

TIMES EVOKE

THE OTHER COALONIALISM

Desire is the ultimate disguise — one that turns black into white. It is desire, after all, which masks the extreme harms of coal, making it seem acceptable to the world. It is desire which makes us overlook how coal is the most polluting fossil fuel on Earth — and yet, one which accompanies us every step of our life. Coal has a remarkable history — it was formed millions of years ago, before dinosaurs roamed on land. Earth was covered with swamps, filled with giant plants. As they perished, these sank — over time, ferns, roots and leaves were covered by water and mud, pushed further and further down, heat and pressure changing green to black. This enigmatic entity captured the might of the sun which energised these plants — no wonder burning coal releases enough strength to power our lives.

Yet, coal gives more than positive energy — it also emits dark forces. Coal is carbon — when burned, this reacts with oxygen, producing carbon dioxide that traps heat on Earth, producing what the UN Secretary-General Antonio Guterres terms 'global boiling'. Guterres isn't exaggerating — Earth's temperature has risen by 1.1°C since 1850, causing ice sheets to melt, seas to rise and droughts and rainstorms to intensify. Importantly, global boiling corresponds with a massive spike in coal use. That's continued, despite scientists' warnings about coal releasing multiple toxins, including mercury, sulphur dioxide, nitrogen oxides and particulates — these cause breathing disorders, heart diseases, cancers and brain damage. Cruelly, this isn't limited to humans enjoying the drones and phones coal bestows — it extends to innocent species while wrecking their environment. Forests and hills are destroyed to extract coal, powerplants produce 100 million tons of polluting ash each year, acid wastewater enters rivers, streams — even the seas.

Yet, we desire this dark energy — and there, gentle reader, broods another tale. Coal boomed with colonialism, used by Western powers to extract the profits of sin. Such money was invested in the West's industrial evolution — coal powered machines, generating far more value, from teacups to trams, than human labour. Coloniser societies thus enjoyed an 'industrial revolution' — which was quite revolting, given that their desires were fulfilled by the enslaved in dark pits.

Even today, coal remains heavily used, India itself driving global demand. This doesn't reflect India's fondness for it — it mirrors our need to provide basic energy to millions alongside a strange reluctance from the West in hastening the energy transition which it is entitled to do. Yet, empowerment is possible — as Times Evoke's global experts emphasise, leaders like India demanding climate justice is key. That entails knowing coal's history — and who used this to tantalise their cravings the most. Join Times Evoke in learning about coal — because discovery is even more powerful than desire.

'Empire to nationalism, coal mirrors the 20th century — in India, it shows the West's failure'

Matthew Shutzer teaches history at the University of California, Berkeley. Speaking to Srijana Mitra Das at Times Evoke, he discusses coal's path in India:

What is the core of your research?
I am an environmental historian. I'm completing a book about India's fossil fuel economy from the 19th century to the 1980s. I study how environmental, social and economic transformations created fossil fuel dependency in South Asia under empire and through the postcolonial period. I also write about how fossil fuels themselves, particularly in the postcolonial era, became not just sources of energy but also social and political contestation. I focus particularly on land issues in coal-bearing areas, primarily central and eastern India.

Does coal also have a precolonial history?
Yes — mining and metallurgy have an ancient place in South Asia, not only in terms of knowledge about these but also hereditary occupations, money and minting coinage and kingship, which was tied to sovereign subsurface wealth. Precolonial petroleum is richly documented, used in veterinary medicine, boat caulking, manuscript preservation, etc. However, the colonial period changed the scale and intensity of coal use specifically — this resource was very much a part of the colonial story, beginning with the East India Company.

In the colonial era, what was India's coal used for — and whom did it enrich?

The story of colonial extraction happened in phases. The first one is a late 18th century attempt by the East India Company to claim coal in Burdwan, Bengal. There wasn't much financial backing for this though. Coal exploration and capitalisation happened after 1810, driven by European and Indian merchants in Kolkata — Dwarkanath Tagore actually became a central figure in creating this early 19th century energy geography. At this time, the colonial state had minor interests in India's coal, which was mainly used to refuel British steam-powered ships. Coal really took off with the advent of the railways in the 1850s — huge public finance opened up with a real intensification of extraction in India.



