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Building “oil” in British India: a category, an infrastructure

Résumé

This paper traces the history of oil being reined in by the British Raj, from the 1870s to the early 20th C. I argue that oil is not a self-evident object, but a category built by regimes of thought. Second I argue that oil became an infrastructure, used by the colonial state to elaborate itself. Nonetheless, neither the disciplining of petroleum, nor that of its popular use were straightforward because it involved several actors and was not driven by the Crown alone, presenting obstacles and surprises. Being a slippery substance, oil stealthily exposes the chinks in the armour of the colonial state. Being a networked system, it draws attention to distributed sovereignty within colonialism. By tracing the encounters between oil companies, the state and oil's materiality, I chart a journey of oil as it became government but also escaped government.

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INTRODUCTION

- 1 “Dig boy, dig”, bellowed the Canadian engineer W.L. Lake, as workers gazed at the oil-stained feet of elephants emerging from the dense woods of Assam in north-eastern India. Legend has it that in 1882, while constructing a railway line, engineers of the Assam Railways and Trading Company (ARTC) noticed that the mud on the feet of elephants being used for haulage smelt of oil. On retracing the trail of footprints, they found oil oozing to the surface from the ground beneath.¹ Like all legends, however, there are several versions of how the Assamese town Digboi got its name. Although this was not the first sighting of oil by the British in India, it marked the beginning of a concerted effort to understand, make and commercialise a substance called “earth/mineral oil”.
- 2 The phase of exploration for this relatively unknown substance was filled with hesitation and mystification. The improbability of finding it coupled with the ambiguity of its prospects caused a lot of suspicion. Not only was it uncertain that investments would be fruitful, but also what it would bring forth, how it could be used, whether it held any promise for the empire, and if so, how best it could be harnessed, was not clearly known. Different departments of the government were on different sides of the debate; and till the promise of this puzzling liquid wasn't internationally acclaimed, the imperial government remained wary.
- 3 While large-scale production of petroleum began in India only after the Digboi incident, it was being imported since the 1860s by British companies, who were supplied mostly by Standard Oil in the USA.² At this time petroleum's primary use was as kerosene for lighting and occasionally as a lubricant for machines. Gradually the shipping and railway industries were discovering the prospects of using oil as a fuel and not just

a lubricant.³ Over time, steamers shifted to oil from coal.⁴ With the turn of the century, petroleum was becoming an ingredient of substances such as waxes, paints, medicines, and was also fuelling cars.⁵ The widespread and multifaceted use of oil in British India – in a matter of a few decades – involved many debates in the bureaucracy, and depended on media reports and scientific journals discussing experiments with oil in the USA.⁶

In this entire period, British India relied heavily on imported petroleum, causing traffic and chaos at ports. Confusion reigned as rules got fleshed out and new categories like “dangerous petroleum” were created. British officials in India, inept at dealing with this substance in its early years and unenthusiastic about its use, often found themselves arguing about laws and practices to be established around it. One such case was the detention of the shipment for Hobson Connor and Co. in the same year as the elephants in Digboi, 1882. This shipment failed the “flashing test” (the standard set for inflaming point) at the port in Calcutta. The practice was for safety certificates to come along with the cargo, declaring that the oil was not “dangerous” and “flashed” (ignited) above 73° Fahrenheit (F). It turned out that in India this kerosene was flashing below 73° F. After a debate over many months between government officials, port authorities, chambers of commerce, scientists, oil companies and certifiers, the British Administration proclaimed that a uniform flashing point for safety could not be drawn, as apparently oil ignites at different temperatures in different climates. Since there was a dispute over a safe flashing point at that moment, the government decided that

¹ I.A. Farooqi, *Story of ONGC* (Dehradun: Sahar Publishers, 1999), 5.

² Public Works Department (PWD), *Railway Stores Branch, Proceeding no. 23-40. (1899, September)* (New Delhi: National Archives of India (NAI)).

³ Finance and Commerce Department (FCD), Statistics and Commerce Branch, Proceeding no. 263-270, Part A. (1898, March), *NAI*.

⁴ FCD, Statistics and Commerce Branch, Proceeding no. 485-486, Part A. (1901, October), *NAI*.

⁵ Revenue and Agriculture Department (RAD), C.V. Administration Branch, Proceeding no. 8-9, File no. 20, s.no. 3-4, Part B. (1904, August); Home Department (HD), Judicial Branch, Proceeding no. 63-67, Part A. (1903, September), *NAI*.

⁶ PWD, Civil Works Branch (Coal and Iron), Proceeding no. 13-16, Part A. (1883, October), *NAI*.

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this shipment would have to be shipped back to the USA.⁷

- 5 This opened up a debate at an international level about safety standards, petroleum categories, testing methods and trading. Petroleum science itself came under question as safe and unsafe oil, the ignition point, and oil’s peculiar behaviour were all under doubt. T.B. Redwood and F.A. Abel in London (the scientists who devised the flashing test, after whom it was named the “Abel Test”) confirmed that owing to climatic variations a uniform flashing point to test dangerous petroleum was not advisable. This raised doubts about whether American certificates could unreservedly be accepted in India. It also raised questions about the ways in which oil was transported and stored. The detained kerosene was tested by the chemical examiner of the imperial government and its results showed that different samples flashed at different points. The British Indian Government declared that American certificates did not reflect Indian safety standards.⁸
- 6 The Secretary of the India Office in London wrote to the Viceroy of British India to make an allowance of a few degrees of difference. Clearly, it was not a matter of science, but of politics and profits. In the multiple letters that were exchanged between London and Delhi, there was a lot of pressure from London to release the cargo as a “large trade was endangered” and “heavy losses were accruing to the company” and to relations between the USA and Britain. But the local government in Bengal was adamant that 73° F was the absolute limit in law and could not be relaxed. Schroeder Smidt and Co., which had been abiding by the law, protested against any amendment to relax it, pointing out that it was against public good. The Chamber of Commerce in Bengal was of a similar opinion.⁹
- 7 As the issue escalated, Hobson Connor and Co. wrote to Her Majesty in London. Asserting that

it had abided by every law and that American certificates followed stringent standards, the company maintained that allegations against it had ulterior motives as they were coming from its competitors. Samples of this shipment had by now been tested in Bombay and London and had been declared safe. American certifiers also sent letters explaining the process of testing practised there. Meanwhile, Abel confirmed that American certificates could be trusted. Pressure from the India Office in London continued mounting on the British Indian Government to release the cargo. Government officials finally declared that it could not be stated that Hobson Connor and Co. was trying to cheat its way into the Indian market by selling cheap petroleum.¹⁰ Even the Esquire of New York got involved as he wrote to the Viceroy of India, submitting facts and suggestions regarding this industry.¹¹

This case marks the entry of the expert in the form of the chemical examiner who presided over the entire affair. Experts were what governments used to rein in the material as well as faltering companies. Science and technology that developed around oil were essential in creating the category of oil itself, by fostering an understanding of what it is and isn’t, how it should be handled and used. We see the process of disciplining petroleum through rules, science, documents and practices, which created an object that was knowable, controllable and usable. This case brings in sharp relief how decisions were made, who had the power to make them, who negotiated well, who succumbed to pressure and how much this mattered in formulating petroleum science. It unfolds confusion, change of decision and chaos. It underscores the types of agents involved in building petroleum as well as the state, and the negotiations between them, which decided the laws that came to hold the status of objective and universal truths, such as when oil is dangerous. This case also informs us how roles and responsibilities were divided between shippers, companies, port authorities,

⁷ HD, Judicial Branch, Despatch to Secretary of State no. 22. (1882, July), *NAI*.

