GEOGRAPHIES OF ENERGY

RANIA GHOSN
University of Michigan

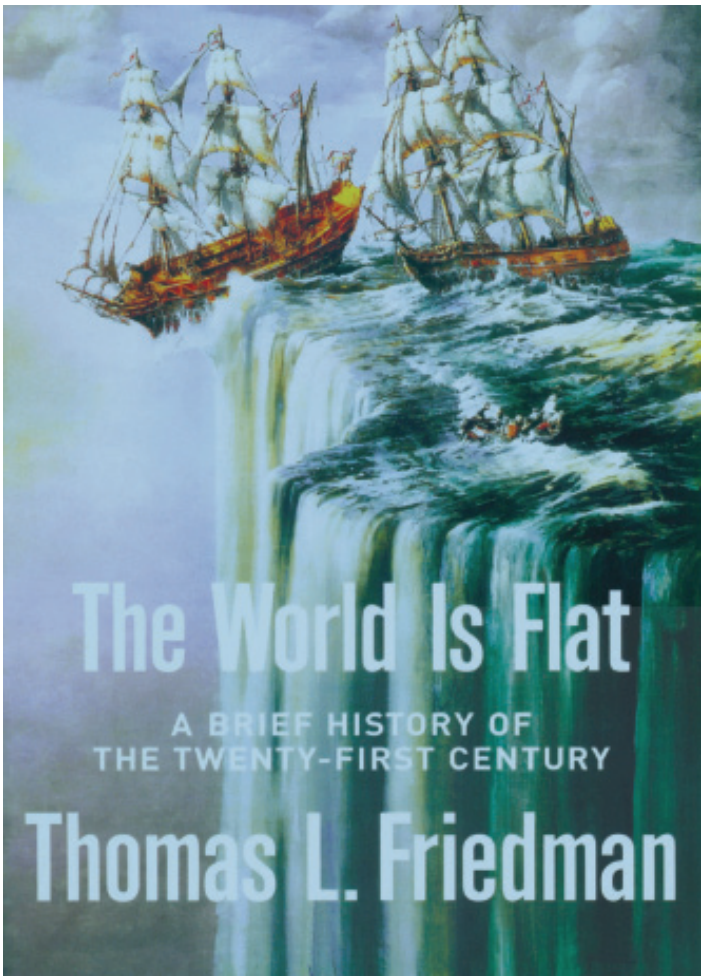

Figure 1: Cover of the hardback edition of Thomas Friedman's book *The world is Flat*

In his best-selling book The World is Flat (2005), the New York Times columnist Tomas Friedman argues that the world is being tied into a single global market place where spatial barriers are being overcome. Friedman, along with other advocates of the "space of flows," rightly acknowledges the intensified flows of information, capital, labor, resources, and commodities in larger quantities and at greater speed. Yet, such accounts of intensified flows often interchange globalization with "shrinking world," "death of distance," or the "end of geography" altogether, constructing a world unhindered by the dimensions of space, materiality, or politics –beyond territory. They internalize benefits and accrue them to the city while externalizing costs, sliding them out of sight, to the periphery, underground, or deserts. Such framework in which transportation is perceived as external to society is inappropriate for interpreting a world in which movement is increasingly important. Far from flattening the globe as portrayed in the business press, transportation infrastructures organize space to exploit differences between places. Rather than the "end of geography," and as Harvey asserts, "spatial organization is necessary to overcome space."[1]

This paper asserts the significance of the territoriality of transnational flows. Through the case study of the Trans-Arabian Pipeline (Tapline), a cross-border oil pipeline in the Middle East, the paper explores how the global flow of oil depends on a physical and political inscription of the energy regime in the landscape. Throughout the course of the twentieth century, the growth of oil into a global commodity has brought the Middle East and its oil infrastructure on the agendas of foreign policy and international trade marking the space of the region from extraction fields, through transportation routes and into refineries-ports. Operating between 1950 and 1975, the 1,000 mi cross-border Tapline, a subsidiary of four American oil companies, carried part of its sister company's crude from the Aramco wells in Saudi Arabia across Jordan and Syria to a Lebanese port on the Mediterranean. Designed as on overland shortcut, the pipeline was represented in company publications as a free-floating pipe that merely overlays the land to vanish into the horizon. However, the cross-border flow required material interventions that inscribed the infrastructure's territory into the landscape. It comprised an extensive system to map, build, service, inhabit, and secure the line. In Saudi Arabia in particular, Tapline played a developmental role in the Northern Province, which contributed to stabilizing the northern frontiers of the Kingdom and supported the settlement within its political boundaries of tribes that had seasonally migrated in search of water across the arid region and into Iraq. The pipeline company drilled groundwater wells, provided free medical services in its clinics along the right-of-way, and built public facilities in the pumping stations towns.