LOST IN SMOKE: Mining families suffer



FROM DAY TO NIGHT: Dhanbad tells a story of ecological destruction — over centuries, its ground has been torn apart to get at coal, leaving streams of toxins and fires emitting through the cracks, coal power meanwhile smoothening metropolitan life

Importantly, while coal in 19th century Britain was about the rise of factory-based industrialisation, replacing human labour with machines, in India, coal was about fuelling the railways and creating circuits for sending agricultural commodities and labour from the hinterland into port cities and out. So, coal started as enriching European and Indian merchants — then, it became associated with European-managed agencies and the British colonial state.

FIFTY SHADES OF BLACK

What role did coal play in decolonisation?
There are two aspects here, both related to ideas of sovereignty. Fossil fuels were at the centre of postcolonial understandings of economic independence and national development. These were not only energy sources to power India — they were also seen as patrimonial national wealth, embedded in the nation's geology, which had been unjustly appropriated by empire. Between 1947 to 1951, the Indian state swiftly constructed a series of policy frameworks for expanding state control over fossil fuels.

It then encountered a difficult reality — many of the most valuable coal-bearing lands were claimed by Indian landowners, particularly zamindars in the former Permanent Settlement areas. The Indian state realised that to exert its sovereignty over subsurface resources, particularly coal, it had to confront the legacies of zamindari alongside capitalist mining firms — this set the Indian state in confrontation with such social forces. The state's attempt wasn't very successful then though, partly because of existing property protections and battles starting over land reforms in the 1950s. The story of petroleum is different — the Indian state here engaged in exerting its economic sovereignty not down-

wards, into the social body of the nation, but outwards, into the world economy of petroleum firms. In the mid-20th century, in South Asia, almost all petroleum resources were controlled by British companies which would become British Petroleum (BP). The Indian state created a state capitalist apparatus, the Oil and Natural Gas Corporation (ONGC), under KD Malviya, a bureaucrat — this basically expropriated British oil assets and built a nationally-owned oil economy. This was couched as the centrality of the state claiming petroleum in the name of national sovereignty — it was also the construction of Indian state socialism, with fossil fuels playing a central role.

You've studied water shaping the mining town of Dhanbad — could you elaborate?

It's not incidental that the area of the eastern Chota Nagpur Plateau, which became the coal-bearing regions of Dhanbad, Jharia and Raniganj, was also a river valley. That entire region was caught up in controlling flows of energy — this meant coal but also water and



HER HEAVY BURDEN: Women work in coal

labour; these places earlier termed a 'labour catchment area', sending tribal workers to tea gardens in the northeast. I specifically highlight inter-war urbanising in Dhanbad — this was a time of huge coal expansion. The intense growth of the coal fields around Dhanbad created mining settlement areas where workers, many from nearby farming or forested areas, were sent into the coal fields. This new concentration of people produced public health problems for mine owners, including cholera outbreaks linked to contaminated water. The coal mining companies and zamindars thus combined to form a municipal authority, first in Jharia, later in Dhanbad, to control water supply — they made the Jharia Water Board, a trust given profound statutory powers to control water moving from higher elevations down to the West Bengal floodplains. This created the first urban geography of Dhanbad and Jharia township — we see the same model in the 1930s, with the establishment of the Damodar Valley Corporation which controlled water.

What were the most profound environmental impacts of this extractive economy?