⁸ *Id.*

⁹ HD, Judicial Branch, Proceeding no. 24-119. (1882, July), *NAI*.

¹⁰ HD, Judicial Branch, Proceeding no. 342-426, Part A. (1882, September), *NAI*.

¹¹ HD, Judicial Branch, Proceeding no. 275-277, Part A. (1883, January), *NAI*.

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local governments, the central government, and the Crown, indicating multi-polar sovereignty and conflicts. The interplay between the materiality of oil and human agency, the problems the former throws at the latter, how the latter develops practices that then become forms of government, is well demonstrated here. The involvement of the Crown, the pressure it exerted on the imperial administration in India, and the high stakes in this one shipment of kerosene hint at the importance of oil to British imperialism even before the 20th C. However, this was only in terms of revenue, as the government was not yet using oil as fuel for imperial expansion.

9 In this paper, I trace oil in formation in colonised India, from its humble and chaotic beginnings to becoming an organised infrastructure for colonial elaboration. The harnessing of oil by the colonial state was a protracted journey involving confusion, failures and competing desires. Being a new substance, petroleum puzzled the colonial administration and escaped becoming a subject of the state for some time (a knowable, controllable and usable thing, with definite boundaries and scope for intervention). Documents at the National Archives of India signal perplexity about how this substance should be used, taxed, regulated, things to be included and excluded in its definition, and concessions that companies should be allowed. This indicates that oil was crafted as a category in the colonial bureaucracy through debates, where its boundaries were contested. Power play, trade and taxation influenced decisions which are considered matters of science, such as the definition of oil. Petroleum, although a material category, was socially constructed, and is thus mutable. It is this tension between the material and the social that this paper excavates.

10 Put together through exchanges within and between bureaucracies, international companies and scientists who were deciding what it was through technologies, markets and laws, petroleum as we know and use today did not always exist this way. The processes required to distinguish oil from other subsoil materials, transform it into a knowable and usable thing that can be

manipulated, and the qualities and characteristics of which are fixed and definable, were products of negotiation. Chemical formulae, juridical arrangements, economic calculations, and trade agreements together decided the boundaries of “oil”. Debates over these – zones of negotiation – reduced over time, with a gradually crystallising boundary, definition and understanding of “oil”. Without this progressively emerging discourse, the product would not exist. It would be just another constituent of the underground, and not reified as a separate product. This discourse in the bureaucracy distinguished it and created its boundaries and definition by deciding what oil is and isn’t, its characteristics, behaviour, uses, etc. A different sort of discourse on oil would produce a different type of product with different inclusions and exclusions in its properties and uses. This paper illustrates how a certain type of thinking and political-economic context created this product out of the black viscous liquid found underground, which, in a different context, might include many of the things currently removed from it, or exclude those that are currently left in it. If it was not useful for colonial capital, it could have taken other forms or no form at all. It had to be gradually made sense of and was not easy to ideationally separate from other elements found underground. This process of separation was its creation, in the bureaucracy, among other places.

The method of measuring and identifying an oil reserve, and the procedures in extraction and refining are determined by more-than-scientific ideas. After extraction, oil is towed through a series of socio-techno-economic arrangements to be made into numerous petroleum products. It is thought of as a natural substance, simply extracted from underground and brought into daily use. But once removed from the earth, it is hauled around in ships, railways, trucks and pipes. Heated, cooled, added to, subtracted from, tested, measured and packed, it constantly changes form. Oil lives a socially charged life, with individuals making decisions concerning its form at every stage. The process of making petroleum products is not as a neutral one guided by crude oil’s physicality alone, but also

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by state prerogatives, corporate needs, and the decisions of engineers on site.

12 Crude oil and petroleum products are categories built by discourse, not self-evident things, easily distinguishable from every other thing, all of which are subterranean elements, mixed together in their natural state. The descriptions qualifying and quantifying oil were political because certain ontologies and epistemologies needed to be mobilised to construct this commodity and resource in this way. Oil, thus, was not *represented* in bureaucratic regimes of thought, it was *produced* in them.

13 Despite the links between oil development and colonial capitalism, the history of oil in India illustrates that the companies, bureaucracies and institutions involved in shaping oil, its markets and users, were not guided by well-planned and a unitary politics of colonisation. Rather, they come across as chaotic and faltering, that developed strategies as they went along. Research and development in oil cannot be pinned solely to imperial ambitions as it was also guided by a genuine need to understand oil and use it to ease daily life. Nevertheless, the institutional frameworks these people were limited by and the socio-political contexts they were embedded in were essentially imperial, which defined their broader politics.

14 This paper seeks to uncover the ideologies, calculations and accidents that were critical to fabricating oil as a kind of infrastructure: a complicated sedimenting of political, social and technical arrangements which shape the contexts technologies and people function in. This narrative is not a simple tabulation of heroic discoveries and technological change, and so the importance of oil does not emerge as a product of periodic improvement along a narrow evolutionary technological path, but is unpacked as a substance of politics and history.

WHO IS SOVEREIGN?

15 The first prospecting licence in India was issued in 1854. Several British wildcatters streamed in thereafter. None accomplished long-lasting

success.¹² Till the 1880s the onus for oil prospecting in India was entirely on private enterprise. After the 1880s too, it is widely understood that the British Indian Government did not pay heed to the development of this industry. The reasons for this, nevertheless, remain debatable.¹³ After the legendary elephants' incident, a few decades were spent in systematising surveying, improving technology and transport.¹⁴ The correspondence between officials of the Geological Survey of India (GSI), the Chief Commissioner of Assam, the Secretary of the British Indian Government and officials at the Department of Agriculture, Revenue and Commerce, regarding granting leases to companies for sequestering oil, was tilted in favour of the companies. Justifying concessions to companies, GSI officials stated that “businessmen risking their money on the development of mineral resources of India, which are in the most backward condition, should be granted very liberal terms”.¹⁵ After much back and forth, decisions were made about royalty, taxes, use of other local resources, lease area and suchlike.¹⁶ These initial agreements became templates for formulating rules in later years. They formed the foundation upon which the edifice of oil was built. Born out of tussles, they went a long way in giving shape to the industry, allocating responsibilities, defining the relations between the government and companies, establishing laws, pricing, taxation, and in effect, the product itself. Hence, the physical peculiarities of oil *alone* cannot be held responsible for the emergence of a certain product, a way of making it, and the resulting governance regimes. Oil was found and built at a time and place where a type of relationship already existed between companies and the government. Oil's colonial context shows that the way it was understood and

¹² Sarah Hilaly, *The Railways in Assam 1885-1947* (Varanasi: Pilgrim Publishing, 2007), 204.

