calculation that defines oil in terms of its potential carbon emissions rather than its overall quantity and determines what oil needs to remain untouched as 'unburnable carbon' if the goal of limiting global warming to 1.5° is to be achieved.⁴⁵ The organisation Carbon Tracker calculates that oil and gas companies now have more reserves than are required to ensure that carbon emissions are to be reduced.⁴⁶

The carbon density of oil is a significant factor constraining demand. But this material factor is counter-balanced by other physical features that continue to make oil a critical resource in International Relations. The first of these is the high level of energy density, significantly greater than gas or coal or any renewable energy source. The result is that oil is a highly efficient and adaptable source of energy. This also impacts on its geographical reach and its spatiality since its higher energy density translates into lower transportation costs which in turn makes the oil market a truly global one. In contrast, gas, coal and renewables are generally limited to regional or national markets. The second advantage of oil is that it is predominantly liquid in its basic physical states as against gas (gaseous) and coal (solid). The strategic advantage this provides for oil is that it can be transported in a variety of ways – by sea, and overland by pipeline, railways and even by truck.

Another distinctive physical feature of oil is that it is non-ubiquitous. The main contrast here is with coal where coal reserves can be found in almost every country. This is a reason why, despite coal's low energy density and the costs of transportation, coal consumption remains high, particularly in the developing world. Oil, in contrast, is, along with gas, concentrated into a narrower geographical area, mainly in the Middle East and North Africa, and in some areas of North America and Eurasia. East Asia, for example, has very limited oil reserves. This lack of ubiquity of oil is a significant driver of international politics. Another feature of this non-ubiquity is that even where oil is present, with the exception of unconventional oil such as oil sands or US light tight oil, it tends to be defined by its verticality rather than its horizontality, and concentrated underground rather than on the surface, which contributes to the construction of enclaves within states.⁴⁷

Focusing on these physical attributes of oil, and their social and political effects, is a key distinctive feature of the new materialisms approach. Starting with the material properties of oil highlights the concrete ways that oil has immanent agentic power. However, it does not do this in isolation from other objects and forces and the materiality of oil shapes social and political outcomes through a complex set of interactions and interlocking relations. Seeking to describe and understand these interactions, and the networks that underpin them, requires additional theoretical reflection on the structure and mechanisms of the interaction between non-human and human agents and their effects. This is a theoretical function that assemblage theory provides.

New materialisms and assemblage theory

Assemblage theory is closely associated with new materialisms theory in that the theory is radically open to the creative capacities of matter and energy. Assemblage theory is a holistic theory that brings together the material, biological, social and technological in their various hybrid forms. There is no a priori assumption of what can be related – humans, things, ideas and materials – nor is there a presumption of hierarchies of dominance. Assemblages are, in this sense, socio-material without any ontological preference accorded to humans. Assemblage theory has its philosophical roots in the work of Gilles Deleuze and Felix Guattari that was later systematised by Manuel DeLanda.⁴⁸ There are,

though, significant parallels and similarities with network theory, such as Bruno Latour's Actor-Network theory.⁴⁹ Within IR, their closest parallel is with Robert Jervis's complexity theory.⁵⁰

A core feature of assemblage theory is the recognition of complexity, heterogeneity and the fluidity in social life. A central insight of DeLanda's development of assemblage theory is his assertion that assemblages do not contain relations of exteriority, being arrangements of different component parts that cannot be reduced to their function in the whole and indeed are commonly part of other wholes of assemblages.⁵¹ What this means is that assemblages are multiple and overlapping and generally, to use Deleuze and Guattari's image, are distinguished by being rhizomatic (roots with multiple shoots) rather than arboreal (one shoot with one root).⁵² This is an approach that challenges the tendency towards closed systems and the reification of structures or essences. In terms of IR, this involves a scepticism towards overarching theoretical frameworks based on such abstract concepts as anarchy, capitalism or empire. In essence, assemblage theory is an approach that is ultimately pragmatic and practical in nature. As Saskia Sassen has argued for her own work, assemblage theory is an 'analytic category to use formats which enables me to bring into the picture pieces of what are, in more conventional thinking, thought of as fully-fledged institutions'.⁵³ She argues that working with the framework of assemblages involves a certain humility that 'we can only understand a limited part of the unfolding of contemporary life'.⁵⁴ The key ambition of assemblage theory is thus to reveal what is hidden and to make visible what is often missed out in dominant narratives.