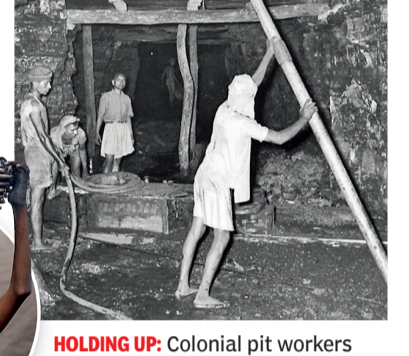
One of the examples I write about is mine fires in Jharia — these are a special form of historical evidence. They speak directly to long-term environmental impacts. These fires began breaking out in the early 20th century and still exist — the Modi government has actually made significant progress in reducing their spread. However, the fact that they burnt in this destructive continuity

across the 20th century speaks to the uncontained ecological costs of fossil fuel dependency. These fires are an outcome of incredibly destructive mining practices by European and Indian firms — they also indicate how communities and ecologies of mining were disregarded.

In these places today, you can also see cracks in soil where smoke and heat rise, communities living in the ruins of burnt-out minefields, people who work as coal scavengers, rooting through officially closed mines which have some remains inside them. These people go into those abandoned galleries, seeking coal to sell in the black market. These events show the long reach of the 20th century — they also show how environmental destruction isn't only about landscapes and resources but the degradation of people.

The West critiques India for using coal — India points to the West's history of doing so and argues this is necessary for its growth now. How do you see this situation?

Fossil fuel dependency was part of a global imperial project. It was not discovered in, say, the 1970s. India is absolutely correct to claim a question of historical



HOLDING UP: Colonial pit workers roofing mines to coal labour now (L)

justice here — the United States and the European Union have had 150 years to develop on the basis of fossil fuels. Sustained fossil fuel dependency today also doesn't show the Indian government holding some unique regard for coal — it's because there is an absence of international transformations which could allow for a global transition away from fossil fuels, in the same way the movement towards these happened earlier.

I see this as a failure of the international context, not India. Fossil fuel intensity in India does seem to be causing unequal growth, with great environmental destruction — but in terms of historical justice, we have to understand the total gap of international responsibility by the West in allowing this crisis to carry on. The recent COP29 summit is also evidence of this — the international arena lacks fundamental leadership coming from the wealthiest nations. And that spells a catastrophe for the future of this planet.

WHEN THEIR BECOMES MINE...
Coal mining spells disaster for non-human species. Just ask the cerulean warbler — if you can find any. A beautiful blue songbird, resident of the Appalachian ranges in America, this little being has seen mountaintop mining for coal remove the top 250 metres off these hills, destroying its core mature deciduous forest habitat. Over the last 40 years, the cerulean warbler population has thus fallen by 82%



THE SHY MULE DEER sports large ears and handsome antlers on bucks. Once hunted, mule deer now face coal mining, coalbed-methane wells fragmenting their migration routes, arsenic and lead flowing into their springs, these deer declining across the Powder River Basin from Wyoming to Montana — while this holds wonderful wildlife, it also contains 40% of America's coal, emitting 14% of total US carbon pollution



Even those living in water cannot escape coal — trout across Washington, British Columbia and Alaska face their habitat being mined. This releases heavy metals into water, altering the natural flow of streams, chemical wastes changing these fishes' smell and vision — and even the composition of soil, damaging native vegetation which these species — chased by 'gourmands' — need to survive



'Coal powered the idea of economic growth as having no limits — this explains the lack of climate action'

Fredrik Albritton Jonsson is Associate Professor of History at the University of Chicago. Speaking to Srijana Mitra Das at TE, he outlines the role of coal in creating the notion of 'boundless' growth:

Few might make the connection instantly — but coal, darkly polluting and brilliantly profit-making, also has an intellectual life. Fredrik Albritton Jonsson studies this — as he says, 'I work at the intersection of environmental history, history of science and intellectual history. My first book was on the environmental dimension of the Scottish Enlightenment, where ideas of improving nature transformed landscapes — those then shaped intellectual culture. Scotland's highlands were a zone of internal colonisation, with massive engineering projects, resettlements, enclosures and dispossession. I trace the connections between the expansion of classical political economy and these improvement projects.'