¹³ G. G. Jones, “The State and Economic Development in India 1890-1947: The Case of Oil”, *Modern Asian Studies*, Vol. 13, No. 3, 1979, 353-75.

¹⁴ S.N. Vishvanath, *Summons to Greatness* (New Delhi: Exposure Media Marketing Pvt. Ltd., 2010), 26.

¹⁵ Department of Agriculture, Revenue and Commerce (DARC), Minerals and Geological Survey Branch, Proceeding no. 1-5. (1878, July), *NAI*.

¹⁶ RAD, Minerals Branch, Proceeding no. 15-43. (1881, July), *NAI*.

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made was inherently contingent, not a timeless and universal truth. These contracts didn't just make oil, but also made the state. Even if devoid of a coherent colonial ideology, these contracts shaped the development of those areas, their economies and labour practices, and enabled oil extraction on feasible terms, all of which contributed to strengthening the empire.

16 Several actors, including experts from other countries, gave shape to industries like oil, all of whose personal opinions and agendas caused conflicts. Decisions about where oil extraction is feasible and where it isn't have been viewed as scientific, but were also based on politics between these actors, and the important factor of imperial revenue.¹⁷ For instance, R.A. Townsend, an expert from Canada, was hired as the Superintendent of Petroleum Operations in Baluchistan in 1883. He surveyed India's oil fields and published a report in 1889, which pronounced Assam's resources to be voluminous and of very high quality. He believed that the Indian colony could become fuel independent and end imports of American and Russian kerosene that “the eastern populace had been made to get addicted to”. Despite such positive feedback, C.A. Elliot in the Public Works Department (PWD) did not want to make this report public, invite applications for leases, or take action on it. He was sceptical of this substance.¹⁸ Furthermore, at this time revenues from forests were greater than revenues from oil,¹⁹ and destroying forests for oil extraction was not beneficial for imperial coffers.

17 Townsend also advocated that India follows the system prevailing in Pennsylvania regarding royalty and definition of market value between lessor and lessee.²⁰ Some officials in the PWD

suggested that concessions must be given to companies for taking risks and developing this remote region and fledgling industry, as concessions of a similar kind were given in the USA.²¹

The GSI and PWD were now mapping the oil fields of Punjab in north-western India, for companies to start investing there, despite substantial reservations expressed by some bureaucrats. In 1883 B.S. Lyman, a geologist from Pennsylvania, was commissioned by the PWD to study Punjab's oil fields and he published the *General Report on Punjab Oil Lands*.²² This surveillance, creation of knowledge and expertise were the ways in which oil was steadily reined in to act as a state tool. Categories, technologies and knowledge that were produced were what created petroleum as we know it. The idea of what oil is and can be was built with these material and thought inputs. The possibilities and potentials of oil were determined in part, by the intentions behind disciplining it, which were socially produced and circulated within networks and institutions. Research and development within the oil industry would look very different had the institutions conducting it been systemically different, and not under the umbrella of colonial capital.

When petroleum operations commenced in the early 1880s in Khattan, Punjab, there was a race between the central and local governments to control it. The Governor-General of Baluchistan, R. Sandeman, wanted to work the oil wells himself with financial aid from the centre. This was unacceptable to the centre.²³ Faced with such problems, the practices undertaken by the British Administration led to greater centralisation, new boundaries between central and local governments, and the fabrication of a social infrastructure of the oil industry. Who got to control oil was becoming a contentious issue owing to the realisation that it lends enormous powers to its manager and owner.

¹⁷ PWD, Civil Works Branch (Coal and Iron), Proceeding no. 6-8, Part B. (1892, March), *NAI*.

¹⁸ RAD, Minerals Branch, Proceeding no. 4-13, File no. 2. (1889, January), *NAI*.

¹⁹ Arupjyoti Saikia, “Imperialism, Geology and Petroleum: History of Oil in Colonial Assam”, *Economic and Political Weekly*, vol. 46, no. 12., 2011, 48-55.

²⁰ RAD, Minerals Branch, Proceeding no. 7-14, File no. 17. (1891, July), *NAI*.

²¹ RAD, Minerals Branch, Proceeding no. 1-5, Part B. (1890, June), *NAI*.

²² PWD, Civil Works Branch (Coal and Iron), Proceeding no. 13-16, Part A. (1883, October), *NAI*.

²³ Foreign Department (FD), External Branch, Proceeding no. 39-41, Part A. (1885, September), *NAI*.

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20 Khattan’s oil operations had been the source of much disagreement within the colonial administration. In 1886 H.B. Medlicott from GSI emphatically argued for the government to invest in exploring oil. Referencing a report on oil in Punjab from the 1860s produced by American experts, he asserted that there was enough evidence for the government to take this seriously, especially for the sake of railway fuel. He stated that it had been the practice of the British Government to leave everything to private enterprise, and that companies did not have enough resources to take up such large tasks, which was why the ARTC was not doing a good job in developing Assam’s oil resources.²⁴ Medlicott’s statement signals the unconscious reliance of the colonial government on private enterprise, and the role of the latter in colonialism. It signals discord within the administration about this, and the push to take matters in its hands and device a workable relationship with private enterprise. It also signals that oil’s potential was not self-evident, and had to be created and argued for. Colonial ambitions of expansion via railways, and the hunger for fuel betray the dreams oil had spun and the imperial designs it allowed. The USA’s presence in the colonial endeavour lingers. Moreover, it is telling of the USA’s interest in surveilling oil resources around the planet.

21 Considerable scholarly attention from across the globe had been given to Khattan’s oil. It was considered one of the best in the world, and it was widely acknowledged that very good fuel could be produced from it. Oil wells there, however, were plagued by the problem of flooding with rainwater. After much discussion between officials from local and central government departments, scientists and experts, these wells were shut down in 1891-92.²⁵ Opinions on how to deal with such problems and what their consequences were varied widely. Decisions that were eventually taken *are* what constituted colonial

governance. These were neither given to local bureaucrats from above, nor always followed the script of imperial revenue collection. Not even that of “science”. Local administrative sovereignty hence played a noteworthy role in composing the British Empire. As Timothy Mitchell argues, these grassroots decisions rarely get studied in accounts of colonialism, which focus on grand narratives in the metropole, but miss everyday politics in the colony, stripping low-level bureaucrats, colonised subjects, business firms, and materials of agency in giving empires their specific forms.²⁶ The socio-technical arrangements devised over time, in order to procure and supply oil, rarely get factored into colonial histories and are rarely seen as political. Oil and the numerous local actors in its management played a significant role in shaping British colonialism in India.

