

***Powering Empire: How Coal Made the Middle East and Sparked Global Carbonization* by On Barak, Oakland, University of California Press, 2020, 344 pp., \$ 34.95/£29.00 (hardback), ISBN: 9780520310728**

How did the world become addicted to fossil fuels? Of course, when reference is made to the Middle East in answering this question, it is usually done so in relation to oil. In his latest book, *Powering Empire*, On Barak instead turns attention to coal, not only for its role in transforming the region before oil, but also in connecting consumption habits across the world through imperial networks. In order to understand how we might achieve decarbonisation faced with global climate crisis, Barak posits, we must understand how carbonisation became global in the first place. Barak's book investigates this issue by combining environmental, social, cultural, intellectual and labour history approaches, offering a new and rich account of how coal became ever more intertwined with mundane life in the nineteenth and early twentieth centuries. It is an extremely valuable and ground-breaking work to add to the burgeoning field of 'Energy Humanities' and should be of interest to scholars concerned with the history of the modern Middle East, British empire and global capitalism.

As in his previous book, *On Time*, Barak borrows methods from science and technology studies (STS) to examine the technopolitics of an array of objects, technological artefacts and infrastructures.<sup>1</sup> These were all related in some way to coal: steamships, desalination plants, refrigerators, irrigation pumps, lighthouses, risk management and coal itself. Yet Barak also seeks to marry this 'New Materialism' with Marxian materialism through examining how these were embedded within global capitalism and imperial power structures, alerting the reader to labour conditions and forms of agency in steamship engine rooms, coal mines and at coal heaving ports, as well as pointing to the early geopolitics of 'energy security'. He does so by

focusing on a network of coal depots connecting the British empire from the Mediterranean to India and East Asia, especially those along the maritime corridor between Port Said and Aden. These depots were nominally built to provide coal to steamships, enabling the trade and naval supremacy on which the British empire depended while also serving as a pretext for territorial and extraterritorial expansion to make up an ‘artificial archipelago’ across the Indian Ocean. Indeed, as Barak points out in the introduction, it was the very location of these coal stations en route to India that underpinned the naval strategist Alfred Thayer Mahan’s popularisation of the term ‘Middle East’ in 1902.

Barak makes three main arguments that run throughout the book. Like *On Time*, he critiques diffusionist models by arguing that the synthesis of coal and British imperial networks – what he terms ‘coalonialism’ – actually enabled the industrialisation of Europe and its experience of modernity. For instance, in the first two chapters he shows how the steam engine was not simply developed in Britain only to be later transported elsewhere, but rather was perfected in various coal-fuelled infrastructures in the Middle East from the mid-nineteenth century onwards, albeit with coal mostly originating from Britain. These included irrigation pumps for Mehmet Ali’s agricultural schemes in Egypt, as well as desalination plants and refrigeration units to provide potable water and meat to populations living in the arid environments in which new coal depots were located, such as Port Said and Aden.

Similarly, in chapter three he revisits Timothy Mitchell’s argument in *Carbon Democracy* to show how although coal may have enabled a democratic politics to emerge in Britain because of the ability of coal miners to enact general strikes, this came at the expense of coal heavers and coal miners in the Ottoman Empire.<sup>2</sup> For example, when British coal firms like the Glamorgan Coal Company were facing legislation in Britain that provided more workers’

rights in the first two decades of the twentieth century, they were able to take advantage of anti-union legislation in the Ottoman Empire, bringing in strikebreakers from other parts of the British empire to replace striking miners at Zonguldak and heavers at various coaling stations. Thus, 'carbon democracy' in Britain depended on 'carbon autocracy' elsewhere, especially by 'limiting participatory politics, workers' rights, and ideals of freedom in the Middle East' (p. 17). By considering coal globally, Barak suggests, we can understand how its proliferation was premised on localised difference and violence, necessary to the expansion and consolidation of the British empire.

The second major argument Barak makes is that the establishment of coal infrastructures depended on intensifying pre-existing forms of motion and labour, chiefly performed by water, animals and humans. In order to build new coal-related infrastructures such as railways and telegraph lines in Egypt, he points out, there was a significant increase in the number of camels used to carry tracks, poles and coal itself. Likewise, the proliferation of steamships required new, more intensive exertions of human labour, such as heaving coal at depots and stoking coal in the sweltering temperatures of steamship engine rooms. Far from leading to the standardisation of coal infrastructure, this system relied on producing and solidifying differences, especially racialised divisions of labour: Adenis and Somalis made up the majority of stokers in engine rooms because steamship owners considered them to be best suited to extreme heat, likening them to 'human salamanders' (p. 94). As such, what occurred was not an 'energy transition' in which coal replaced pre-existing energy forms, but rather a 'diversification' and 'accumulation' of forces 'piling up on top of one another' (p. 52). Indeed, as Barak points out, even the paradigmatic example of 'energy transition' – the discovery of oil in Iran in 1908 – led to the intensification of pre-existing forces: animals to carry pipelines; water for cleaning and cooling

down refining and drilling plant; and coal for steam pumps helping transport crude through pipelines, as well as for desalinisation and filtration plants to supply water to the local population of Abadan (p. 50). In fact, Barak shows, coal and its infrastructures laid the foundation for much of the oil-fuelled infrastructure that supports life in the Middle East today.

