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Pedagogies of the Unimpressed

Re-Educating Ontario Women for the Modern Energy Regime, 1900-1940

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Article abstract

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Pedagogies of the Unimpressed

Re-Educating Ontario Women for the Modern Energy Regime, 1900-1940

by R.W. Sandwell

Introduction

From the late nineteenth century to the middle of the twentieth, Ontario homemakers were targets of an unprecedented, sustained and multifaceted educational campaign directed at changing their behaviours in the home. How women raised their children was an important focus of the campaign, but so too were their energy-related practices. The ways that women cooked, cleaned and heated their homes became the subject of considerable interest across the nation and beyond. An "alliance of professional women, advertisers and the electrical industry," of "manufacturers and mass circulation media," and a range of reformers interested in improving women's lives actively participated in a movement that in retrospect looks like one of the largest purpose-driven educational campaigns of all time.[1] This article explores these highly gendered pedagogies of modernity and re-situates them within the context of energy history, a focus that highlights Ontario women's resistance to at least part of this educational campaign. For an examination of women's energy-related practices demonstrates that women did not fully integrate electricity into their homes before the 1940s. In this regard, women typify a broader Canadian pattern.

The work of energy historians has documented that Canadians differed from other industrializing countries, particularly the United States and Great Britain, in two key ways. Canadians are among the highest per capita energy consumers in the world, and have been for most of the last two centuries. Long, cold and dark winters, large distances and economic reliance on energy-inten-

[1] Dianne Dodd, *Delivering Electrical Technology to the Ontario Housewife, 1920-1939: An Alliance of Professional Women, Advertisers and Electrical Industry* (Carleton University PhD, 1988); Barbara Riley, "Six Saucepans to One: Domestic Science vs. the Home in British Columbia, 1900-1930" in B Latham, Pazdro, *Not Just Pin Money: Selected Essays on the History of Women's Work in British Columbia* (Victoria: Camosun College, 1984), 159-84, 176.

Abstract

In the early decades of the twentieth century, Ontario homemakers were targets of a multi-faceted educational campaign in which a range of corporate and social reform groups sought to change the ways women cooked, cleaned and heated their homes. This article explores these highly gendered pedagogies of modernity and resituates them within the context of Canadian energy history, focusing on household electrification to highlight Ontario women's resistance, in terms of their day-to-day household practices, to this educational campaign. It argues that women remained largely unimpressed by the promise of electrification into the 1940s, not only because of the problems inherent in the new, centralized supply of energy itself, but because of the deeply gendered cultural practices and preferences that continued to define women's life and work within the older energy regime of the Ontario home.

Résumé: *Dans les premières décennies du XXe siècle, les ménagères ontariennes furent visées par une campagne éducative organisée par des corporations et des groupes de réforme sociale, qui cherchait à changer les façons dont les femmes cuisinaient, nettoyaient, et chauffaient leurs maisons. Cet article étudie cette pédagogie de la modernité dans le contexte de l'histoire de l'énergie au Canada. En examinant plus particulièrement l'électrification domestique, l'article met en lumière la résistance des Ontariennes, dans leurs pratiques ménagères, à cette campagne éducative. Il soutient que les femmes furent très peu impressionnées par la promesse de l'électrification, non seulement à cause de problèmes inhérents à la distribution de cette nouvelle forme d'énergie, mais à cause de pratiques et préférences culturelles qui avaient toujours défini leur vie et leur travail dans le ménage ontarien.*

sive extraction and manufacturing provide convincing explanations.[2] Historically, Canadians are also distinguished by being decades later in shifting from the organic energy regime (of muscle power, wood, wind and water) to the modern industrial energy regime (primarily coal, electricity, oil and natural gas). Explanations for this trend have not really been developed.[3]

Seeing the pedagogies of modernity through the lens of a feminist energy history has the potential to inform three important areas of social history: Ontario's

[2] Richard W. Unger and John Thistle, *Energy Consumption in Canada in the 19th and 20th Centuries* (Consiglio Nazionale delle Ricerche - Instituto di Studi sulle Societa del Mediterraneo, 2013). Canadians are currently the second largest per capita consumers of energy in the world. Since the early nineteenth century, they have consumed about twice as much as Europeans. *Ibid*., 96, 107.