A second significant feature of assemblage approach is its commitment to a flat or relational ontology. There is not only a dissolution of the nature-society divide but also the rejection of the privileging of any one site or scale or of level of analysis over another. Assemblage theory is thus radically open to analysis of the ways in which the components of the assemblage have affects that cannot be limited to one particular scale or level of analysis. As such, assemblage theory 'foregrounds the ways in which social/political processes are generated through relations between sites, rather than configured through "internal relations" in sites'.⁵⁵ In terms of IR, this means that there is no a priori privileging of the international scale, no assuming of the primacy of states, firms and the actions of elites, whether in government or in business. Assemblage theory does not prioritise the international over other levels of analysis. Rather, it shows the complex interactions between the global, the national and the local, bringing out how oil assemblages interact with everyday life and with embodied agents at more local levels. It is this more radical ontology which makes visible the ways that oil permeates all of life, not just high politics but also low and everyday politics.

The third distinctive feature of assemblage theory is that it is open to change and to the fluidity of social life. This is because it is the capacities, and not the properties, of the constituent parts of assemblages that affect and drive their interaction. While the properties of objects are finite and limited, capacities are infinite and unlimited because they interact with the capacities of multiple other components. Assemblage theory, therefore, highlights the notions of 'emergence, non-linearity, openness, feedback and path dependence'.⁵⁶ This dynamism is captured by Deleuze and Guattari's image of 'lines of flight' that allows assemblages to change their course of action through acts of fleeing, eluding, leaking and 'disappearing into the distance'.⁵⁷

It is also a mistake to think that assemblage theory assumes permanent change and constant fluidity. As well as identifying the novel and unexpected, it also analyses how assemblages gain stability, consistency and scale. This tension between stability and instability is expressed in Deleuze and Guattari's idea of (stabilising) territorialisation and (destabilising) de-territorialisation.⁵⁸ DeLanda explains that processes within and between assemblages either 'stabilise the identity of the assemblage by increasing its degree of internal homogeneity or the degree of sharpness of its boundaries or destabilise it'.⁵⁹

Assemblage theory provides a practical way to operationalise the new materialisms theoretical approach. As noted above, new materialisms is distinctive in that it sets out a new starting point for the study of the international politics of oil – the materiality of oil and how the physical attributes of oil have an agentic power in their own right. Assemblage theory takes the next step by providing a methodology for how the materiality of oil interacts with other objects, with humans, technologies, ideas and other objects. Assemblage theory helps the analyst to think systematically about the physical journey of oil.

There are two forms of this journey that the rest of this article develops. The first, covered in the next section, is the spatial journey that oil takes along its value chain – from exploration and production to transportation to processing and consumption. In the oil business, this journey is divided into three parts: upstream, dealing with exploration and production; midstream with transportation and getting oil to markets; and downstream that is about converting oil into the fuels and products that are then consumed. At each of these different stages on this journey, oil's assemblages have distinctive features and specific dynamics of interaction between the material and the non-material. The second form of journey is a historical or temporal one and how oil's assemblages have changed during different historical periods and how these assemblages have led, at times, to stability (territorialisation) but also what forces, material and non-material, lead to undermine that stability and bring change and transformation (de-territorialisation). This temporal journey of oil's assemblages will be the focus of the final section.

Oil's spatial assemblages

The focus of this section is to identify the different assemblages that emerge across oil's spatial journey and how these assemblages are shaped, in dynamic interaction with other parts, by the materiality of oil and its distinctive physical attributes. Oil reveals itself physically both in diffuse and concentrated forms, dependent on geographical perspective. As a truly global commodity, oil's spatial presence is diffuse for most consumers, permeating multiple aspects of everyday life. But oil can appear spatially concentrated, particularly for those in oil-producing regions, because of its energy density and its non-ubiquitous nature. In addition, as a liquid, oil's presence is generally less spatially visible and more diffuse when transported than, for example, the pipelines that transport gas or the power transmitted through electricity grids. Oil's assemblages are, therefore, quite different, and distinctive along its global value chain, from upstream to midstream to downstream.