22 After companies started prospecting for oil in the 1880s and 90s, there seemed to be a general consensus among them and some bureaucrats that without concessions and infrastructural provisions from the government, the oil industry would suffer, as it was finding it hard to take root.²⁷ Economic benefits, control over the region’s other resources, transport, and all sorts of assistance from the state were essential for the oil industry to grow. Concessions granted to companies by the government unveil the partnership between them. Oil money was crucial for both, but what oil could do for government was equally important for both. Oil became a hook that forged a deeper alliance between corporations and governments and engineered new possibilities for both. Moreover, developing oil was now portrayed as a public good aiding infrastructural development, not as something done solely for the empire.

23 Joshua Barkan argues that the modern corporation and the modern state emerged in conjunction over a few centuries, defining each other’s boundaries, limitations, possibilities and powers. In this co-constitution, he finds that

²⁴ RAD, Minerals Branch, Proceeding no. 15-43 (1881, July), *NAI*.

²⁵ FD, External Branch, Proceeding no. 130, Part A. (1890, May); PWD, Civil Works Branch (Coal and Iron), Proceeding no. 6-8, Part B. (1892, March); Proceeding no. 1-31. (1892, August); Proceeding no. 4-6. (1892, September), *NAI*.

²⁶ Timothy Mitchell, *Rule of Experts: Egypt, Technopolitics, Modernity* (Berkeley: University of California Press, 2002).

²⁷ RAD, Minerals Branch, Proceeding no. 4-13, File no. 2, (1889, January), *NAI*.

corporations, as governing institutions, were an element of the state in their early stages. This explains the place they have held in the modern world – with substantial authority over the populace, important facets of the state, and threatening the government owing to the sovereignty vested in them over matters of society.²⁸ The story of petroleum in colonised India brings out how the government and oil companies used petroleum for state expansion, and how this was never smooth, but peppered with antagonism. The British Administration was never fully decided about the kind of liberties to give to oil companies and their role in the colonial endeavour. There was a constant tussle between oil corporations and the colonial administration over benefits to companies for public services they were seen to be providing on the one hand, or curtailing them as they could be a threat to state power on the other. Governance and the specific form the modern Indian state took, was partially the craft of oil and its management.

24 Philip Stern also writes about the corporation of the early modern period as a sovereign entity and constitutive of the state as well as the empire. With the case of the East-India Company (EIC), he advances an argument about the decentredness of sovereignty in British colonialism.²⁹ The EIC cannot be tethered to the empire or the nation-state, both of which were in formation along with it. Therefore, the empire was informed by the logic of the corporation and the nation-state, which together constituted British imperialism. This analysis can also describe the figure of the oil company in colonised India as an essential element of late British imperialism in South Asia, not by executing orders from the Crown or working solely for it, but by its own logic, sprouting new possibilities for the empire, shaping and propelling it from within. Further, disagreements and shifting sovereignties were common, as matters over which local

and central agencies adjudicated were moved around between them, also pulling in oil companies. Owing to the enormous presence of Standard Oil, the government and companies of the USA too played a sizeable role in shaping the colonial state in India via regulations, pricing and material practices regarding oil. Control over oil then was disputed and distributed.

The British Administration was a lot more dependent on imported than locally produced petroleum, which was still in its nascent stages. American oil companies, thus, had a larger say in shaping petroleum rules in India than British-Indian companies, through their scientists, explorers, certifiers, market influence, packaging and products. In 1883 the Consul-General of the USA wrote to the British Administration of India that some ships carrying oil from the USA to Calcutta were not allowed to dock because of the local rules there and that this was causing difficulties for oil trade. The British Administration responded agreeably with the assurance that immediate steps would be taken to “remove such hardships” faced by American companies. Calcutta authorities, nonetheless, remained defiant, but were forced to eventually relent.³⁰ Thus, there was little clarity on who possessed sovereign authority in such matters between the central and local governments. But American companies often found their way.

The main concern of the local oil-producing industry was the restrictions imposed by the government in the form of taxes, rules, lack of incentives and competition from imported products. The Government of Assam wrote to the central government on behalf of the Assam Oil Company to give the local oil industry greater concessions and remove restrictions, which it should instead impose on importers of petroleum.³¹ Parts of the central government remained hesitant, and a debate on whether to protect and promote the local industry continued for long. One such debate took a lively turn in 1903

²⁸ Joshua Barkan, *Corporate Sovereignty: Law and Government under Capitalism* (Minneapolis: University of Minnesota Press, 2013).

²⁹ Philip J. Stern, *The Company-State: Corporate Sovereignty and the Early Modern Foundations of the British Empire in India* (Oxford: Oxford University Press, 2011).

³⁰ Legislative Department (LD), Legal Opinions Branch, Proceeding no. 33-34, Part B (1883, March), *NAI*.

³¹ HD, Judicial Branch, Proceeding no. 40-41, Part A (1901, December), *NAI*.

when D. Ibbetson from the PWD stated that levying an excise duty on British Indian producers would “severely hamper capitalist interests in the country”. He argued against E. Law of the Revenue Branch who was concerned about filling imperial coffers and believed that the only way was to tax native oil, which was allegedly growing and would oust imported petroleum, reducing the revenue from import duty. Another prominent official in this debate was A.P. Palmer from the East Indian Railway Regiment, who was of the opinion that local industries do not need government assistance, and found it important to safeguard imperial interests by increasing military expenditure, for which more taxes needed to be levied. No decision was immediately taken.³² This again brings to light the knotted relationship between oil and imperialism, as well as the perpetual alliance and conflict between corporations and the government. Government officials were united in the ultimate aim of the imperial state’s expansion but disagreed on the route to it: by allying with and giving liberties to corporations who could act as arms of the state, or by restraining them so they don’t overpower the government, and taxing them, to take the safer and better-known route of revenue. Local governments and chambers of commerce often sided with local oil companies but had little power, and the local industry remained undeveloped in the face of imported petroleum.

27 Fears of international oil corporations becoming global giants fed by government concessions were the fodder of much debate within the British Administration. Standard Oil’s application in 1902 to railway companies for setting up storage tanks near railway stations sparked off such a discussion in the central government. Economic theories of free trade, popular in Europe at the time, propelled this dialogue as officials claimed that this application should be rejected because Standard Oil is monopolistic. Permission was, nevertheless granted, as F.J.E Spring of the PWD, managed to convince other

officials that Standard Oil could not monopolise Indian markets and then raise prices, as Indians had a wide array of vegetable oils to fall back on if kerosene prices went up. He asserted that foreign companies should be allowed such facilities in the country as it would increase the consumption of petroleum and drive out vegetable oils, which were hindering its spread. He also asserted that the “Indian culture of sharing resources” needed to change over to individualised consumption to increase petroleum sales.³³ Much before Henry Ford’s proclamation of the right of every poor man to a car, Spring proclaimed that every Indian had the right to private petroleum, assuming that it was every Indian’s inborn desire. It is unclear whether the forces behind Spring’s machinations were biopolitical motivations of transforming lifestyle patterns of the colonial subjects, lobbying done by Standard Oil, or a belief that kerosene would improve their subjects’ lives and “develop” them.

