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Powering Up Canada: A History of Power, Fuel, and Energy from 1600 (Ruth W. Sandwell, ed., 2016)

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Abstract

Powering Up Canada investigates the problem of energy in Canada with an interdisciplinary approach and a historical *longue durée* perspective. Edited in January 2016 by R. W. Sandwell, the volume follows a symposium organized in 2013 by the *Network in Canadian History and Environment* around a common question: what History for energy in Canada? *Powering Up Canada* aims at being a first comprehensive overview of the role that different forms of energy and private and public actors had in shaping the history of this country.

Plan of the article

- A General Overview
- Two parts, one scope
- Structure analysis and problem description
- Choices explained

A GENERAL OVERVIEW

- 1 *Powering Up Canada* investigates the problem of energy in Canada with an interdisciplinary approach and a historical *longue durée* perspective. Edited in January 2016 by R. W. Sandwell,¹ the volume follows a symposium organized in 2013 by the *Network in Canadian History and Environment* around a common question: what History for energy in Canada? *Powering Up Canada* aims at being a first comprehensive overview of the role that different forms of energy and private and public actors had in shaping the history of this country.
- 2 The volume is structured in two parts provided with a contextualising introduction and a conclusion. The first part explores forms of energy like food, water, wind, and wood, while the second is focused on coal, hydroelectricity, oil, gas and nuclear power. This division could seem very scholastic but is not obvious. It explicitly refers to E.A. Wrigley's hypothesis about a 18th-century shift from an organic energy regime (seasonal, sun, land, and water-based energy) to a mineral one (constant, concentrated, transportable energy). However, the final purpose of the book is to offer some criticism of Wrigley's theory. With an interdisciplinary approach, the essays demonstrate how continuities and differences have equally helped shape the Canadian energy landscape.

TWO PARTS, ONE SCOPE

- 3 Through the different contributions, the book provides a portrait of each form of energy since the time of the first settlers, whose energy "fuel" - nutrition - was provided by indigenous animal species. The specific richness of these

resources in Canada thus provided a solid base for the expansion of colonial trading networks as shown by George Colpitts² (Chapter 2). The same crucial role of animals is underlined by J. I. Little³ (Chapter 3) and by Joanna Dean⁴ and Lucas Wilson⁵ (Chapter 4). For Little, horses are "living machines", used for a long time in urban areas, even in contemporary times. Therefore, he contests the interpretation of these animals as a pre-industrial form of energy. This idea meets Dean and Wilson's contribution, which considers urban workhouses as "industrialized organisms" and horses as a bridge between human-powered and steam-powered metropolitan labour. A similar pattern comes from Joshua MacFadyen's⁶ contribution about the history of wood energy (Chapter 5). In his view, the energy transition from wood to coal is overestimated due to a lack of recording on the uses of wood. Then, Eric

² George Colpitts teaches environmental history at the University of Calgary. His publications include *Pemmican Empire: Food, Trade, and the Last Bison Hunts in the North American Plains, 1780-1882* (Cambridge: Cambridge University Press, 2015); *North America's Indian Trade in European Commerce and Imagination, 1580-1850* (Leiden: Brill, 2014), and *Game in the Garden: A Human History of Wildlife in Western Canada to 1940* (Vancouver: UBC Press, 2002).

³ Jack Little, Emeritus Professor in the Department of History at Simon Fraser, is specialized in Canadian history, particularly on Quebec. He wrote various essays ranging from political history to cultural studies and landscape analysis. His latest publication is *Fashioning the Canadian Landscape: Collected Essays* (Toronto: University of Toronto Press, 2018).

⁴ Joanna Dean is Associate Professor of History at Carleton University, where she teaches animal history and environmental history. She runs a lecture series, *Beastly Histories*, and co-edited in 2017 *Animal Metropolis: Histories of Human Animal Relations in Urban Canada* (Calgary: University of Calgary Press 2017).

⁵ Lucas Wilson is a lawyer based in Toronto with an interest in the history of animal welfare. He studied history at Queen's University, Kingston.

⁶ Joshua MacFadyen is Assistant Professor of environmental humanities in the School of Historical Philosophical and Religious Studies and the School of Sustainability. His work examines the social and ecological problems of energy in Canadian and U.S. agriculture, particularly during the transition from traditional to modern agroecosystems. In 2016 he coedited *Time and a Place: An Environmental History of Prince Edward Island* (Montréal, Kingston: McGill-Queens University Press, 2016).

¹ Ruth W. Sandwell is Professor at the University of Toronto and Fellow at the Rachel Carson Center. She explores the history of energy and everyday life in Canada in the nineteenth and twentieth centuries. She edited *Powering Up Canada: A History of Fuel, Power, and Energy from 1600* (Montreal, Kingston: McGill-Queen's University Press, 2016), and published *Canada's Rural Majority, 1870-1940: Households, Environments, Economies* (Toronto: University of Toronto Press, 2016), both in 2016.