His next work, 'Green Victorians', co-authored with Vicky Albritton, detailed a small community living in the English Lake District in the late 19th century — these people practiced a post-carbon life, which Jonsson, with a wry smile, describes as 'the



KID STUFF? Children also mined coal deep down in the terrifying depths of Earth



WITH A HUFF & A PUFF: Coal, the burning of which produced steam, changed how Britain imagined being 'great' — if coal had no end, neither did its national economic growth

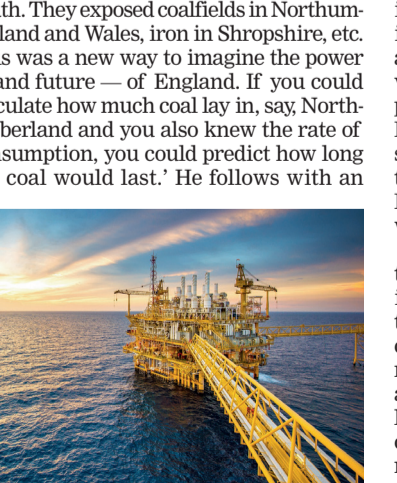
drop-out's perspective'. His new book, 'Scarcity', co-authored with Carl Wennerlind, dives deep into coal as material — and muse. 'We've written an intellectual history of scarcity from 1500 to the present — we also mean 'scarcity' in economics. Students taking Econ 101 hear about how human nature is a tragedy of insatiable desires, clashing with limited resources — but economics provides a happy solution by suggesting new ways through the market. So, instead of a Malthusian calamity, life becomes about never-ending innovation and growth. We show how this neoclassical idea of 'scarcity' is not natural — it emerged at a certain time, became dominant and is now embedded in popular culture.'

Jonsson is currently writing a political history of Britain's fossil transition, or as he puts it ironically, 'I'm telling a political, social and intellectual story of how Britain became addicted to fossil fuels.' Why does a map of coal become such an important driver for ideas of growth here? 'The first famous geological map of England and Wales by William Smith was published in 1815. Before the mid-20th century, prior to the concept of GDP and national accounting, people had to look elsewhere to understand economic growth in their society — so, they looked at imperial projects of trade, sugar imported to England or the fertility

of land. Indeed, for Adam Smith, growth was based on healthy soil and a well-managed farm. But in the early 1800s, the new science of geology provided a stunning visual language of extractive growth.'

Jonsson waves his hands emphatically now. 'Instead of looking to the surface of land, William Smith and his colleagues pointed to the strata beneath. They exposed coalfields in Northumberland and Wales, iron in Shropshire, etc. This was a new way to imagine the power — and future — of England. If you could calculate how much coal lay in, say, Northumberland and you also knew the rate of consumption, you could predict how long the coal would last.' He follows with an

GEO-LOGICAL?



BOUNDLESS: New tech and energy fuel dreams of consumption and prosperity

ironic smile. 'As they consistently underestimated consumption, they arrived at fantastical figures for the duration of these coal fields — these would last hundreds of years going by these calculations. So, geology yielded a very cornucopian or boundless idea of growth — perhaps even more breath-taking than GDP optimism today.'

Was this reliance on coal bought equally by everyone? Jonsson replies, 'The political elites were a mix of Tories and Whigs then, conservatives and liberals, land owners but also some merchants. They all had different views on political economy. So, the idea that coal would now be the most important engine of growth did not immediately persuade everyone — oddly, Tory liberals, including Sir Robert Peel, the future Prime Minister, were among the first politicians to embrace coal as underpinning Britain. In 1824, these Tories were involved in a fund-raising campaign to memorialise James Watt, inventor of the steam engine. This moment, with Smith's map, marks when England's elites began to celebrate their country as a fossil fuel economy.'

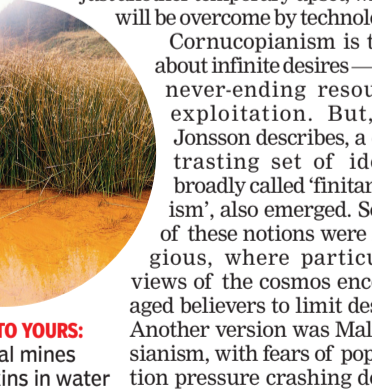
There was another example. As Jonsson describes, the Great Exhibition of 1851, 'a public display of Britain's industrial capacity', was visited by millions of middle- and working-class people marvelling at this show of manufacturing prowess. This event was also seen as when Britain broke away from fears of Malthusian overpopulation — it seemed obvious the nation was not facing any regression. It was a growth economy now — and it would only keep expanding.

