Energy Research & Social Science 38 (2018) 193–198

Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: www.elsevier.com/locate/erss

Perspectives

Historicizing transitions: The value of historical theory to energy transition research

Michael Gismondi

Centre for Social Sciences, Athabasca University, 2 University Drive, Athabasca, Alberta, T9S 3A3, Canada

ARTICLE INFO

Keywords:
Environmental history
History from below
Historicizing the anthropocene
Plural time in transitions

ABSTRACT

Can history and historical thinking help us to strategize key transition challenges ahead?

Most transition thinkers make use of historical perspectives, sometimes obliquely, to frame their energy and society research. Yet, specific socio-historical forces driving accelerated energy use, climate warming, biodiversity loss and systemic inequities are often left to speak for themselves; summoned, there they hover, ghost-like and haunting this transition thinker.

In particular, we give wide berth to questions of historiography; that is, different theories and disputes over the interpretation of historical change. In this discussion piece, I introduce four perspectives on the history and theory of long-term structural social change and argue how they could advance our transition work: environmental history, historicizing the Anthropocene, history from below, and plural time.

My intent is to encourage greater engagement with historical thinking as a form of knowledge about transitions, as we work towards accelerating alternative, low carbon and just futures.

> Ours is, if anything, an epoch of diachronicity.
>
> (Andreas Malm, Fossil Capitalism, 2016)

Spring arrives early in Sitges—for a Canadian. Patios fill with tourists. Beachgoers enter still-cold seas. In coastal coves, sun lovers strip down. Up the hill, at the first International Conference on Energy Research and Social Science, researchers share concerns.

Human society now operates like a geological force of nature. Our fossil-fueled economies threaten earth's life systems and a new geo-historical epoch, the Anthropocene, confronts us—recognizable by biodiversity collapse, extreme weather, and unpredictable systemic risks. With urgency, speaker after speaker appeals for forward-looking transition research and useful interdisciplinary problem solving. History and historical thinking appear outmoded.

Yet, remarkably, many transition thinkers make use of historical perspectives, sometimes obliquely, to frame their energy and society research. Of those, a number rely on traditional chronologies of technological development to describe a natural evolution in energy types: from less efficient water, wood, peat, and coal; to more efficient and mobile oil, gas, and electricity; and recently to nuclear and renewables. Some see the design of nature in each new historical energy mix and subscribe to a modernization theory of civilization. A handful revert to technological determinism.[1] Critical researchers emphasize the political and ideological power struggles that shaped past energy regimes and record uneven socio-economic benefits and unfair ecological harms experienced by marginalized groups and poor nations. At a special session on energy and history, conference leaders urge climate geo-technocrats and quantitative analysts to engage in historical analysis to supplement their insights.[2]

Even specialists in technical aspects of transition management and multiple-level perspectives assume historical forces at play to explain why things *do not change*. Key causes of inertia and immobility include "carbon lock-in" and "path dependence" referencing corporate domination by energy majors and long-term business influence over regulatory practices, which handcuff pioneers seeking systems change. In a different way, innovation entrepreneurs put *temporality* and the pace of historical change at the centre of their strategies for transition to deep de-carbonization or low growth economies—whether slow cities, slow

E-mail address: mikeg@athabascau.ca.

[1] On the persistence of the assumption that technological progress equals social progress, see Wyatt [59].

[2] The ERSS Journal has published a number of papers that urge us to explore historical approaches to energy transition, most notably the overview by Hirsh and Jones [69]. See citations throughout. In his Sitges keynote, Benjamin Sovacool presented data from his What are we doing here? That showed fewer than 19% of authors published in Energy and Social Science had backgrounds in social sciences and a mere 0.2% affiliated with history [60]. He encouraged us to read the questions raised by historians of technology and in Science Technology and Society studies. In a special session, Michael Jefferson led a spirited defense of history, where he focused on economists, engineers, scientists and quantitative researchers acquiring knowledge of the past [61].

https://doi.org/10.1016/j.erss.2018.02.008
Received 19 October 2017; Received in revised form 8 February 2018; Accepted 9 February 2018

food, or slow capital. Still others confirm chronological warming patterns and take up the historical narrative of Anthropocene scientists who acknowledge changes in centuries old carbon cycles, as well as the great acceleration in human induced fossil-fuel use, resource consumption, and carbon emissions over the last 60 years.

Temporal and historical thinking, including acknowledgement of the effects of industrialization, capitalism, and neoliberalism, is present in these many research frameworks. Yet, specific socio-historical forces driving accelerated energy use, climate warming, and growth in systemic inequities are often left to speak for themselves; summoned, there they hover, ghost-like and haunting this transition thinker. In particular, we give wide berth to questions of historiography; that is, different theories and disputes over the interpretation of historical change. In this discussion piece, I introduce four perspectives on the history and theory of long-term structural social change[3] and argue how they could advance our transition work: environmental history, historicizing the Anthropocene, history from below, and plural time. My intent is to encourage greater engagement with historical thinking as a form of knowledge about transitions, as we work towards accelerating alternative, low carbon and just futures.

1. Environmental history and transition

For many years, historians focused on how nature placed limits on human progress—an obstacle to be overcome through human discovery, invention, and technological innovation to achieve economic and social ends. Researchers staking out the new field of environmental history in the early 1970s did so with different emphases. They began to explore the ill-considered effects of human economic activities, technological innovations, and political systems *on nature* [1,2].