W. Sager⁷ (Chapter 6), Jenny Clayton⁸ and Philip Van Huizen⁹ (Chapter 7) devote their research respectively to wind and waterpower. Born before the era of electricity, water mills rapidly began to process metals and became a key issue for verticalization while wind resource remains constantly dispersed and limited in Canadian history.

- 4 The second part addresses the so-called “mineral energies” which are extracted through inorganic resources. All the authors underline how geography is a key to understand the energy balance of inorganic resources. In this regard, the relation between coal and hydroelectricity in central Canada is a clear example provided by Andrew Watson’s,¹⁰ Matthew Evenden’s¹¹ and

Jonathan Peyton’s¹² essays (chapter 8 and 9). Their point is that the natural poverty of coal in some specific Canadian regions improved the development of hydroelectricity, but they also specify that the process of transforming a resource into energy is not understandable through the lenses of geographical determinism. In fact, coal and hydroelectric power were differently employed: the first supplied nuclear stations, the second was for private and other public uses. The segmentation of the energy market responded to the agency of public actors, in a sort of primordial energy policy. In this context, the authors interestingly underline that this policy was not always guided by a cheaper and better rationality. A study of political geography is thus essential to understand the whole issue of a national economic policy on energy without being deterministic.¹³ This assumption is confirmed by Steve Penfold¹⁴ (chapter 10) who shows how, inversely, Canadian geography, that is the political division of the Canadian space, depended on a political decision concerning foreign and indigenous oil supply. However, public actors are not the only players in the game because, as shown by Ruth W. Sandwell and Colin Duncan¹⁵ (chapter 11), multinational companies had an interest in shaping natural

⁷ Eric Dr. Sager is former Professor of the University of Victoria and a member of the Atlantic Canada Shipping Project, the Director of the Canadian Families Project, and a co-investigator on Canadian Century Research Infrastructure. He is a member of the Executive of Landscapes of Injustice. His research has earned him membership in the Royal Society of Canada.

⁸ Jenny Clayton is an independent scholar at the University of Victoria, where she has taught courses on Canadian and Environmental History at the University of Victoria and at Vancouver Island University. For her dissertation, she explored the history of parks and outdoor recreation in twentieth-century British Columbia, a project that involved archival research, oral history interviews, and hiking.

⁹ Philip Van Huizen is Professor at British Columbia University and former L. R. Wilson Assistant Professor at the Wilson Institute for Canadian History. As environmental historian of Canada-US energy development, he received his PhD from the University of British Columbia with a dissertation on conflict over power development in the Skagit Valley, which won the American Historical Association’s prize for the best doctoral dissertation on the North American West.

¹⁰ Andrew Watson is Assistant Professor in History at the College of Arts and Science at the University of Saskatchewan. His main project deals with rural identity in Ontario, the history of coal in Canada and the Sustainable Farm Systems project, which explores the socioecological transition in agriculture. His thesis defended in 2014 was entitled *Poor Soils and Rich Folks: Household Economics and Sustainability in Muskoka 1850-1920*.

¹¹ Matthew Evenden is Professor of Geography in the University of British Columbia. His research deals with an environmental history and water issues, with particular focus on rivers. He is a founding executive member of NiCHE, the Network in Canadian History and Environment, and Chair of Canadian Studies at UBC. He published *Allied*

Powers: Mobilizing Hydroelectricity during Canada’s Second World War (Toronto: University of Toronto Press, 2015).

¹² Jonathan Peyton works in the Department of Environment and Geography, University of Manitoba. He is specialized in environmental, historical and cultural geography. His current research is on the policy implications of northern energy infrastructure megaprojects in subarctic North America.

¹³ Cfr. Martin Jones, Rhys Jones, Michael Woods, Mike Woods, *An Introduction to Political Geography: Space, Place and Politics* (London: Psychology Press, 2004).

¹⁴ Steve Penfold is Associate Professor & Acting Associate Chair at the University of Toronto, specialized in the social, cultural, and political history of twentieth century Canada. His current research is in energy history, including an examination of British Columbia Premier Duff Pattullo’s heated dispute with American oil companies during the 1930s. He published notably *The Donut: A Canadian History* (Toronto: University of Toronto Press, 2008).

¹⁵ Colin Duncan teaches environmental history and modern British history at Queen’s University and McGill University. He is specialized in agriculture studies with an interdisciplinary approach. He published, among others *The Centrality of Agriculture: Between Humankind and the Rest of Nature* (Ontario: McGill-Queen’s University Press, 1996).

oil geography. Confirming this overview, Laurel Sefton MacDowell¹⁶ (chapter 12) notes that the growth of the nuclear sector came more from the protection of mining interests than from a real increasing demand for power.