Similarly, the third contention of the book is that the very term ‘energy’ itself should be discarded because it is an abstraction that obfuscates the ‘various imperial hierarchies and forms of praxis’ outlined above (p. 8). Following recent work by Cara Daggett, Barak points out that ‘energy’ attained the meaning we know today in the mid-nineteenth century through European thermodynamics, referring to the ability to perform work.<sup>3</sup> Although steam was produced through increased water, animal and human power, these ‘circumstances of its production’ were erased in favour of coal alone (p. 29). Likewise, only by ‘shedding specificities and disguising its birthmarks and foreign accent could energy become a universal force present in all matter, capable of converting itself into innumerable forms, yet inalterable and constant, a power perceived only in terms of its effects’ (p. 6).

Therefore, throughout the book Barak seeks to ‘provincialize energy’ by not only illuminating the chains of agency connected to coal, but also by examining coal’s life beyond an energy source. For example, he highlights the importance of coal as ballast or makeweight in the early development of steamships, thereby enabling long-distance trade. By unearthing this more comprehensive history of coal, Barak suggests, we are alerted to various ‘nonenergy and nonfuel domains’ that coal created but that nonetheless offer ways of considering more ethical alternatives to the labour-energy nexus. At multiple occasions, Barak delves into these domains – ‘religious, political, and dietary, among others’ – to take the reader to surprising subject areas for a book nominally about coal, from Gandhian vegetarianism to the Hajj and Islamic notions of

*rizq*. These are fundamental to his final conclusion that in order to realise a decarbonised world, we need to reverse the separation between the natural sciences and the humanities of the Western tradition, thereby ‘creating an energy humanities that can speak to science from both within and without, but always ethically; that speak in more languages than English, and offer a bridge that connects and helps articulate the mind-boggling realities of climate change in more communicable terms’ (p. 235).

Barak’s book is based on impressive research, especially based on sources from the Ottoman State Archives and supplemented with archival sources from India and the UK, as well as multiple periodicals in English and Arabic. It engages with secondary sources from a range of disciplines covering areas even beyond the book’s central themes, such as histories of slavery, insurance and migration in the Indian Ocean World. It is structured thematically, examining a different chain of coal’s connections in each chapter such as meat consumption in chapter two and labour activism in chapter three. It gradually proceeds from the more material and concrete domains to the more abstract and immaterial, starting with coal depots and steam engines in chapter one and ending with two final chapters examining risk management and Ottoman intellectual thought concerning minerals. The book is written in an engaging style that seamlessly weaves together seemingly disparate subjects while conveying a clear narrative, at times even with suspense (see chapter five).

There is much to commend in Barak’s approach and argument. For one, following others, he further integrates the history of the Middle East into that of the wider British empire through tracing British ‘coalonial’ networks, including South and Southeast Asian actors. For example, he highlights how Parsi firms were crucial to sustaining the population at Aden following the British invasion in 1839 through their role in supplying ice, desalinated water and both salted

meat from Bombay and fresh meat from Somalia (p. 63), which became known as ‘Aden’s butcher shop’ (p. 59). This enabled heightened securitisation of coal depots as larger garrisons could inhabit them, animated by emerging notions of ‘energy security’. Moreover, these firms were responsible for providing alcohol to sailors and opium exclusively to “natives” in Aden, bringing it from Persia before shipping it to China in exchange for tea. Indeed, opium was vital for the rise in steam navigation and allowed Aden to become a trading hub by the 1860s, even before the opening of the Suez Canal. Through these imperial networks, then, coal and its infrastructures simultaneously enabled and relied on differentiating path dependencies and addictions ‘in which the stimulation of the colder industrial parts of the planet was balanced by the sedation of the hotter agricultural regions’ (p. 78).