Kerosene, a poor household’s everyday artefact, 28 fully embraced by the people, was a product of a networked infrastructure created by big capital, and regulated by the state. Petroleum products were organized by big technology and imperial politics (albeit haphazardly), and permeated into the daily lives of common people via small everyday technologies like cars, mills, lamps, etc. This had a double effect: bringing the colonial state into people’s private affairs, but also upsetting state politics and government with people’s commonplace aspirations and actions. By turning into a daily necessity for common people, oil cannot be understood as an imperial tool alone. Its chemical properties have the capacity to generate several kinds of substances (asphalt, petrol, gas, plastics, pesticides, paints etc.), making its political and social possibilities versatile. Although the widespread use of petroleum by common people was a calculated move promoted by the industry and the state, once it became a household item it was no longer just a colonial instrument. Colonised subjects exercised some agency over

³² FCD, Separate Revenue Branch, Proceeding no. 330, Part C (1903, August), *NAI*.

³³ RAD, Geology and Minerals Branch, Proceeding no. 1-4, File no. 136, Part A (1902, November), *NAI*.

this product, beyond the command of the state, and expressed a great demand for it, altering the meanings attributed to it by the state. The production and use of this substance were shaped partially by local people, giving its receivers partial influence over its politics.

THE STATE TAKES CHARGE

29 The question of making imported kerosene the subject of imperial taxation was raised by the Finance Department as early as 1878. Later, in 1887 the Government of Bombay wanted to impose town duty on it.³⁴ At this time petroleum's utility to the state had not been conceived of in a way other than revenue. Its energetic powers were revealed once experiments with it as engine fuel took place, creating its governmental and imperial prowess. Nevertheless, the large kerosene trade was contributing to imperial reserves to such extents that, in this form too, petroleum was an asset. Its taxation was a way of disciplining it: bringing it under state surveillance, indirectly conditioning its use and users. By 1905 the Department of Commerce and Industry had a Petroleum Branch, making apparent the state's entanglement with oil. Via formulation of acts, the state inserted itself into oil. As Brian Black notes, this was a time when countries in the West were formulating new legal systems. The role petroleum played in this cannot be underestimated according to him. He notes that time and again it “emerged as a significant consideration” while formulating legislations, thereby exercising influence over modern democracies and their legal systems.³⁵

30 In 1880 the Legislative Department proposed formulating a Petroleum Act for India, to regulate the import, transport and storage of “inflammable oils”. This was to be based on the similar English legislation.³⁶ The Petroleum Act of 1881 required all ports to draft their own rules for landing the cargo, storage, transport and

suchlike. Disappointed with the alleged lack of professionalism in these draft rules, the central government asked the Burma, Bengal, Madras and Bombay authorities for revisions owing to their lack of foresight, impracticalities and vagueness.³⁷ Bureaucrats who were ill-equipped to manage this new substance were nonetheless critical in shaping it through the rules they drafted, which had lasting effects on its production, trade and consumption. Material practices these rules enabled and disabled shaped the oil industry, its consumers and their lives, as well as governance patterns. Forms of sociality and constellations of power were allowed and disallowed by these material practices, which were neither entirely determined by oil's properties, nor entirely by the state's desires.

31 Through mass consumption, oil allowed the state to seep into people's private lives, but also seeped into the state itself, shaping its governance regimes. This was a two-way process: the state was also an active agent, moulding oil by its rules. In the beginning oil's physical specificities bewildered the government and companies, and they found it hard to control it. In some places it was hard to sequester, in others, it was hard to keep in the ground. Being fluid and inflammable, it was hard to transport. But gradually oil's physicality was domesticated. Its fluidity and inflammability were turned into opportunities from obstacles. Technology, regulations and methods of handling it were devised to harness the material affordances and limitations of oil for human benefit. Petroleum was muffled by establishing a multi-nodal network for its extraction, refining, import, storage, transport and sale. This gradually emerging network was undoubtedly determined by oil's materiality, but the state found ways to navigate this slippery terrain and exert its own agency, to be able to deploy it for its use. Through science and bureaucratic discourse, oil was made knowable, controllable and usable. It was disciplined and turned into a productive tool of the empire. In the same way, oil was also wrested out of the

³⁴ HD, Municipalities, Proceeding no. 33-34. (1887, November), *NAI*.

³⁵ Brian Black, *Crude Reality: Petroleum in World History* (New York: Rowman & Littlefield Publishers, 2011), 53.

³⁶ LD, Unofficial Branch, Proceeding no. 2512. (1880), *NAI*.

³⁷ HD, Judicial Branch, Proceeding no. 145-169, Part A. (1882, August), *NAI*.

hands of frontier entrepreneurs by the state, which established greater command over it on the pretext of having expertise.

32 By the 1890s new questions had cropped up and rules needed revision to reflect these. There were questions regarding storage and transport, as “dangerous petroleum” now needed to be defined differently for it was transported throughout the country and passed through warm regions where it could become inflammable. Petroleum was now being used as an ingredient in several products, and how were port authorities to deal with the import of these substances? Should paints, turpentine, varnishes, etc. be treated under “dangerous petroleum rules”? The use of naphtha in various products had increased and the definition of petroleum was now under question.³⁸ New petroleum products flooding the market were causing perplexity in the customs offices as they didn’t know how to classify them for taxing purposes. The categorisation of petroleum jelly was debated between different customs houses as it is solidified petroleum, used as a lubricant, flashes over 200° F, and therefore fell in the category of lubricants. But it was being used to adulterate other oils and some officers believed that duty on it should be under a different category, to discourage its import.³⁹ Yet again, confusion and indecision unravelled. Oil’s properties were contested. When is it “oil” and when is it not “oil”? The sorts of activities and chemical properties subsumed under the name “oil” was a matter of human decision, influenced by taxation and profit.

33 The classifications that were created and dismantled from time to time for taxing, pricing, storing, transporting petroleum products reflect the inevitability of improvisation in colonialism, troubling the notion of it being stable. Materials were vital in doing so, demanding iteration and spontaneity, where local governments took matters in their own hands and went off-script, if there was one. The range of practices this led

³⁸ HD, Judicial Branch, Proceeding no. 289-338. (1894, February), *NAI*.

³⁹ DARC, Customs Branch, Proceeding no. 7, s.no. 1-3. (1912, February), *NAI*.

to circumscribed the ways in which oil could be used and the social and political organisation possible: how and where people socialise, networks that form because of the storage, transport, sale and use of petroleum products, power dynamics within these, etc. Legislations on oil storage tugged the state into people’s lives by governing the design of their physical spaces, which had ripple effects on numerous everyday matters.

Although such legislations and classifications 34 were solutions to the problem of many kinds of petroleum products, they created further problems by creating restrictions for the mobility of certain products. Here we see oil’s physicality exerting agency over that of colonial capital: because oil was volatile, strict safety measures hiked up costs and created obstacles for easy circulation. The materiality of oil also dictated its packaging, which dictated other industries related to this, and also the ways of consuming it. This foreclosed and enabled certain configurations of sociality, such as whether it can be shared, where it can be bought from, etc. Systems developed in exploration, refining, distribution, storage and sale to deal with oil’s peculiarities – technical and social – had important political consequences. These were not thought about in Britain but were created by practices in the colony. Government lay in the way the state navigated oil’s materiality, and where it exerted its own agency by creating rules, practices and networks. The politics of these can be found in mundane matters at the micro-level: rules for ports, storage, transport, etc., classifications and categories, not only in imperial ambitions of the metropole. These rules and oil’s material qualities together determined oil’s social and political possibilities.