[3] It was not until 1910 that fossil fuel use outstripped energy from muscle power of people and animals, thirty years later than the United States. It was not until 1955 that Canada reached the 90% level of modern vs. traditional energy use that Britain had attained by 1845, more than a century earlier. Unger and Thistle note that it was not until the 1970s that Canada's dependence on traditional forms of energy fell to the negligible levels reached by England in the early decades of the nineteenth century. Unger and Thistle suggest that the ready abundance of wood provides the explanation; *Energy Consumption in Canada,* 51, 53, 77, 105. For an exploration of the industrial revolution as the transition from an organic to a mineral economy, see E.A. Wrigley, *Continuity, Chance and Change: the Character of the Industrial Revolution in England* (Cambridge: Cambridge University Press, 1988). For explanations of this trend, and an energy history of Canada, see R.W. Sandwell, ed. "Introduction", *Powering Up Canada: A Short History of Power, Fuel and Energy* (Montreal and Kingston: McGill-Queen's University Press, forthcoming 2015).

late shift to the new industrial energy regime, women's energy-related practices in the home, and the nature and purposes of a significant re-education campaign directed at women. As I will argue here, whatever the motivations behind a variety of energy-educational initiatives, and they were varied, their effectiveness was constrained for generations not only by the problems inherent in the new and centralized supply of energy itself, but by deeply gendered cultural practices and preferences that had defined women's life and work within the older energy regime of the Ontario home.[4] Into the 1940s, women remained largely unimpressed by the promises of electrification. By the 1960, older patterns had been superseded by a range of practices and behaviours better suited to the new energy regime, but that is another story.

The Pedagogies of Modernity: The Campaign

A lively historical literature has explored the relationship between emerging modern household technologies and the changing nature of domestic life, particularly women's work, in Ontario.[5] Historians have contextualized these changes occurring in the home within the broader spectrum of gender and social reform, particularly the 'cult of domesticity and the invention of motherhood,[6] the gospel of efficiency and the politicization of women.[7] Some have explored the growth of consumerism and/or the gendered, disciplinary practices of modernity.[8] Researchers established key

[4] North American historians who have understood the 'uptake' of new technologies and services as being constrained by existing practices and preferences in North America include Ronald Tobey, *Technology as Freedom: The New Deal and the Electrical Modernization of the American Home* (Berkeley: University of California Press, 1996), (quoted here, p. 242), Katherine Jellison, *Entitled To Power: Farm Women and Technology, 1913-63* (Chapel Hill: University of North Carolina Press, 1993) and Ronald R. Kline, *Consumers in the Country: Technology and Social Change in Rural America* (Baltimore: Johns Hopkins Press, 2000).

[5] See for example Meg Luxton, *More Than a Labour of Love: Three Generations of Women's Work in the Home* (Toronto: Women's Educational Press, 1980); Veronica Strong-Boag,"Discovering the Home: the Last Hundred Years of Domestic Work in Canada" in Paula Bourne, ed., *Women's Paid and Unpaid Work: Historical and Contemporary Perspectives* (Toronto: Hogtown Press, 1985), 35-60; Corrective Collective, *Never Done: Three Centuries of Women's Work in Canada* (Toronto: Canadian Women's Educational Press, 1974); Bettina Bradbury, "Women's Workplaces: The Impact of Technological Change on Working Class Women in the Home and in the Worksplace in Nineteenth Century Montreal" in A. Kobayashi, ed. *Women, Work and Place* (Montreal: McGill Queen's University Press, 1994), 27-44.