Likewise, in chapter five Barak shows how the Indian Ocean steamship Hajj trade, which was initially dominated by Hadrami merchant families like the al-Saqaffs based in Singapore, helped transform the Red Sea into a laboratory for risk management and insurance in the second half of the nineteenth century. As European steamship companies became more involved in the Hajj trade, they used accidents and breakdowns to adopt new forms of risk aversion and calculation, facilitating the rise of European insurance firms that would later access the Ottoman Empire. At the same time, certain methods of risk management, such as building fortified lighthouses, brought further extraterritorial British control of the Red Sea to undermine Ottoman sovereignty, especially on the Arabian coast.

The book also strikes a successful balance between non-human and human agency that can be difficult to achieve within an STS framework. On the one hand, Barak offers an account of coal’s environmental effects in the region: for example, the water ballasting of steamships transported marine biota between the Indian Ocean and the Mediterranean via the Suez Canal,

contributing to the movement of species between these waters known as the Lessepsian migration. In places like Port Said such transformations changed the diet of the local population as new fisheries emerged, attracting water birds that were hunted. Coal depots like Port Said and Aden became ‘multispecies boomtowns... of intra- and interspecies collaboration and predation’ (p. 13).

On the other hand, Barak never loses sight of the primacy of human agency in determining the impact of coal. The introduction of new coal-fuelled infrastructures was not a seamless process, often coming up against local resistance or preference. Even when desalination plants were constructed at Aden, Arabs and Somalis preferred brackish water to desalinated water. In the Hijaz, Bedouins opposed the construction of the Hijaz railway and sabotaged pipelines along its route carrying fresh water because these infrastructures undermined their ability to control pilgrim traffic from the coast. However, they accepted the subsequent supply of desalinated water from Jeddah because it enabled transportation by animal and helped them continue to transport pilgrims to Mecca (pp. 45-48). Through this user-centred approach to infrastructural history, Barak indicates how the implementation and adoption of coal-fuelled infrastructures relied on local collaboration and co-option.

Above all, Barak shows how human agency fought against and within ‘coalonial’ networks. In chapter three he offers a labour history to highlight the central role of workers in the functioning of energy infrastructures, much as a recent landmark volume on oil workers has done.<sup>4</sup> By examining strikes of coal heavers in Port Said in the 1880s and 1890s, Barak points to the transnational dimensions of labour activism in the coal sector, showing how coal heavers in the Middle East were key for the process of global industrialisation and were able to modify its course by appealing to its universalist discourse of labour. On other occasions, Barak follows

intellectual paths of opposition to coal-fuelled addictions. For example, he highlights how Gandhi's journey from Bombay to London via the Suez Canal politicised his vegetarianism towards anti-colonialism as he was confronted with meat consumption on board his steamship, which was supplied from the British coal depots en route (pp. 64-65). Finally, Barak identifies ethical challenges to – and enabled by – the labour-energy nexus: in Islamic notions of *rizq* (divine reward) among pilgrims on board Hajj steamships, carrying values of community and intergenerational solidarity (chapter five); and in Ottoman understandings of *rikaz* and coal as 'buried treasure', permeated with ethical and spiritual meaning, to be fairly distributed through charity and the state (chapter six). Barak convincingly uses such examples to conclude that ethical alternatives to 'energy' – an abstraction premised on erasing its violent origins – can still be recovered when examining the global history of fossil fuels.

However, the book still leaves some remaining questions. For one, considering that the title indicates that the book will reveal how 'coal made the Middle East', the Persian Gulf is surprisingly marginal in the account, although there is a brief section on the early oil industry in Abadan. Coal depots in the Gulf such as Basidu on Qeshm are rarely mentioned or discussed, and the maps of British coaling stations on page 119 omit them altogether. Steamships like those of the British India Steam Navigation Company were important in securing British hegemony in the Gulf in the late nineteenth century, connecting the region to India from the British Raj's Gulf Residency at Bushehr. Furthermore, recent work has illuminated how steam navigation connected the region's hinterland to the sea, especially that of the Euphrates and Steam Navigation Company in Iraq and Lynch Brothers on the Karun in Iran.<sup>5</sup> Granted, it is to be expected that the same detail Barak applies to Aden and Port Said cannot be extended too far geographically within the confines of one book. However, corresponding to the argument that oil



did not spring up ex-nihilo in the region, it would have been interesting to learn more about coal's intertwinement with life, work and consumption in the Gulf's pre-oil era, for example its impact on the pearl industry. After all, as Guillemette Crouzet has recently highlighted, it was the control of the pearl industry in the Gulf that also informed the conceptualisation of a 'Middle East'.<sup>6</sup>