Upstream

There are multiple shifting and complex socio-material assemblages in oil's upstream sector. What is distinctive about these assemblages is that they are tightly concentrated

physically and that this has significant implications for international politics. As noted earlier, the international oil assemblage is concentrated in the regions where the main physical supplies are found – in the Middle East and North Africa and parts of North America and Eurasia. However, even this more limited geographical concentration does not neatly coincide with national borders. Conventional oil is a subterranean resource that only needs a small surface imprint for its extraction, a ‘molecular point of access rather than a contiguous territorial claim’.⁶⁰ This mix of a limited land requirement and almost limitless concentrations of energy translate into the classic enclave economies.⁶¹ These enclaves include the ‘oil cities’ which dominate production in places like Dallas and Houston in Texas, Calgary in Alberta and Aberdeen in the UK.

Historically, oil enclaves in the Global South were a major material factor driving colonial annexation and control of territory, such as Abadan in Iran.⁶² The post-colonial legacies of these enclaves remain powerful. This can be seen in the Middle East where small petroleum enclaves in the Gulf region became independent states after colonial rule and have, particularly since the oil price rises of the 1970s, exerted a disproportionate influence on regional and international politics.⁶³ Countries like the UAE, Qatar, Bahrain and Kuwait, with small populations and whose indigenous populations are greatly outnumbered by other nationals, have used their oil and gas wealth to influence and direct Middle Eastern politics to their own strategic preferences.⁶⁴ This oil assemblage linkages between these small Gulf states and the US and to Saudi Arabia, the dual strategic lynchpin of oil’s global assemblage, has shifted power in the Arab region away from the traditional Arab regional hegemons of Egypt, Syria and Iraq.⁶⁵

The power of the Gulf region in the international oil assemblage is also due to another physical attribute of oil’s materiality. This is oil’s physical heterogeneity and the fact that some forms of crude oil are easier to extract and work with than others. This gives a strong strategic advantage to those regions where production costs are low. A country like Saudi Arabia not only benefits from having large, concentrated reserves of oil but also easily accessible and high-quality oil. Riyadh can lift oil at a cost of about \$3 a barrel against, for example, an estimated \$57 for US offshore oil.⁶⁶ The Gulf region also produces light sweet crude which is easier to process and for which the costs of complex infrastructures of production, distribution and consumption have already been sunk. The combined effect of possessing large reserves of oil that can be extracted at low cost with well-established infrastructures for processing means that Middle East producers have a disproportionate influence over the global oil assemblage. OPEC, as the institution that represents the interests of these oil producers, has the capacity to influence international oil prices and oil industry behaviour.⁶⁷ For example, if OPEC decides to reduce production, thus raising prices, this offers opportunities for higher cost producers to come into the market.⁶⁸ The reverse is also true. In this regard, Saudi Arabia has the unique capacity to be able to flood the market and to re-establish its market share. This occurred in the mid-1980s and, and as argued by Thane Gustafson, undermined Gorbachev’s reforms of the Soviet economy and contributed to the subsequent collapse of the Soviet Union.⁶⁹

The concentrated nature of the global upstream oil assemblage has another important effect – the relative weakness of organised labour in the oil industry. This does not mean that labour is unimportant in the history of oil. Peyman Jafari has shown how the indigenous oil labour movement in Iran significantly contributed to the political processes that

resulted in the nationalisation of the Iranian oil industry and to the subsequent Iranian revolution.⁷⁰ However, as Timothy Mitchell has demonstrated, labour in the oil industry has never had the same political effects as labour in the coal industry. Mitchell highlights the ways in which coal miners historically contributed, through their strikes and use of labour power, to the extension of the voting franchise and the development of mass democracy.⁷¹ Among oil producing countries, governments have generally not faced such concentrated labour power and this lack of political pressure has contributed to authoritarian rather than democratic outcomes. The materialist reason for this weakness of labour power is that oil comes to the surface through its own pressure and does not require the physical manual labour that coal has traditionally demanded for its extraction. As a consequence, upstream oil infrastructures have relied on automated flows rather than on manual processes and the industry has been capital- rather than labour-intensive. This not only weakens labour power but also adds to the socially delimited enclave nature of oil production.