STRUCTURE ANALYSIS AND PROBLEM DESCRIPTION

- 5 Ruth W. Sandwell points out in her introduction that we have to remember that *Powering Up Canada* aims to be a sort of introductory anthology to the energy history of Canada. In this perspective, essays appear as monographic studies, or general overviews, on specific types of energy resource. Therefore, this book has to be intended as a handbook, with all the pros and cons specific to the genre.
- 6 Sandwell provides in the introduction the key to understand the elements of the underlying structure of the essays. The first is the divergence from the model of British industrialization. As it is now a classic of economic history (for example in Mediterranean studies),¹⁷ Sandwell points out that Canada shows a special path to industrialization, characterized by five conditions: a great consumption of energy per capita, a late transition from organic to inorganic forms of energy, the variety of these forms of energy (which is responsible for the transition delay) and, in the 20th century, the particular balance and segmentation of the energy market (inorganic resources were mostly exported, organic resources were mostly used as energy supplies), a particular land policy for which subsurface rights are mostly governmental. Thus, for Sandwell, the Canadian case is significant for historical reasons, for a geographical magnitude and for contemporary

issues because, as is known, Canada is today an important producer of inorganic resources like bituminous schists and it is the siege of the most powerful mining companies in the world (BHP Billiton for example).

In the first part, the essays point out very clearly the effects of a hybrid and *longue durée* transition, contesting the Manichean divide between organic and mineral regimes. It is clear that the authors want to revisit Wrigley's hypothesis or, more probably, some uses (or abuses) that have crystallized on it. In this respect, Wrigley's model remains a constant presence throughout the book, for example in its very structure – part one dealing with organic forms of energy and part two dealing with inorganic ones. However, the transition between part 1 and part 2 of the book suggests the idea of an *energy transition* in which hybrid solutions are a frequent pattern. In a very evocative way, this passage is underlined by water flowing from a kinetics energy to hydroelectricity.

In the second part, the authors show multiple case studies that underline the diverse political response to the energy issue in the attempt to structure a national energy balance. We may affirm that this part could be read as a political history of energy in the sense that *political* is not only related to public policy, but also to public and private agency. To this extent, this second part aims to suggest a methodological and an interpretative response to the general question of the book (What History for Energy in Canada?). Methodologically, the essays warn against the attempts to model political behaviour regarding energy issues. They reaffirm the essential role of a qualitative analysis in tandem with a quantitative one, in order to avoid superimposing rigid theories or models (the “cheap and better” rationality for example) on the problem of agency or, as we said, of the political behaviour of actors. However, this relativisation does not fall into an anarchical perspective, because all the authors show a certain coherence in their hypothesis. The *fil rouge* is that the energy history of Canada is a matter of political geography and, for this very reason, only an interdisciplinary approach provides a solid analysis.

¹⁶ Laurel Sefton MacDowell is Emeritus Professor at University of Toronto Mississauga. Her research interests are in Canadian working class and North American environmental history. She is the author of *Remember Kirkland Lake: The Gold Miners' Strike 1941-42* (Toronto: University of Toronto Press 1983 ; 2nd edition 2001) and *An Environmental History of Canada* (Vancouver: UBC Press, 2012) which is a text for classes and a book for the general public.

¹⁷ Cf. Gérard Chastagnaret, “L'industrie en Méditerranée : une histoire en construction”, *Méditerranée*, vol. 87, n°3-4, 1997, 5-12.

9 In a more general perspective the book remains sometimes trapped in the pattern of *first/late-comers* for which, in economic history, Britain stands as the implicit model of comparison.¹⁸ This is the scheme of traditional analysis regarding the Industrial Revolution, mostly developed in the 1950s-1960s following the well-known Rostow Model. Even if the hypothesis of universal causes for backwardness had already been criticised in the 1960s, by Gerschenkron for example,¹⁹ the stage model still stands as the most pervasive in the common discourse about industrial development. In the 1980s, historians tried to break this perspective by introducing a new methodology, like for example comparative studies. Citing only the most debated, famous and relatively recent one, Kenneth Pomerantz affirmed a new perspective according to which Britain is not the idealized model of development, but a real term of comparison on the same level as others.²⁰ As global history showed in the case of the “globalization problem” in modern times, it is also possible to exclude Britain from a comparative analysis, when the case study is not directly connected to the British experience.²¹ These examples show that the problem is not really to have Britain as a term of comparison, but to crystallize the scheme *first/latecomers* and to point out the appearance of a phenomenon (for example the Canadian transition from organic to inorganic resources in the 1950s) as a *backwardness* or an *anticipation* in absolute terms. In fact, the absolutization of these evaluative categories does not erase their incorporated comparison to the British case, which becomes in this sense crystallized and, in a way, more illusory because invisible. In the case of

Powering Up Canada, the relation to the British case is in some ways inescapable: historically because of the multiple bonds with Britain (the colonial and technological ones, just to give two examples) and methodologically because the main point of reference is Wrigley and his analysis of the British Industrial Revolution. From this point of view, the reference to the British example is not a demerit point for the book.