Another question concerns Barak's argument about opposing 'energy' as a category itself. Although he seeks to provincialize the term, many of the chains of agency he follows from coal ultimately relate back to coal as a fuel source. Whether meat, salt, or insurance, we return to the act of burning coal. Although Barak presents more ethical considerations of solidarity and charity when distributing coal and the wealth accrued from it, this evidently did not stop actors viewing coal as a fuel source and utilising it as such. Illuminating ethical considerations on this very matter could have further supported the argument about how we may achieve decarbonisation: for example, how actors understood pollution and the environmental impact of burning coal, or their views about the forms of labour required in the process. Equally, it would have been beneficial in demonstrating how the complex, often violent circumstances of energy's production were erased and simplified into coal alone. This was perhaps beyond the scope of the book and would undoubtedly be difficult to ascertain from sources. However, it could have helped the reader better understand why the energy paradigm of thermodynamics became hegemonic, which the book tacitly suggests was the inevitable outcome of British supremacy rather than of active work to preclude alternative modes of thinking. Although the book rightly stresses that the abstraction of 'energy' was premised on the invisibility of other forces actually connected to coal, it remains to be understood how popular perceptions of (in)visibility underpinned both the acceptance of the energy paradigm and its opposition.

Nevertheless, the book has many strengths that make it a very valuable contribution to scholarship. It adds to studies in the Energy Humanities about the political arrangements built into energy infrastructures,<sup>7</sup> the extent to which fossil fuels have become imbricated in everyday consumption,<sup>8</sup> and how the intertwinement of coal and imperial networks contributed to the ‘Great Divergence’.<sup>9</sup> It presents new evidence to further highlight the uneven effects of the Anthropocene in its historical entanglement with colonialism and global capitalism,<sup>10</sup> (although more could also be said in the book of coal’s impact on gender relations). It also complements recent works concerning the historical intersection of environment, labour and infrastructure in the Middle East,<sup>11</sup> revising previous assumptions about the history of energy in the region. In all, it offers a unique and essential account of coal’s place in making the world that we inhabit today.

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<sup>1</sup> On Barak, *On Time: Technology and Temporality in Modern Egypt* (Berkeley: University of California Press, 2013).

<sup>2</sup> Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (London: Verso, 2011).

<sup>3</sup> Cara New Daggett, *The Birth of Energy: Fossil Fuels, Thermodynamics, and the Politics of Work* (Durham: Duke University Press, 2019).

<sup>4</sup> Touraj Atabaki, Elisabetta Bini, and Kaveh Ehsani, eds., *Working for Oil: Comparative Social Histories of Labor in the Global Oil Industry* (Cham: Palgrave Macmillan, 2018).

<sup>5</sup> Camille Lyans Cole, ‘Precarious Empires: A Social and Environmental History of Steam Navigation on the Tigris’, *Journal of Social History* 50, no. 1 (September 2016): 74–101.

<sup>6</sup> Guillemette Crouzet, ‘The British Empire in India, the Gulf Pearl and the Making of the Middle East’, *Middle Eastern Studies* 55, no. 6 (November 2019): 864–78.

<sup>7</sup> For example, see Mitchell, *Carbon Democracy*; Christopher F. Jones, *Routes of Power: Energy and Modern America* (Cambridge, MA: Harvard University Press, 2014); Andreas Malm, *Fossil Capital: The Rise of Steam-Power and the Roots of Global Warming* (London: Verso, 2015); Hannah Appel, *The Licit Life of Capitalism: U.S. Oil in Equatorial Guinea* (Durham: Duke University Press, 2019).

<sup>8</sup> Matthew T. Huber, *Lifeblood: Oil, Freedom, and the Forces of Capital* (Minneapolis: University of Minnesota Press, 2013).

<sup>9</sup> Kenneth Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World Economy* (Princeton: Princeton University Press, 2000); Prasannan Parthasarathi, *Why Europe Grew Rich and Asia Did Not: Global Economic Divergence, 1600-1850* (Cambridge: Cambridge University Press, 2011). On the maritime networks of coal in the British empire also see Steven Gray, *Steam Power and Sea Power: Coal, the Royal Navy, and the British Empire, c. 1870-1914* (London: Palgrave Macmillan, 2018).

<sup>10</sup> Also see Gabrielle Hecht, ‘Interscalar Vehicles for an African Anthropocene: On Waste, Temporality, and Violence’, *Cultural Anthropology* 33, no. 1 (February 2018): 109–41.

<sup>11</sup> Jennifer L. Derr, *The Lived Nile: Environment, Disease, and Material Colonial Economy in Egypt* (Stanford: Stanford University Press, 2019); Aaron Jakes, *Egypt’s Occupation: Colonial Economism and the Crises of Capitalism* (Stanford: Stanford University Press, 2020).

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