In 1903 the British Administration decided to 35 have one set of rules for all provinces as companies importing at different ports had to constantly refer to different rules.⁴⁰ Importing companies requested the government to appoint

⁴⁰ HD, Judicial Branch, Proceeding no. 145, Part A. (1903, August), *NAI*.

a committee consisting of government officials and people from the trade to simplify the rules.⁴¹ These suggestions allude to the intimate link between science and trade: safety regulations, scientific categories such as “dangerous petroleum”, etc. were modified by the demands of trade. This move towards centralisation is fundamental for understanding how oil was becoming crucial to colonial capital and could not be left to local powers. Oil was now a global commodity and smooth circulation was imperative to its commodity status, which meant that easing out rules was of prime importance. For the same reason, standardisation and uniformity were imperative, which foreclosed locally differentiated uses, meanings and politics of oil.

36 Unlike other global commodities, oil was dangerous, requiring umpteen rules. Unlike other fuels, it was more mobile and combustible. This specificity led to a profusion of regulations to ensure its easy circulation without compromising safety. The unique combination of danger, common use, and easy circulation meant that there had to be many rules and they had to be standardised, making centralisation, largeness of industry and network, and biopolitics inherent to the modern way of using petroleum. This meant the intrusion of the state into people’s homes and lives, in the form of regulations.

37 From the history of Standard Oil, other companies knew that control over the industry was not acquired through control over supplies and oil fields but over pipelines and refineries. It was the network that needed to be controlled more than the product.⁴² Owning fields of crude oil was not enough, as this gooey substance needed to be transported, processed and distributed for it to be valued as black gold. Having access to cheap transport facilities for the carriage of petroleum was integral to making it profitable. This kind of organisation of the industry signalled a movement towards the emergence of gigantic corporations with interrelated mechanisms,

large-scale operations and control over a variety of networks and technologies. Oil companies laid stress on acquiring transport facilities and other conveniences, which made liaisons with the government vital.

With the turn of the century, petroleum was being used as a fuel and its importance for imperial expansion had been fully realised. Hence, the imperial government keenly attempted to bring oil under its control. The British Admiralty sent a directive in 1904 to the Indian administration that oil found there should only be in British hands, and be refined only by British companies. Oil was being made to fit nationalist politics. Sovereignty over it could no longer be dispersed. The Admiralty made several demands that imposed restrictions on oil companies and the Indian government, and inserted the British armed forces in supervising petroleum production. The idea was to establish complete control over it to address the insecurity of finding oil, which had become decisive to win battles and extend government. These demands were found impractical by the Indian government and companies alike, whose aspirations about oil were to do with profit, which required easy circulation and not controlled supervision.⁴³ Finally, in 1906 negotiations between the India Office in London, the Admiralty and the Committee of Imperial Defence resulted in an agreement that the Burmah Oil Company, a British oil giant in South Asia, would assure regular supply to the Admiralty, as it was threatened by Standard Oil and needed an assured demand.⁴⁴ According to G.G. Jones, the involvement of the Admiralty in the oil industry steered it in a “nationalistic direction”, clearly placing India’s oil policy “within an imperial context”.⁴⁵

No longer just about trade, but about territorial control, oil was now a national asset and not just a profitable commodity. From being serendipitously discovered on the feet of elephants in

⁴¹ Department of Commerce and Industry (DCI), Petroleum Branch, Proceeding no. 44-50. (1905, June), *NAI*.

⁴² RAD, Geology and Minerals Branch, Proceeding no. 6-18, File no. 108, Part A. (1904, November), *NAI*.

⁴³ *Id.*

⁴⁴ DCI, Geology and Minerals Branch, Proceeding no. 4-6, Part A (1906, March), *NAI*.

⁴⁵ Jones, “The State and Economic Development in India 1890-1947: The Case of Oil”, 363-4 (cf. note 13).

an obscure forest and from no other use than lighting, oil had come a long way to becoming a necessity for the government and people. It had to be teased out of the “reckless” hands of early risk-taking entrepreneurs and transferred to the safe and “expert” hands of the colonial government. The government’s involvement with the industry evolved from a haphazard and uncertain entry via safety regulations and lease agreements to scientific management, precise laws, taxation and use as fuel to run its many networks such as transport and defence.

40 While the imperial state was amassing oil within itself, everyday life too was being saturated by petroleum products. The Automobile Club in London wrote to the British Indian Government in 1903 about difficulties encountered in colonies by car users because of stringent and archaic petroleum rules. State governments too demanded more petrol, less regulation, and an improved infrastructure for storage, as their automobile use was increasing for policing areas under their jurisdiction.⁴⁶ Petroleum allowed policing. Automobiles and oil together changed the face of government. Control over oil was fought over within the state, even for the unitary purpose of expanding government. The central government probably did not trust local governments to remain subservient if supplied with too much oil or if given decision making power over it. To have oil meant to have the power of government and the tool for militarisation. Its possession aided power.

41 This points to another actor in the colonial network that made oil: automobile companies played a role in regulating how oil must be used, sold, stored and priced. It illustrates how consumption patterns and people’s lifestyles also determined the network of oil. The industry would develop differently and the product would be different had consumption and markets looked different. The intimate pairing of oil and everyday life suggests that it wasn’t just high

politics that got determined by oil and vice versa, but also quotidian lives and mundane practices.

Everyday objects which previously did not use 42 petroleum products as ingredients, such as medicines, bottles, etc. became cheaper with petroleum products replacing older raw materials. Petroleum managed to infiltrate several kinds of items and aspects of human life, as oil companies, scientists and governments looked for ways in which oil could replace other materials.⁴⁷ Chemists were engaged in inventing new uses for petroleum to make investments in the industry viable. If enough demand did not exist, investing in it would be unprofitable. This was addressed by increasing petroleum use in civilian life, increasing, alongside, the scope of biopolitical government. The demand for such products was voracious as they were cheaper and made life more convenient. It is this that turned oil into an infrastructure for both, government and everyday life.

INFRASTRUCTURE OF THE STATE AND THE SUBJECT

Because of the ways in which petroleum has 43 oiled people’s lives as well as the state’s, it warrants being thought about as more than a resource or commodity. Given its importance and necessity to state expansion on the one hand, and its perpetual presence in daily life on the other, it could be understood as an infrastructure, using the conception offered by Brian Larkin.⁴⁸ The tool of government that it became and the overwhelming way in which it came to structure people’s practices, choices, motivations and environments was because petroleum became the “grounds on which other objects operated”,⁴⁹ such as machines, transportation, communication, etc., undergirding the very possibility of production, circulation, exchange and consumption. From its early stages, it fashioned the “ambient environment”⁵⁰ people inhabited,

⁴⁶ HD, Judicial Branch, Proceeding no. 63-67, Part A. (1903, September), *NAI*.