[6] Mariana Valverde, *The Age of Light, Soap and Water: Moral Reform in English Canada, 1885-1925* (Toronto: McClelland and Stewart, 1991); Veronica Strong-Boag,, *The New Day Recalled: Lives of Girls and Women in English Canada, 1919-1939* (Toronto: Copp-Clark, 1988). Dorotea Gucciardo, *The Powered Generation: Canadians, Electricity, and Everyday Life* (PhD dissertation, University of Western Ontario, History, 2011).

[7] Linda Ambrose, "Social Control or Social Feminism? Two views of Ontario Women's Institutes" *Agricultural History*, 73:2 (spring 1999), 222-37; Margaret C. Kechnie, *Organizing Rural Women: The Federated Women's Institutes of Ontario, 1897-1919* (Montreal and Kingston: McGill Queen's University Press, 2003); Monda Halpern, *And on that Farm he had a Wife: Ontario Farm Women and Feminism, 1900-1970* (Kingston and Montreal: McGill-Queen's University Press, 2001)

[8] David Monod, *Store Wars: Shopkeepers and the Culture of Mass Marketing, 1890-1939* (Toronto:

cultural and economic connections between changing household technologies and the world outside its doors, and the role that new household practices played in the larger British imperial project.[9] The key role played by the women educators who taught domesticity, particularly in the home economics and domestic science movements, and the professional women who emerged from them have also been examined.[10] The following pages seek to consolidate and re-frame these pedagogies of modernity identified by these and other scholars, focusing more explicitly on elements of the campaign that understood women as integral actors in the transition to the new energy regime, particularly electrification.

An early and persistent voice in women's electrical education was Ontario Hydro. It took full advantage of what was a relatively inexpensive method of increasing consumption (compared with making expensive improvement in the quantity and quality of service) with broad-ranging advertising campaigns and promotion programs targeting women and encouraging them to buy and use more electricity. Two important factors determined the ways that hydro-electric companies viewed Ontario homemakers, who from the late nineteenth century had been identified as the main consumers within the home. First, while household consumption of electricity was dwarfed by that of industry, these relatively small consumers were vitally important to the electrical industry,[11] for within the highly complex and inter-related system of electrical generation and distribution, household consumers played a key role in balancing the electrical load, significantly

University of Toronto Press, 1996); Joy Parr, "Shopping for a Good Stove: A Parable about Gender, Design and the Market" in Joy Parr, ed. *A Diversity of Women: Ontario, 1945-1980* (Toronto, U of T Press, 1995); Donica Belisle, *Retail Nation: Department Stores and the Making of Modern Canada* (Vancouver: UBC Press, 2011); Elsbeth Heaman, *The Inglorious Arts of Peace : Exhibitions in Canadian Society during the Nineteenth Century (*Toronto: University of Toronto Press, 1999);); Joy Parr, *Domestic Goods: The Material, the Moral and the Economic in the Postwar Years* (Toronto: University of Toronto Press, 1999); Mary Wilson, *Cooking the Books: Curriculum and Subjectivity at the MacDonald Institute of Domestic Science, Guelph, 1903-1920* (EdD. Ontario Institute for Studies in Education of the University of Toronto, 2007). Dianne Dodd, "Women in Advertising: The Role of Canadian Women in the Promotion of Domestic Electrical Technology in the Interwar Period" in Marianne Ainley, ed. *Despite the Odds* (Montreal: Vehicule, 1990), 134-51

[9] Beginning with Anna Davin's, "Imperialism and Motherhood," *History Workshop Journal*, 5, Spring 1978. See also Valverde, *The Age of Soap, Light and Water* and Shauna Wilton, "Manitoba Women Nurturing the Nation: IODE and Maternal Nationalism, 1913-1920," *Journal of Canadian Studies*, 35:2 (2000), 149-65.

[10] For example, see Riley, "Six Saucepans to One" and Diane Dodd, "Women and Domestic Technology: Household Drudgery, 'Democratized Consumption' and Patriarchy" in Sharon Anne Cook, Lorna McLean and Kate O'Rourke, eds., *Framing Our Past: Canadian Women's History in the Twentieth Century* (Kingston and Montreal: McGill Queen's University Press, 2001), 101-110.These are discussed in more detail below.