The energy infrastructure required thus a set of discursive and material technologies to inscribe the flow of oil into the landscape.

In the process, it materialized a territory through which the multinational oil corporation, the state, labor power, as well as local emirs negotiated their stakes and interests. From this perspective, territory is understood as a constitutive dimension of globalization. The transnational flows of oil have neither annihilated nor depoliticized the territory. Rather, as Anna Tsing articulates, globalization can only be charged and enacted in the sticky materiality of practical encounters –through what she calls friction: "the awkward, unequal, unstable, and creative qualities of interconnection across difference."[2] Tsing suggests that if we imagine the flow as a creek, we would notice not only what flows are but also the channel which makes the flow possible –the political and social processes that enable or restrict flows. Such framework identifies the materiality, directionality, and fixity of oil flows, as well as the regulatory mechanisms and practices that enable, structure, or hinder them.[3]

SPACE AS A RESOURCE AND A BARRIER

> The so-called shrinking world is not merely an effect of generalized progress of modernization but the specific necessity of the mode of production. Neil Smith, *Uneven Development*, 94.

Foregrounding the importance of geography, David Harvey advances how capitalism mitigates accumulation problems by annihilating spatial barriers to profit realization through the development of communications and transport technologies. Surplus value is thus realized once commodities get to market in an efficient and timely fashion. Geography then comes to matter greatly, or more accurately the overcoming of its distances. Distance in this respect is not measured in absolute terms, but rather as, "friction of distance", it is economically quantified as the combined effect of the time and cost imposed by transportation costs.[4] The steadily declining friction of distance, synonymous with the reduction in the turnover time of capital, has been the significant economic incentive for the development of larger, faster, and more efficient transport and communication technologies.[5]

Figure 2: The Sun never Sets on Mobil Oil

Geographically, such time-space compression involves the multitude of ways that make distances feel smaller while accelerating velocities, and expanding flows of people, goods, and information across space.[6] In the age of petro-capitalism, the quest for fuel energy has thus expanded the extractive frontier to the ends of the earth. As Neil Smith elaborates, "[c]apital stalks the earth in search of natural resources...No part of the earth's surface, the atmosphere, the oceans, the geological substratum or the biological superstratum are immune from transformation by capital."[7] Crude oil is not worth much at the well-head, it needs to be moved, refined, and delivered to the point of distribution; crude becomes a resource through transport.

ENERGY GEOGRAPHIES ARE HEGEMONIC

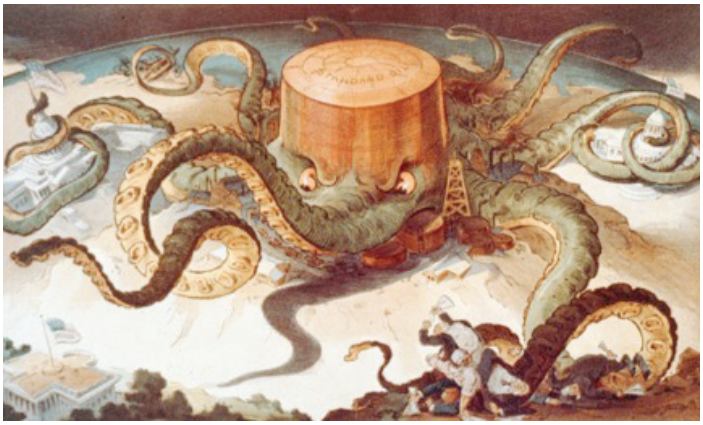

Figure 3: Cartoon on Standard Oil Company's Monopoly over the Industry.

Historically, international competition aimed at the control or occupation of critical geographic features such as rivers, harbors, islands, resource sites, straits, and vital "energy corridors." Transport infrastructures have a significant legacy as the tools of international private companies and foreign governments acting upon their interests and competing to monopolize access, divide up resources, and favor international trade. In India for example, British Railroads grew since 1853 to become the largest railroad system in the colonial world, primarily to facilitate cotton and jute exports to the textile mills at home, but also to facilitate the

movement of troops and their control the native population.[8] The United Fruit Company has had a similar territorial impact with its railroads in Latin America. In the postcolonial context transnational infrastructures raise issues of sovereignty between the state, global capital, international organizations, and local populations in a struggle over the routing, operation, and revenues of these lines.