To do so, environmental historians entered into dialogue with natural science understandings of the world. For example, they began to study the ecological shocks as Europeans introduced continental animals, plants and microorganisms, technologies, and pathogens—across the globe [3,4]. Representative works look at the biological and social consequences of the Columbian exchange as Europeans "discover" and dominate the peoples of the Americas [5–8]. The disruptive opening of the western frontiers of Canada and the United States—the transformation of millions of acres of western grasslands, forests, and watersheds [9,10]. How cities like the metropolis of Chicago shaped city-rural dynamics across the west of America—a geography of commercial elites and railroad barons who commodified cattle, grain, meat, and natural resources and systems of transfer from countryside to city, ruining the ecosystems of both [11,12]. Similarly, as the U.S. arose to imperial power in the late 1890s, the "insatiable appetite" of American business investors and speculators turned to tropical frontiers and the global south—leaving behind degraded ecosystems and damaged communities [13–15].

With each decade of industrial growth, energy and resource consumption increased. John McNeil in *Something New Under the Sun: An Environmental History of the Twentieth Century* (2000) finds that global ecological destruction intensified in America as fossil-fueled "technological systems and business structures coevolved." McNeill describes a shift in the energy mix in the industrial regions of the United States, "from 'coketown clusters' of coal, iron, steel, and railways in the 1930s" to "'motown clusters' of assembly lines, oil, electricity, automobiles and aircraft, chemicals, plastics, fertilizers" at mid-century and well into the 1990s [16: 296]. Later work uncovers connections between rapid Post-War acceleration in energy use, population growth, resource consumption, and pollution: statistical patterns confirmed in today's Anthropocene science. In addition, collaborative research into Cold War politics investigates how modern warfare drove up fossil-fuel use [17–19].

Of interest to transition thinkers, the approaches and methods[4] are attentive to detail, yet explore wider connections and multiple scales. They integrate evidence from across disciplines and synthesize quantitative and qualitative explanations for social and ecological change. Critics of these otherwise important works object, however, to their sometimes too passive depiction of both human agency and the material agency of nature. Biological "contact:" that is, the interaction of European animals, diseases, and plants (along with Western ideas of husbandry and farming) that came along with European military and political conquest of colonies was not a one-way run-in [6]. Indigenous biota and local ecologies proved capable of disrupting empires [4]. Even the mosquito, McNeill finds, altered imperialism [20]. Disturbed ecosystems and natural environments, likewise, can exert pressures of their own as nature becomes inhospitable to human life [21,22].

The editor of *The Oxford Handbook of Environmental History* [23] argues that both nature and human nature change across historical time. Human cultures and societies are shaped by their relationships to the biophysical world. In turn, ecosystems adjust to changing scales and intensities of human uses, and human perceptions adjust to those changes. In his study of human agency and environmental change in the medieval period, Hoffman found that our long use of technologies not only "marked landscapes," but also had a "reciprocal effect on how people reflect on cultivars." He describes historical change as a spiral or helix, a process in which nature and human consciousness of our relationships to the natural world alter each other over time. Neither remains fixed and for much of human history awareness remained local or regional in scope [24: 396]. Grove's study of colonial officials and scientists finds attitudes of conservationism and early environmentalism "emerged as a direct response to the destructive social and ecological conditions of colonial rule" [25]. In a study of American women in environmental history, Unger traces gendered changes on the land. By the 1960s and 1970s, she finds, women's consciousness of global changes in nature caused by industrialization began to foster new gender identities and, feminism "contributed significantly to the environmental justice, ecofeminist, and alternative community movements" [26, 164, 27]. Roberts and Langston [28: 629] remind us that our bodies change too as industrial chemicals alter ecosystem health around us: "Trace chemicals found in the air, water, and soil are now being detected within us. The very chemical composition of our bodies is being altered in ways that reflect the transformations of our everyday environments." For them these "landscapes of exposure" gave rise to new ways of thinking about industrialization and the health of humans and nature. [29] argues modern "environmentalism" emerged in response to the Post-War intensification of fossil energy use—a planetary consciousness that all of these writers hope will continue to provoke widespread reflection by humanity on global ecosystem collapse and eventually spur us into action and transition.

Recently, environmental historians and *Science, Technology, and Society Studies* researchers have established a new collaboration termed "Envirotech." Moving beyond studies of the context of a technology's historical emergence, they too trace a technology's wider human uses and socio-ecological impacts over time. Its effects are on natural environments, human bodies and self-awareness, blurring the "illusory" boundary between nature and culture/society ([30–32] http://www.envirotsechweb.org/).[5] Equally important, neo-materialists like LeCain [22: 3] bring our attention back to the over-estimation of human agency—and the underestimation of the ability of natural systems to be hostile to human life. Recent fire geographies across the northern Alberta oilsands or the massive and months' long forest fires of 2017 in Chile, Portugal, and California come to mind.

[3] See Chabrol [62] on the historical evolution of energy systems and urban hierarchical structures.

[4] See Stephen Mosley [63] on the need for greater intersection between environmental history and social history. Also see his excellent bibliography.

[5] On energy and modernity, see the new field Energy Humanities [64].