[11] Between 1930 and 1976, domestic consumption grew from about 10% to about 30% of the electricity sold by electrical companies, with industry accounting for most of the rest. Statistics Canada, Series Q102-106; <http://www5.statcan.gc.ca/access_acces/archive.action?l=eng&loc=Q102_106-eng.csv>

lowering the costs of providing electricity throughout the network.

Second, recent research has emphasized that the normalized rules of supply and demand so often applied to the growth of the new industrial consumer society in these years had, in fact, little bearing on the growth of the new energy regime that was providing new services within the home, for "the history of electricity since the nineteenth century has generally been one of supply in search of demand."[12] The huge and complex infrastructures characteristic of the new energy regime were necessarily built in advance of demand. Hydro companies may have been quick to meet the needs and requirements of industry, but "those seeking to pioneer the coal, oil and electricity industries frequently found that consumers considered these energy sources expensive, unnecessary and difficult to use."[13] Ontario's massive, and massively expensive, system of hydro-electric power generation and distribution was first developed between 1882 and 1940, and, as we will see, was for years well in advance of popular consumer understanding of how, or indeed why, to use electrical energy. As one historian of electricity in Ontario put it, in the early decades, Hydro-Electric Power Corporation of Ontario was, "in the unenviable position of attempting to market a service the potential of which it did not fully comprehend."[14] The household's key role in an unproven system of energy delivery is an important context for understanding the urgency with which electrical interests participated in the re-education of Ontario women in the early decades of the industry. For in Ontario, as around the world, "a loose network of power companies, consulting firms, public agencies, and electrical device manufacturers had to invent the electrical power consumers that their institutions and systems seemed to require."[15]

In response to lower than expected take-up, Ontario Hydro developed early on an aggressive advertising campaign that sought to educate women about the benefits of their new source of energy. Emphasizing the key role of the company in convincing consumers of the benefits of electrical consumption, one Ontario Hydro newsletter exclaimed, "the more KWH we sell without unduly increasing our demand (KW) the more cheaply we can sell them and the better our competitive position. INCREASED KWH USE IS A MAJOR FACTOR IN LOWER RATES" (emphasis in original). As he concluded, "it is the duty of every em-

[12] Bruce Stadfeld. *Electric Space: Social and Natural Transformations in British Columbia's Hydro-Electricity Industry to World War II* (PhD thesis, University of Manitoba, 2002), 14.

[13] Christopher Jones, *Routes of Power: Energy and Modern America (*Cambridge, Mass: Harvard University Press, 2014), 5.

[14] Keith Fleming, *Power at Cost: Ontario Hydro and rural Electrification, 1911-58* (Montreal and Kingston: McGill Queen's University Press, 1992), 30

[15] Robert L. Frost, *Journal of Economic History,* 50:1 (March 1990), 201: review of *L'Elecriticite et ses consommateurs.* Actes du Quatrieme colloque de l'Association pour l'histoire de l'electricite en France, Paris, 19-21 Mai 321 p.

ployee to do his or her part to encourage increased use by enthusiastically Selling Satisfaction with Hydro to everyone with whom he comes in contact." Working directly to stimulate demand through their educational (or were they simply propaganda?) campaigns, they also devoted a great deal of effort to developing complex methods of charging for electrical consumption that would tempt consumers into purchasing more than the bare minimum of service to which many gravitated.[16] Pro-electrification pamphlets attempted to convince rural dwellers in particular of the benefits of electrification that would, incidentally, also increase Ontario Hydro's customer base, load and profits, by using a wide variety of strategies in the 1910-1950 period to persuade them to electrify their homes and barns. Articles like "Why a Refrigerator?," "Boosting Egg Production," and "Does Mother do the Pumping on the Farm?" educated rural dwellers about the convenience, savings and happiness that Ontario Hydro apparently believed rural women, like their urban sisters, would find by using electrical appliances.