CHOICES EXPLAINED

10 Why Canada specifically? Sandwell underlines that this country has a peculiar energy trajectory in comparison to other industrialized countries: its wealth in organic energy resources made it a *latecomer* in relation to the transition to mineral energy regimes. But from 1950s, Canada engaged in a rapid catching up process to become one of the world's top producers of fossil fuels and hydropower. To this extent, Sandwell makes a “declaration of intent” in the introduction, evoking the contemporary questions that invited the authors to question Canada’s energy history. She argues, as Wrigley did too, that historians have tended to naturalize the energy issue, preferring to study other aspects, such as urbanization. These aspects are, in her view, the *effects* of industrialization (direct or collateral) while the energy issue is *structural* to industrial revolution. The naturalization of the energy issue in History is linked to its unrecognised status as a historical object. Moreover, the lack of analytical framework is due to the tyranny of sources, whose imperium is not yet overcome, even in this book, where secondary literature is more frequently used than archival sources.

11 However, Sandwell recognises that, for the Canadian case (but we can enlarge the perspective) history of energy is not a “no man’s land”, because some studies have been carried out since the 1970s.²² However, these were mainly economic or geopolitical essays, inspired by contemporary questions after the oil crisis of 1973 and the beginning of the decline of Fordism.

18 Cf. Giorgio Riello, Patrick K. O’Brien, “Reconstructing the Industrial Revolution: Analyses, Perceptions and Conceptions Of Britain’s Precocious Transition to Europe’s First Industrial Society”, Working Paper n°84/04, LSE, May 2004 [URL: <<http://eprints.lse.ac.uk/22337/1/WP84.pdf>>].

19 Alexander Gerschenkron, *Economic Backwardness in Historical Perspective. A Book of Essays* (Cambridge: Harvard University Press, 1962).

20 Kenneth Pomerantz, *The Great Divergence: China, Europe, and the making of the Modern World Economy* (Princeton, Oxford: Princeton University Press, 2000).

21 Cf. Shmuel N. Eisenstadt, “Multiple Modernities”, *Daedalus*, n°129, 2000, 1-29.

22 Ruth W. Sandwell, “Introduction” in *Powering Up Canada*, note 8, 28.

As Fordism was not only a style of productive management, but also part of a complex phenomenon, its crisis had a huge impact on social equilibriums, underlining the degeneration of urban life in cities like Detroit, and massive de-industrialization, with a violent increase of unemployment rates.²³ This crisis probably questioned historians more about that kind of issue than about energy in the same way as today sensibility to energy is probably linked to a different kind of crisis.

- 12 So why Canada? Why not. Exploring or re-exploring the history of energy in a specific country is anything but archaic in the era of global history, which requires the introspection and the depth of singular studies to be scientifically heuristic. Without national, regional and local studies to provide data, details and specificity of knowledge, global history would be blinded and generalist, which is not what History is. To this extent, if every history is a contemporary history,²⁴ Canadian historians (but also the Canadian people) are nowadays deeply questioned by recent (and less recent) events and tendencies regarding energy in their country: pollution, industrial disasters, social and environmental

desertification led by de-industrialization, but also new mining concessions, resource nationalism and the ecological challenge of renewable energy transition. So it becomes the *fil rouge* of the book to “highlight, problematize, and probe very specific ways in which Canadian people [...] produced, consumed energy in the past and how they made [energy nda] transition [...]”²⁵ in which we obviously underline the concept of *transition*.

In her conclusion, Sandwell again evokes the introductory intent to wish a greater mobilization around energy history. However, *Powering Up Canada* could be seen as a handbook (“primer and sampler” as Sandwell says) in its domain, providing a sort of model of analysis to connect and collect interpretations on energy and its historical context. However, as was said before, this handbook needs also to be considered as a book of history within its context and its historiographical references. In conclusion, *Powering Up* answers some questions about energy historiography and gives also new perspectives on the Post-Carbon era. At the same time, it leaves some questions unanswered and, like every good book of history, it suggests new paths to investigate. 13

²³ Robert Boyer, Jean-Pierre Durand, *L'après-fordisme* (Paris: Syros, 1998).

²⁴ Benedetto Croce, *Teoria e storia della storiografia*, 2 vol. (Napoli, Bibliopolis, 2007 [original edition 1917]).

²⁵ Sandwell, “Introduction”, 5.

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