Midstream

As oil is transported away from the concentrated spaces where it is found and extracted, it becomes less visible and less politically controversial. As a result, IR accounts have tended naturally to concentrate their focus on the politics of upstream oil and pay less attention to what happens as oil circulates around the world. A classic example of this is the Druzhba oil pipeline that carries oil from the Eastern parts of Russia to Germany via East and Central Europe. This oil pipeline has historically generated limited strategic attention and has generally not been a particular threat or concern for Europe and the EU. Only the Russian invasion of Ukraine in 2022 changed this.⁷² This contrasts with the regular political crises, and significant EU regulatory impositions, that the European dependence on Russian gas and intercontinental gas pipelines has generated. If you judged the economic importance for Russia of its oil and gas sales to Europe based on EU policies and discourses, gas would appear to be much more significant. However, Russia obtains two-thirds of its foreign revenue from its sale of oil rather than of gas.⁷³ The reason for the relative invisibility of Russian exports of oil to Europe is the fact that oil is easily substitutable, while the substitution of Europe's gas supplies is more difficult and expensive.

This fungibility of oil is due, as noted above, to its energy density and to its liquid natural state which makes it relatively easy to transport. This has meant that the bulk of global oil supplies are transported in Very Large Crude Carrier (VLCC) or Ultra Large Crude Carriers (ULCC). A VLCC can transport up to 2 million barrels of oil, weighing about 200,000 tonnes, and which, based on the price of oil of \$60 a barrel, means a value of \$120 million. Unlike pipelines that are fixed, these vast ships can move freely over the oceans and have a range of destinations. This flexibility is one of the main reasons why the Arab oil-producing states failed to translate their greater control over upstream production into an effective 'oil weapon'.⁷⁴ In the aftermath of the 1973 Arab-Israeli conflict, there were attempts to seek to punish pro-Israeli countries, like the Netherlands, by denying them Middle Eastern oil supplies. However, without controlling the ships that transported this oil, there was no way that the Arab states could practically enforce their political demands.

However, the seemingly highly efficient and invisible appearance of midstream oil hides one political dimension. This is the role that the US global military presence plays in midstream oil assemblages. For countries that have conflictual relations with the US, the dominance of the US military in the main sealines of communication (SLOCs) has major oil security implications. This is due to the way that the US military presence can be translated into economic tools of coercion, most notably through sanctions. The US has the power, though its maritime supremacy, to exert sanctions on oil-producing countries, like Iran and Venezuela, which greatly constrain their ability to sell oil on the global markets.⁷⁵ The problem for these countries is not the extraction and production of oil; it is their ability to get that oil to external markets. It is the expansive US global military assemblage that has the unique capacity to disrupt the generally diffuse and flexible midstream oil assemblages.

The strategic impact of this US naval dominance is felt not just on exporting but also on importing states. China is a key example of an oil-importing state that has long had a strategic concern over the security of its oil supplies from the Middle East. Concern over US dominance of the SLOCs was reportedly described by former President Hu Jintao as the 'Malacca Dilemma', highlighting the strategic vulnerability for China of the narrow straits through which 80% of all seaborne goods for Chinese ports come through.⁷⁶ In the context of a military confrontation with the US, the prospect that the US could close these straits to Chinese oil supplies has major strategic implications for China. The result of this has been a strong determination by China to diversify its supplies, leading for example to strengthening relations with Russia, and to developing a greater naval capability and the development of a 'blue water' navy.

Emily Meierding's work on oil and war has been path-breaking in highlighting the generally neglected strategic importance of midstream oil to the understanding of the link between inter-state war and oil.⁷⁷ In contrast to standard IR accounts, Meierding argues that wars are rarely fought to capture oil-producing territory; rather oil wars tend to develop when they are started for other reasons and when the energy midstream infrastructures of belligerent states become threatened. This demonstrates that US power over the global oil assemblage is most effectively promoted through its ability militarily to intervene midstream and not, as radical accounts suggest, through attempting neo-imperial control over the upstream sector.