In the early days, moving the crude in wooden barrels on primitive roads was an adventure with teamsters becoming the tyrants of transport and charging as much as three or four dollars a barrel for a five or ten mile haul. While continuously expanding the mass of available resources, and hence perpetually increasing the capacity of the transport infrastructure, oil companies sought to main monopoly over their wells and markets, seldom through the control of the transportation channel connecting them. Railroads had initially served as the main arteries for transporting crude over long distances, soon to be replaced by pipelines as a more efficient means for transporting large volumes along a defined route. The large oil companies became the new tyrants. In such a configuration, the required large capital investment constructs the hegemony of large industrial groups by restricting access to the line to the oil produced by a sister-company concession. First, the high-capital expenditure character of the oil industry in general, and of the private transport of oil in the pipeline, limits the entry into production of competing capitalists by raising the minimum capital requirements for profitable production. Second, oil carried by the most-economic-route pipe is restricted to that of its sister oil concession, rendering both the production and distribution ends of the sister-operation more competitive.

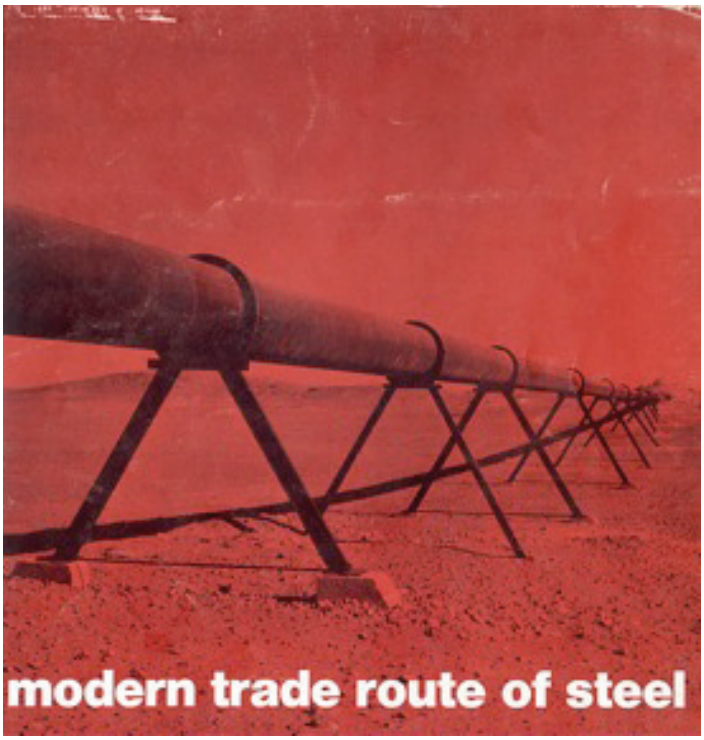

Figure 4: Tapline Brochure

ENERGY GEOGRAPHIES REQUIRE FIXITY

> Urbanization can be viewed as a process of contiguous de-territorialization and re-territorialization through metabolic circulatory flows, organized through social and physical conduits or networks of 'metabolic vehicles.' Swyngedouw 2006:22

As Swyngedouw and Kaika elaborate, the 'modern' transformation of the city, highly dependent on the mastery of circulating flows, was linked with the representation of cities as consisting of and functioning through complex networks of circulatory systems.[9] Histories of infrastructures have developed understandings of how circulatory and societal changes intertwine, and highlighted the importance of the operational, economic, and social role of technology networks —water canals, railroads, streetcars, gas pipes, dams, electric cables— at the scale of the urban. However, confined to the boundaries of the city, such research has favored the compartimentalization of spatial scales and somehow contributed to severing the processes of the social transformation of nature from the processes of urbanization.[10] Other accounts, such as Cronon's story of Chicago from the vantage point of circulating flows, demonstrate the extent to which urbanization extends beyond the city's political border and indeed beyond national borders.[11] The focus on the constitution of power relations, rather than on urban boundaries, cultivates contextualized understandings of urbanization across scales, as its networks "are by nature neither local nor global, but are more or less long and more or less connected."[12]

As an infrastructure that carries a natural resource to our urban environment, the pipeline highlights the role of large technological systems in the transformation of nature into the city and the repercussions of technological choices on the organization of spatial and political relations across scales. Similarly to other infrastructures of transport, such as highways, railways, and water canals, "carbon arteries" fix capital in space to move crude oil from "resource-frontiers" to energy-intensive urban environments inscribing the circulatory imperative of urbanization on a global scale. Such capital represents a productive investment to the extent that it contributes directly or indirectly to the expansion of surplus value through privileging a mode of transport, an industry (oil), etc.

Although technologies using fossil fuels have shaped the urban environment and global landscape over the last two centuries, the connections between the transport of energy and the production of the environment remain largely unaddressed, partially as the conduit is overshadowed by the attention that the black gold it carries has received, and is rendered invisible in its site –locked underground or crossing "far and empty" terrains. Echoing Lefebvre, to speak of "carbon-urbanism" is a to follow the industry along its 'carbon arteries' to the ends of the earth.[13] The continuity of the conduit between *crude* geographies and the *refined* world highlights how local and global processes shape each other, how the Metropolis and the Empty Quarter are intimately connected by the Urban Condition.