⁴⁷ Black, *Crude Reality*, 1. (cf. note 35)

⁴⁸ Brian Larkin, “The Politics and Poetics of Infrastructure”, *Annual Review of Anthropology*, n° 42, 2013, 327-43.

⁴⁹ *Ibid*, p. 329.

⁵⁰ *Ibid*, p. 328.

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especially by becoming the fuel for electricity and mobility. In its absence, society, economy and government were severely disrupted and continue to be.

- 44 Indian subjects were thrown into a stunning crisis during war-induced shortages and made consistent demands on the state to continue supply. This led to riot-like situations in many cities, and most daily activities experienced a grinding halt because of an absence of petroleum during the two world wars.⁵¹ Electricity companies fed street lights, public buildings, hospitals, railways, and other services, which shut down without oil-fired electricity.⁵² This is telling of how public dependence on state institutions and services had increased, how communities were no longer self-reliant for health, education, services like lighting, and how all of these state institutions and services were beholden to oil. The state was able to consolidate its hold over populations and properties not only through military power or massive infrastructural projects like the railways, but also through the spread of everyday products, and its control over their supply, pricing, storage, use, transport etc. Petrol pumps, for instance, altered urban landscapes, giving petroleum a role in it, and opening more spaces for the state to make itself present and necessary. And yet, the widespread demand for oil lent to it the quality of becoming a substance of mass politics, going beyond the logic of the state and becoming a tool in the hands of the subjects to hold the state to ransom by demanding its regular provision.

- 45 Penny Harvey and Hannah Knox narrate the trajectory of Peruvian state-making by building roads to infiltrate people’s lives. They posit roads as socio-technical assemblages, relational spaces and infrastructures meant to do the work of the state, while remaining open-ended in their outcomes, carrying the possibility for varying social and political formations. Roads, they write, “enable the networked flow

of goods, labour, and services. They deliver the basic conditions of modern living”; and yet are not wholly determined by the powers that bring them into being.⁵³ This is also the case for oil: used for expansion, enabling circulation, but-tressing modern life’s very possibility, but presenting its own problems and opportunities outside the logic of the state, by being embraced by the people en masse, and because of its own physicality which is hard to control.

Antina von Schnitzler conceptualises infrastructure similarly. For her, it is not just a tool in the hands of the state, but also a site of politics, an entitlement of the people, where citizenship is performed by making demands on the state. In her study of the water metre in South Africa, she traces the biopolitical work done by it to discipline citizens in a particular way, but also unfolds the struggles this device gets mired in, exceeding the tool that the state intended it to be.⁵⁴ This paper strikes a chord similar to both these studies, exploring the social and political worlds opened and closed by oil, while the state struggles to make it a juggernaut of control and expansion. The materiality of an infrastructure, the politics of its production, and the power of its consumers can be seen as locked in a grid of mutual shaping and resistance.

Troubling complete agency attributed to either actor – oil’s materiality, or the state’s use of it – this history of oil highlights their dialectic and sees agency as a product of their conversation. Mitchell notes that oil infrastructures co-emerged with particular political formations and modern lifestyles that made oil seem indispensable.⁵⁵ Penelope Harvey, Casper Bruun Jensen and Atsuro Morita take this as an example of how “infrastructures generate effects that loop back upon society”, in a “recursive

⁵¹ Punjab State Agency, Residency Files, File no. C 8/4-2/46. (1946), *NAI*.

⁵² DARC, Petroleum Branch, Proceeding no. 1-21, Part A. (1919, April), *NAI*.

⁵³ Penny Harvey & Hannah Knox, *Roads: An Anthropology of Infrastructure and Expertise* (Ithaca: Cornell University Press, 2015), 7.

⁵⁴ Antina Von Schnitzler, *Democracy’s Infrastructure: Techno-Politics & Protest after Apartheid* (Princeton: Princeton University Press, 2016).

⁵⁵ Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (New York: Verso, 2013).

movement” that is spatio-temporally contingent in the same way as the co-constitution of petroleum, the colonial Indian state and its subjects.⁵⁶

48 Petroleum was the lifeblood of state elaboration and militaries, but also proliferated into common people’s lives via kerosene, medicines, electricity, fuel, plastics, etc. Armies, corporations and governments were inextricably bound to one another in the act of extracting and using petroleum for state-making. Peculiarly, petroleum tied civilian culture to military life and battlefield activities as no other substance ever had. How people ate, travelled, worked and lived was now under control of the state, which had immense power in deciding over their daily activities. Becoming the lifeblood of militaries, oil was then made to also saturate the veins of civilian life. However, once it did so, it was no longer just a state tool, as consumers exerted power by demanding it, adulterating it, pilfering it, using it for unintended purposes and selling it illegally. This is how oil becomes government, but also escapes government. This characteristic is typical of infrastructures because they are meant for mass use, which tends to pull them out of the boundaries of state control. Despite this, they continue to do the biopolitical work they were created for, albeit distortedly.

49 Michel Foucault’s concept of *raison d’Etat* is useful to advance the argument of oil being turned into an infrastructure for the state as well as for pedestrian life, both of which assist state-making. Foucault explains *raison d’Etat* as a logic of the state, the rationality for its survival, legitimating its power and existence, allowing it to preserve and perpetuate itself. He argues that what enables and justifies state incursion in people’s private lives, and makes the management of people and their productivity its sole mandate, is biopolitics.⁵⁷ Technical infrastructures have been central to such an endeavour,

not only to integrate territories but also to create an imagination of public good around state practices and have subjects/citizens depend on the state for their daily activities, thereby rendering them loyal as well as productive. Oil, thus, and infrastructures in general, formulate the relationship between states and subjects/citizens, where the latter are fashioned in specific manners by laws around petroleum/infrastructures that produce specific forms of government, and modes of sociality. Through these, private lives of people are directed, but, people talk back to the state by mangling these infrastructures or demanding them as a right.

The programme of state making would be incomplete without a corresponding programme of subject/citizen making. High politics cannot manufacture types of subjects/citizens by itself, but requires the assistance of cultural practices, through the deployment of material objects used in the everyday. If the modern Indian state was forged partially by the deployment of oil for securing its grip over territories and populations, what held this system together were the oil captured social imageries below. The site of politics was not just governments or factories, but people’s homes, bodies and minds, where biopolitics was made possible by oil consumption and where dreams of state delivered development were spun. To build a type of state and power structure, a type of subject/citizen needed to be crafted who would buy into the ideology of that power structure. Oil aided the state by spinning dreams of westernised “progress” among the subjects, and by creating a dependence on the state and corporations for petroleum products.

While using oil for state- and subject-making might not have been a conscious and deliberate effort on part of the entire British Administration, it was the result of the laws and practices the administration enabled, as much as it was the result of market demand for petroleum products (which too were created by state and corporate partnership, not by people naturally demanding

⁵⁶ Penelope Harvey, Casper Bruun Jensen and Atsuro Morita, “Introduction: Infrastructural Complications”, in *Infrastructures and Social Complexity*, eds. Penelope Harvey et al. (United Kingdom: Routledge, 2016), 20.