Downstream

At the downstream end of oil's value change, oil's physicality becomes even more diffuse, and its presence permeates the general fabric of everyday life. The new materialisms approach seeks to make visible this everyday lived experience of the consumption of oil products. It is not just that oil pervades all parts of human life but also that it also creates political subjects and forges distinctive cultural assemblages around fossil fuel consumption. This focus on the everyday politics of oil consumption has not been a traditional concern for IR with some notable exceptions.⁷⁸ This contrasts with work in the energy humanities that has a strong tradition of examining the ways in which modern cultures, and the subjects that participate in them, are shaped by the energies that they have access to.⁷⁹ These studies have demonstrated how the materiality of energy and culture are inextricably linked and that energy is deeply cultural as well as geopolitical and economic.

This adoption of a new materialisms approach challenges the traditional humanist histories and understandings of what it means to be modern. For example, Dipesh Chakrabarty rejects the way that historians have traditionally given primacy to the human over the natural.⁸⁰ He argues that the modern struggle for freedom, whether in terms of class, gender or race, and the ‘mansions of freedom’ that have thereby been secured, can only be understood in terms of their material fossil fuel base.⁸¹ Without the power and freedom that fossil fuels provided through creating an ‘energy surplus’, the struggle for these freedoms would have been fundamentally different. John McNeil illustrates this by using an energy slave index to demonstrate the ways in which modern energy systems have released people from the endless drudgery of muscular toil. In the 2000s, he estimated that the average global citizen benefits from the equivalent of 20 ‘energy slaves’, meaning that all the modern energy services, such as transportation, heating and communication are equivalent to the services provided by twenty human slaves.⁸² In advanced modern post-industrial societies, the ratio of energy slaves per citizen is even greater. As Chakrabarty suggests, it is difficult to deny that this economic emancipation, which has its foundations in fossil fuels, provided more favourable conditions for the struggle for political emancipation and freedom.⁸³

In terms of its physical attributes, oil’s contribution to modernity is also seen in how its energy density, and its easily stored liquid form, has resulted in the movement of humans on an unprecedented nature. The internal combustion engine and jet engines transformed the individual subjective experience of time and space. Cars provided mobility within nations and airplanes mobility across nations that had major social and political effects, both nationally and internationally. Oil radically reduced the costs of maritime transportation that shifted the geographies of manufacturing. Huber has illustrated how these shifts in the individual subjective experience of time and place have also had profound impacts on American society and politics.⁸⁴ He argues that oil essentially produced suburban America, a decentralised polity deeply tied to the idea of people as being entrepreneurs of their own lives. Oil was not, therefore, just a powerful force because of the material geographies of mobility it made possible but also because its consumption accompanied deeply felt visions of freedom and individualism. As Huber states, petroleum fuels ‘a particular lived geography—a “structure of feeling”—that allows for an appearance of atomized command over the spaces of mobility, home, and even the body itself’.⁸⁵ He further argues that this sense of people as being entrepreneurs of their own lives provided the ideological support for the idea of free competitive markets and provided popular support in the US for neo-liberal and capitalist hegemony.

It is interesting to compare how the downstream effects of oil consumption fed into support for neo-liberalism in the US and other industrialised countries and how the upstream regaining of sovereign control of oil production in oil-rich countries led to a contrasting popular support for radical nationalism. The materiality of oil is therefore a key factor for understanding ideology as well as culture. It also highlights how important it is to understand that the struggle for oil is not just a ‘Great Game’ between powerful states; but it also has very ordinary and everyday impacts given the way that oil is embedded into local patterns of life.⁸⁶

Oil's temporal assemblages

The journey that oil makes from production to consumption is part of a broader oil assemblage that is always historically situated at a particular time. A new materialisms approach takes this historical contextualisation seriously and seeks to understand not only how oil shapes, but is also shaped by, social and political forces across different historical periods. As with the global value chain, assemblage theory provides a methodology to chart these shifts and changes over time. This involves looking at the complex set of relations and interactions that show how oil assemblages are territorialised (stabilised) in certain periods but are also radically deterritorialised (destabilised) at other periods.

A distinctive feature of the new materialisms approach is its openness to emergence, non-linearity and path dependence. In IR, there is a tendency to integrate the history of oil either in terms of a linear progress determined by broader forces of capitalism or imperialism; or in terms of a recurring cyclical pattern, such as the so-called 'obsolescence bargaining model' that sees a cyclical pattern of oil liberalisation being followed by a return to resource nationalism.⁸⁷ In comparison to these linear or cyclical accounts, assemblage theory recognises that there are critical junctures that are non-linear and have longer-term path dependencies.