ENERGY IS TERRITORIAL

Figure 5: Territorialities of the Tapline

A cross-border infrastructure neither simply exists in a given territory nor does it erode the significance of territoriality. Redrawing flows, an infrastructure re-produces territorial configurations and harnesses social processes in a new geography of places and relations. Its deployment organizes space, exercises power over a geography, and materializes a territory through which different actors subsequently negotiate their stakes and interests. From this perspective, territory is understood as a constitutive dimension and stake of contestation, one that is being reordered rather than eroded.[14]

In the "Second Contradiction of Capitalism," Marx identifies production conditions which capital cannot produce for itself, and whereby the state mediates, and hence politicizes, conflicts around these conditions in an effort at maintaining capitalist accumulation. The oil industry is territorial; it has seldom sought to reinforce its area of concession by reinforcing the authority of the nation-state. If the sovereignty of the state and its relation to its population finds its spatial form in territory, the deployment of private territorialities requires the interference of the state to legitimatize its operations in relation to the land and populations. However, to say that global capitalism and the state need and reinforce each other on some fronts does not imply that they are in consensus over all operations or to ignore disaccords between visions of the state and visions of the oil company. What the "space of flows" overlooks as well is the geographical contradiction of globalization between integration and fragmentation, between opening up borders for international trade and creating zones of exceptions and differentiated sovereignties unevenly integrated into the structures of state power.

SPACES OF FRICTIONS

Spatial fluidity is thus only ever achieved via a deepening spatial fixity that at crucial moments reasserts itself, often violently.[15] In the Oxford English Dictionary, friction is defined as "the resistance which any body meets with in moving over another body" and "the jarring and conflict of unlike opinions, temperaments." In fact, commodities-flows do not move across the globe without friction. Such definitions highlight the resistance that meets the liquid to move inside the conduit and the violence that goes *on-site* with the efforts to maintain control over the flow and its revenues.

While the literature on transnational infrastructures mostly focuses on their integrative aspect, the story of the TAPLINE highlights that uneven socio-ecological conditions are produced through the organization of flows across scales. As a set of material and discursive interventions across scales and rules, the infrastructure produces a space – simultaneously epistemological and geographical – through which international oil companies, transit and petro-states, and populations have negotiated their political rationalities. The pipeline, like the ship at sea, creates a particular set of relations, one that is dependent on its location amidst conflicting processes and actors, and one that may in turn have an effect on future spatial negotiations. In the case of the Tapline, water troughs were a micro-political cosmos of the political process: international officers made available the 'hidden natural resource', local emirs regulated access, and different tribes, no longer confined to their territorial boundaries and water wells negotiated, sometime violently, access to water.

Tapline has been interrupted or sabotaged several time, its flow capacity increased and caped, and its operations negotiated until its final shutdown in 1975. The space of flows is thus not ever continuous. The fact that capitalism needs space but perpetually strives to reconstitute means that the infrastructure ultimately succumbs to pressures to deterritorialize. Each configuration of territorial organization within capitalism's geographical landscape is merely temporary in a perpetual de- and reterritorialization. As the production system changes more rapidly under the impetus of competition and economies of scale, so does the landscape. A product of the capitalist circulation process, these environments are reconfigured

with subsequent technological developments, political changes as well as with capital's quest for new markets.

CONCLUSION

The historical case study of the Tapline contributes to research on transportation space in a world in which flows of information, capital, labor, resources, and commodities are taking place in larger quantities and at greater speeds. It argues that the development of transnational flows and global (private) infrastructures has neither annihilated nor depoliticized the territory but rather has operated through the territorial. The paper asserts some aspects of the "space of flows." First, it is a material process across scales that involves different flows, each with its directionality and intensity. Second, it does not operate in a tabulsa-rasa; it displaces previous modes and geographies of circulation and would be in its turn part of such space-time genealogies. Third, it is not all continuous; space of flows is invariably in tandem with immobility and even halt. Fourth, it is not all-inclusive; its power-geometry constructs geographies of control and accessibilities to the flows in question. As such, it is a tool of government and a site of friction. Asserting the political process of flows, this paper seeks to position the flow in relation to the multiple actors involved and assert friction as flow's inevitable other. At time when the triad of energy, economy, and environment is at the forefront of design concerns, such territorial understanding of global infrastructures yields crucial insights into the spatial planning for subsequent energy geographies.

ENDNOTES

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6 Barney Warf, *Time-Space Compression: Historical Geographies* (London; New York, Routledge: 2008), 15.
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