Ontario Hydro executives soon realized that electricity would "only gain footing in the home if its role is made meaningful and unthreatening to the household economy of values"—if it were 'domesticated.'[17] The utility worked actively, therefore, with a variety of organizations and commercial operations to familiarize women with new appliances and the unfamiliar energies on which they relied. Ontario Hydro sponsored, for example, a variety of radio programs instructing women about the benefits of electricity, including the popular "Time to Chat" series, with the byline: "This is Anne Allan, your Hydro Homemaker, inviting you to listen again when it is "Time to Chat" and reminding you that you get more out of life when you get the most out of electricity."[18] Utility companies also actively participated; in 1929, General Electric employed a home economist, Miss E. Francis [sic] Thompson to give short talks over Radio Station CKGW:

> Miss Thompson tells of the advantages and economies provided in the home by electric refrigerators, electric ranges and many other electric servants. Her suggestions have received enthusiastic recognition and enabled her to build up and extensive following both over the radio and among women's organizations.[19]

As the Merchandise Sales Division Man-

[16] Tobey, *Technology as Freedom*, 21-36; Luckin, *Questions of Power*, 57-67

[17] Graeme Gooday, *Domesticating Electricity: Technology, uncertainty and gender, 1880-1914* (London: Pickering and Chatto, 2008), 3. On the key role of demonstrators in this process, see as well Anne Clendinning, *Demons of Domesticity: Women and the English Gas Industry, 1889-1939* (Hampshire: Ashgate Publishing Ltd., 2004).

[18] Anne Allan "Time to Chat" radio scripts, LOC 101-11- PCN#0011671671, Ontario Hydro Archives.

[19] Correspondence from Toronto District Office Merchandise Sales Division, Canadian General Electric Co Merchandise Sales Division [n.d. 1929?] to Hamilton Cataract Power, Light and Traction Co. File 4.6, Merchandise: General, RG 1-1/1-6, Ontario Hydro Archives.

ager went on to note in a letter to Ontario Hydro, "the publicity work of Miss Thompson will no doubt create a keener interest in electrical devices for the home and bring customers to your store. You many possibly wish a tie in by telling our customers about Miss Thompson's radio talks." [20]

Ontario Hydro also hired "demonstrators" to show women how to use new electrical appliances in a variety of educational programs and displays, including the Kitchen Theatre, in the Women's Division of the Canadian National Exhibition, and at a variety of department stores and even movie theatres.[21] Travelling exhibitions of modern, model kitchens journeyed through province by truck and by train, championing the benefits of electrification for those throughout rural and more remote areas. One of the first, and perhaps the most famous, was " Beck's Power Circus" which demonstrated to rural Ontarians throughout the province the latest electrical appliances in the 1910s. As rural demand flagged in the 1930s, an Ontario Hydro "Rural Travel Shop," carrying full displays of the latest electrical appliances, provided women with demonstrations at open air shows.[22] Many of the women hired as demonstrators, broadcasters and advertisers were graduates of domestic science and home economics programs, such as the MacDonald Institute of Domestic Science, Guelph, or the University of Toronto's Household Science program.[23] The amount of money and attention given to such education/propaganda campaigns confirms utility and appliance companies' conviction that they could influence people's relation to electricity by increasing its appeal—and comprehensibility—by showing women the benefits of a modern, clean and labour-saving form of power.[24]

But it was not only hydro and appliance companies who urged the benefits that would accrue to women with their increased consumption of electricity. Indeed, an ever-increasing array of organizations, from provincial agricultural colleges and Women's Institutes to new university home economics departments understood electrification as part of a more generalized drive for an improved, modern and efficient society.[25] Even the

[20] *Ibid.*

[21] Kate Aitken, director of the Women's Division at the CNE worked in close affiliation with Ontario Hydro between 1938 and 52. Kate Zankowitz, *In her Hands: Women's Educational Work at the ROM, the CNE and the AGO, 1900's to the 1950s* (PhD, OISE , 2014), 145-69. Belisle, *Retail Nation*; Parr, "Shopping for a Good Stove." One man recounted that his mother won her electric stove while attending a cooking demonstration in a movie theatre in Ottawa in the late 1920s. Author interview, *Heat Light and Work* Project, December 2010.