In this regard, there is one key critical juncture in the history of oil and this is decolonisation and the deterritorialisation of the global oil assemblage. This broke apart what had been the Western-dominated international oil assemblage that had been formed in the aftermath of World War I with the need to ensure the security of oil supplies from the Middle East after the collapse of the Ottoman empire. The US and the European states devolved responsibility to private oil companies, who negotiated the terms of agreements with key oil-producing states, such as Iraq, Iran and the Gulf states. These generally involved long-term and large-scale concessions favouring the interests of the companies over those of the host states.⁸⁸ What is important to recognise is that Western governments overlooked the collusive and oligopolistic cooperation of this small group of oil companies. If the production and price of the relatively much cheaper Middle East oil had been determined by market forces, it would have meant that all other global production would have become uneconomic, including the domestic US oil industry. As a consequence, to allow the free flow of the Middle East's abundant oil resources was not in the interest of either the US government, US oil companies or more broadly the West.⁸⁹ Western governments therefore supported the 'Seven Sisters' to contain the potential abundance of global oil production.

This oil assemblage appeared stable for a long time. Oil was produced in ever larger quantities; it gradually displaced less efficient coal; prices were low and stable; and oil fuelled the economic miracle of Western Europe in the 1950s and 1960s. The oil companies made large profits through what appeared to be the operation of the invisible hand of the market. To many in the West, this appears the golden age of oil. In reality, the assemblage rested on the political subordination of the Middle East's oil-producing states, the diversion of the share of economic rents from the host states to the oil companies, and a lack of local control over these countries' core assets.

The main development that radically destabilised and deterritorialised this dominant oil assemblage was the dismantling of the colonial assemblage through the process of

decolonisation. It was the oil-producers ability successfully to assert sovereign control over the oil physically concentrated on their territory that radically shifted the structure of the assemblage. There were, admittedly, other factors that also contributed to this radical shift of power. The bargaining power of the oil-exporting states was helped by the rapidly growing demand in Europe and elsewhere. But the most important factor was undoubtedly political. This was driven by the growing political assertion of the Global South, perceptions of US decline and a growing antipathy to the US due to its support of Israel following the Arab defeat in 1967. In this context, the continuing presence and power of the Western oil companies appeared as a major derogation of the sovereign independence of the Middle Eastern states. It was this broader political context which led to the wave of nationalisations, starting in Algeria in 1971, then Iraq in 1972 and Libya in 1973.

This radical revolt of the oil-producing states did not, however, succeed in fully dismantling the dominant Western-controlled order. OPEC and the newly empowered oil-producing states in the South were not capable of reproducing the oil majors' former power and capacity to control the industry. While OPEC could assert national ownership of oil production, it had only limited capacity to control the other parts of the value chain, such as transportation, processing and distribution.⁹⁰ A key consequence of the passing of the Western-dominated assemblage was the end of the vertical integration of the industry and its fragmentation into a mosaic of partly nationalised and partly liberalised and globalised sectors.⁹¹ The resulting global oil assemblage was more hybrid, fluid and with greater internal and external forces seeking to destabilise and stabilise its interactions.

During the 1980s to the late 1990s, it appeared that the West and the major oil-importing countries regained the upper hand. International oil companies found a new role in compensating for their losses by diversifying oil production away from the OPEC countries and towards new oil fields, such as in the North Sea and Gulf of Mexico. The US also took a much more assertive and neo-imperialist role in regaining its dominance and hegemony over the Middle East after the 1990–1 Gulf War. This neo-imperial expansion coincided with the collapse of the Soviet Union that was, at least in part, due to low international oil prices undermining the Soviet economy. The economic dimension of this re-assertion of power was the promotion of the ideology of neo-liberalism. This affected the global oil assemblage with oil markets becoming more diversified with an array of smaller oil companies and service companies competing with the international majors. The financialisation of the industry through the development of a futures market in oil and the creation of 'paper barrels' accelerated the industry's liberalisation. The collapse of the previously autarchic Soviet oil and gas industry provided new opportunities for private investors and the sector became increasingly controlled by a small group of 'oligarchs'.⁹² By the end of the 1990s, it appeared that the oil assemblage was now fully globalised and liberalised and that, as one well-known oil analyst observed, 'resource nationalism has practically disappeared from the discourse of international relations'.⁹³