But this story comes with many nervous twists. Jonsson says, 'Just ten years later, in the 1860s, the British political and scientific elite become consumed with fears of coal exhaustion. As coal is a non-renewable resource, and mineral statistics now showed a much higher rate of consumption, it looked like Britain could run out soon or coal prices would rise, rendering British manufacturing less competitive than Germany or the United States.'

He further explains, 'Coal-based 'cornucopianism' is a cyclical moment, inter-

rupted by worries about finite supplies, overpopulation and resource limits. In the 1860s-70s, some economists arrived at a new answer — they claimed substitution was now possible. Science would drive technological innovation and continuous new technologies would keep harnessing new energies — this came alongside the discovery of petrol, oil, hydroelectricity and natural gas. People were now beginning to imagine a world no longer based on coal alone.'

Jonsson argues that belief in endless substitution drives much of modern economics — and politics. He emphasises, 'I'd even argue substitutionism is why political action has been so difficult in climate science. If you believe in substitutionism, climate change doesn't really seem like an existential planetary tragedy — it looks like just another temporary upset, which will be overcome by technology.'



FROM MINE TO YOURS: Britain's coal mines leached toxins in water

Cornucopianism is thus about infinite desires — and never-ending resource exploitation. But, as Jonsson describes, a contrasting set of ideas, broadly called 'finitarianism', also emerged. Some of these notions were religious, where particular views of the cosmos encouraged believers to limit desire. Another version was Malthusianism, with fears of population pressure crashing down on limited resources. A third

was the Romantic literary ideal of the late 18th century, involving Rousseau, Wordsworth and Ruskin, where, Jonsson explains, 'The idea of 'the good life' was one to be lived in rural simplicity, the contemplation of nature's beauty as central. This idea never became dominant — but it still casts a powerful shadow on discontents.' Jonsson firmly states some finitarianism is required for climate action now. He explains, 'Decarbonisation is necessary — that will eventually mean a permanent ban on fossil fuel use. Secondly, even if we solve climate change, we still have land use change destroying other species. This will need some limits and setting aside tracts for biodiversity, only stewarded by humans.' All that will entail trimming ideas of 'boundless' growth — or, as they say, finally managing our expectations.

READERS WRITE

Dear Times Evoke, TE always gives food for thought and the interview with Robert C. Stowe on methane (23rd November) was exactly that. I thought methane only came from industries, so this was a real eye-opener. It was very interesting to read about new ways to grow paddy which can lower methane emissions and water use. Kudos for another beautiful article, TE!
— Parul Mehra, Delhi

Thanks to Team TE for seamlessly explaining methane generation across various industrial and agricultural processes. The ways to combat these have also been written in very accessible language for laypersons. Reading TE, I sincerely wish we can all pursue at least one method to reduce methane emissions.
— Jayashree Janardhanan, Bengaluru

Thanks for the excellent TE conversation with Robert Stowe! Methane has become a real debate, with some claiming the paddy rice question is an attempt to shift focus from the West's history of pollution. However, Stowe provided a refreshing look at technological alternatives to lower methane without impacting agriculture. Also, his insights on natural gas were engaging. I hope fossil fuel companies are listening!
— Rohit Jaiswal, Hyderabad

TE's interview with Robert C. Stowe revealed how methane is burning up Earth far more than even carbon dioxide emissions. The expert also discussed ways to reduce methane releases. As the views expressed were devoid of jargon, it was easy for general readers to comprehend the seriousness of the situation. TE's weekly articles are the piece de resistance of the TOI — avid readers like me unfailingly savour each nugget of information provided by TE every Saturday.
— CV Aravind, Bengaluru

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