⁵⁷ Michel Foucault, *Security, Territory, Population: Lectures at the College de France, 1977-78; The Birth of Biopolitics:*

Lectures at the College de France, 1978-79 (New York: Picador, 2004).

certain products). Oil as an infrastructure in British India, comprising material, social, political and economic networks, apart from being impelled by the logic of the empire, was also crafted and steered by accidents, negotiations, personal desires and local conditions that lay outside the calculations of the empire.

52 As an infrastructure, oil acted as the playing field of technologies by defining their potentiality and imperial possibilities. It is not, however, inherent in oil to garner such agency. On historicising the evolution of the oil industry in India, certain events, ideologies and surprises that assembled this edifice can be recovered as the driving forces in constructing its politics. Tracing this convoluted journey of oil involves the study of the imagination that went into assembling oil as a state infrastructure, as opposed to taking the view that oil was on an evolutionary path of progression and that it was natural for it to exert such agency.

53 Petroleum, therefore, has functioned as a commodity of rapid circulation like sugar, cotton or tobacco, an energy resource like coal, and an infrastructure of the colonial state like dams, the telegraph or the railways. This attributed to it several political possibilities, which were admixtures arising from its own materiality and from the socio-economic arrangements that harnessed it in these many ways. This also instilled in oil a contradiction: because it became a state infrastructure, nationalising it was imperative, which meant that the state must express complete control and gain sovereignty over it; but because it was a commodity that brought massive profits, it needed to be easily circulated, with minimal state intervention. This contradiction played out perpetually in struggles between the colonial government and oil companies, which nevertheless recognised the need for each other's assistance in building oil.

CONCLUSION

54 To understand how petroleum was put together as a category through gradual reification, and simultaneously built to function as an infrastructure of the state and society, this historical

narrative threw light on how oil was slowly understood and defined, how its network was assembled, and how neither of these were natural or following an internal logic. Gisa Weszkalnys writes,

The relational nature of oil's magical/material efficacy, involving pipelines, platforms, bureaucracies, workers' compounds, and other infrastructures typical of the industry that are partly, but never fully, to do with the specific aspects of the substance we call oil. Oil's magic cannot be reduced to any of the aspects discussed above...Its magic/materiality is not simply an essence, concentrated in its chemical and physical constitution, but is a potentiality that unfolds through a series of material processes of transformation, appropriation, and use.⁵⁸

55 What this story conveys about oil is that its properties do not arise from the viscous liquid alone. Petroleum is made by more than that. Allan Stoekl alludes to this characteristic of oil: that we cannot know it fully by limiting our gaze to its geological properties, but we also cannot know it by inspecting only the power that circulates in oil corporations.⁵⁹ I argue that oil is neither simply a discovered natural material, nor simply a placeholder for power and well planned high politics. It is a socio-material category, made by a multitude of agents, all of which work sometimes in tandem and sometimes against each other, eventually resulting in a collectively produced material, idea(s), way(s) of life and practice(s), that are not purely the result of what was intended but comprise the consequences of contingent forces.

56 Bruno Latour sees “the social” as “associations between heterogeneous elements”, rather than a given whole.⁶⁰ Latour's Actor-Network-

⁵⁸ Gisa Weszkalnys, “Oil's Magic: Contestation and Materiality”, in *Cultures of Energy*, eds. Sarah Strauss et al. (Walnut Creek: Left Coast Press, 2013), 278.

⁵⁹ Allan Stoekl, “Foreword”, in *Oil Culture*, eds. Ross Barrett et al. (Minneapolis: University of Minnesota Press, 2012).

⁶⁰ Bruno Latour, *Reassembling the Social* (Oxford: Oxford University Press, 2005), 5.

Theory (ANT), focussing on widely distributed agency between multiple actors spread across the network, enables us to account for the contingencies faced by the British Empire and the obstacles that frustrated its plans, owing to a variety of agents, causing chaos. This allows us to expose the fallacy of the belief that grand plans hatched in ivory towers get implemented as they are, by pawns bereft of agency. Oil's history in India points out that plans were not always laid out beforehand, and when they were, they had to be improvised drastically and often. The focus in ANT is on associations and networks they form, processes that lead to products, a web of entanglements which otherwise get black-boxed, and where politics can be seen to lie – on the ground, in everyday practices and decisions. Emphasising the “how” question behind the generation of social forces, ANT facilitates the study of how petroleum came to be and de-naturalises the way we see it. It alludes to the social construction of science – how negotiation, power struggles, profit motives, arbitrariness lead to what we now call “petroleum science”. This category was not based on a sanitised science stripped of politics and disembedded from society but was constructed partly by colonial trade, revenue and power-play, not as outsiders to science, but as organisers of it. And there were multiple actors and agents involved, with varying degrees of influence.⁶¹

57 For Manuel DeLanda, assemblages do not have a natural essence and can be reconfigured. This helps us defetishise oil and look beyond its physical properties, to the networks that decided what physical properties it has. DeLanda highlights the importance of associations between things in creating properties of the amalgam. For him, following Gilles Deleuze, assemblages are not mere sums of their parts, as the properties of the sum arise from the relations between the parts. These “relations of exteriority” create

⁶¹ I do not propose that we read oil as an Actor-Network, as it could be read in many other ways, and applying ANT wholesale to oil would be problematic for many reasons. But I take the assistance of that theoretical frame to read oil as socially produced, and to highlight the processes behind it.

connections that are “contingently obligatory” but not “logically necessary”.⁶² Debates and negotiations in this narrative show us that things came to crossroads many times and could have gone either way, each taking the formation of oil on a different path. The choices that were made were not following an internal logic but were the result of spatio-temporal contingencies. Crude oil could have included and excluded different chemical properties, and there could be an entirely different range of petroleum products from what we have today. What colonial capital made sense of, what it needed, as well as the accidents that took place, determined the nature oil took.

As an infrastructure, oil acts as a vantage point 58 for understanding the state. What can be said about the colonial state from this vantage point is that apart from disorder, uncertainty and backfires, it was also animated by competing interests and distributed sovereignty, and was not a coherent, well organised, top-down and unitary political project. Oil highlights how materials, practices and people on the ground upend the execution of plans made up above, and acquire a life of their own. Specific material practices around oil, giving rise to specific formats of governance, resulted in specific forms of sociality and constellations of power.

Illuminating the chaos that lay at the heart of 59 the colonial state in India, and the way in which oil's material affordances and limitations were cast over it, I do not wish to dampen the power of the state in disciplining oil and deploying it for its elaboration. By narrating how oil, imperialism and the state co-constituted each other, I have attempted to play up their dialectic, and not attribute agency to a material in an ahistoric way. With this history, I hope to have shown how socio-political structures get encoded into materials, later seen as natural and scientific; and how materials get encoded into socio-political structures, shaping them from the inside.

⁶² Manuel DeLanda, *A New Philosophy of Society* (London: Continuum Publications, 2006), 10, 11.

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