However, the belief that the international oil assemblage had effectively returned to its pre-1970s status quo proved premature. The neo-liberal agenda was only ever partially imposed on the international oil industry. There was no return to the power of the private oil companies of the period before the 1970s. Oil-exporting states did

not relinquish control over their indigenous energy resources, though they might have permitted greater autonomy for their national oil companies and were willing to be more open to foreign investment. But the new reality was that, by the end of the 1990s, 90% of world proven reserves were controlled by national oil companies, as compared to only 10% in the 1960s.⁹⁴

In the 2000s, resistance to the neo-liberal agenda also strengthened by a significant shift in the balance of power between consuming and oil producing. In Russia, the early post-Soviet openness to foreign investment and the neo-liberal agenda of economic liberalisation, deregulation and privatisation were significantly reversed during the 2000s. This was manifested in the Russian energy industry by the crackdown on the oligarchs, leading to significant renationalisation of Russia's hydrocarbons resources.⁹⁵ A similar story can be seen in Venezuela and Iran. Another important new aspect of this more illiberal international oil assemblage was the growing importance of China as a major oil consumer. In the mid-1990s, China shifted to being a net importer of oil, with subsequent very fast economic growth leading it to overtake the United States as the largest importer of oil in 2017. Unlike the Western oil consuming states, China relied not on private oil companies but on its state-owned national oil companies – CNPC, Sinopec and CNOOC – to ensure secure supplies of oil for the Chinese market.⁹⁶

Overall, what one sees in the period from the 1970s to the 2020s is that the deterritorialised international oil assemblage was more fluid and unstable than the pre-1970s international oil assemblage. The first 20 years of this period (1980–1999) appeared to indicate a return to Western dominance and power; but this was then resisted and challenged in the subsequent period (1980–2022). However, despite these oscillations, the fundamental shift of power, the deterritorialisation that occurred through the process of decolonisation in the 1970s, was not overturned.⁹⁷

Conclusion

Returning to Szeman's notion of oil being 'hidden in plain sight', the overall argument of this article is that adopting the new materialisms theoretical approach makes visible significant aspects of the international politics of oil that are not always captured by conventional IR approaches. The new materialisms approach offers two main theoretical innovations. First, it suggests a new starting point for theorising about the IR of oil, not war, markets or empire but the physicality and materiality of oil as an agent in its own right. This focus on oil's materiality pays attention to how the physical properties of oil shape and affect the social and political. Second, the new materialisms approach, working with assemblage theory, offers new perspectives on the material journey of oil and analyses how oil's assemblages shift and change along the value chain from exploration and production to transportation, processing and consumption. This provides a more holistic understanding of oil's interactions with the international. Oil's assemblages also shift and interact in complex ways with other assemblages during different historical periods and this dynamic is also captured through adopting the new materialisms approach.

In terms of future research, this article points to the potential value of adopting the new materialisms approach to other pressing energy-related issues. For example, the

materiality approach can also be applied to other critical fossil fuels, such as coal and gas, as there remain significant gaps in how these resources have effects and implications for IR. There are also research opportunities to take the materiality of renewable energy resources – such as solar and wind – as a starting point for understanding the formation of an alternative and sustainable energy assemblage. More pressingly, the new materialisms approach offers an analytical framework for the strategic imperative of developing a low carbon energy future that transcends what Simon Dalby has aptly called the geopolitical culture of firepower.⁹⁸ In relation to oil, this demands a radical deterritorialisation of the oil assemblage or, at least a significant dis-assembling and re-assembling of oil, given that oil is not going to disappear completely and will remain integral to the transition to a net zero world. As this article has indirectly demonstrated, this will not be an easy or straightforward process. There is, therefore, a critical research agenda of thinking through these future processes of dis-assemblage and re-assemblage. The way that oil permeates society, from the oil enclaves where it is produced to its underpinning of many critical elements of modern life, such as human mobility, means that these disruptive processes will necessarily have profound international as well as social and economic implications.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

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