[22] Fleming, *Power at Cost*, 169 Sir Adam Beck was the hugely influential father of Ontario Hydro.

[23] Wilson, *Cooking the Books*; Dodd, "Women in Advertising".

[24] See Gucciardo, *The Powered Generation* for a more detailed discussion of the role of professional women in the larger movement.

[25] See for example, Langdon Winner, "Energy Regimes and the Ideology of Efficiency" in George H. Daniels and Mark H. Rose, eds., *Energy and Transport: Historical Perspectives on Policy Issues* (Beverly Hills: Sage Publications, 1982); Jellison, *Entitled To Power*. The emphasis on efficiency was by no means

National Film Board produced films promoting electricity's advantages, with such titles as "Designed for Living," "Kitchen Come True," and "Mystery in the Kitchen."[26] Women across Ontario were bombarded with information about the ways in which new forms of energy would and should transform their lives, and those of their families, always for the better.

Some of these initiatives were sparked by a growing concern about increasing inequality between rural and urban standards of living. While urban Canadians were beginning to benefit from the rising standards of living associated with the new industrial economy throughout most years in the early twentieth century, real incomes in rural areas fell dramatically in the 1930s, and did not recover in many areas of the province in the 1940s, highlighting the growing disparity between rural and urban homes.[27] Within urgent discussion about the importance of 'the modern rural' in Canada, rural electrification was particularly targeted as the panacea not only for all ills of rural society, but for Canadian society generally.[28] For the happiness and well-being of rural women, particularly mothers, was increasingly identified as a crucial element in the health of the nation. As the Reverend R. Simpson mused in the influential Social Science Service Council of Canada journal *Social Welfare* in 1920, "What kind of house does the country mother require to keep her contented, so that she shall become the learning apostle of country life?" While "it must be admitted that the country mother has not always been an ardent advocate of rural science as a life career for her children" country women were, he argued, "demanding and deserve better homes:"

> The Canadian country mother recognizes that the four prime utilities of the farm home are a good water supply, a complete sewage disposal plant, and effective lighting and heating systems. Electricity on the farm is not a luxury—it is a necessity and it pays. It pays to have drudgery done by an electric motor and it pays to have the farm home bright and cheerful. This is what Ontario mothers need to make them leaders in the 'back to the farm movement,' for too many of them have their back to the farm and their

limited to North America and Britain; Jonas Frykman and Orvar Lofgren; translated by Alan Crozier foreword by John Gillis *Culture Builders: A Historical Anthropology of Middle Class Life* (New Brunswick and London: Rutgers University Press [1979] 1987).

[26] Included in the Canadian Science and Technology Museum in Ottawa's audio-visual research collection for the exhibit, *Love, Leisure and Laundry*.

[27] R.W. Sandwell, "Read, Listen, Discuss, Act: Adult Education, Rural Citizenship and the Canadian National Farm Radio Forum" *Historical Studies in Education*, 24:1 (Spring 2012), 170-94.The problem of women and girls leaving the farm was a subject of great concern in Ontario and beyond. See for example Carolyn Strange, *Toronto's Girl Problem: The Perils and Pleasures of the City, 1880-1930* (Toronto: University of Toronto Press, 1995)

[28] See for example, Nancy Christie and Michael Gauvreau, *A Full-Orbed Christianity: The Protestant Churches and Social Welfare in Canada, 1900-1940* (Montreal and Kingston: McGill Queen's University Press, 1996); James Murton, *Creating a Modern Countryside: Liberalism and Land Resettlement in British Columbia* (Vancouver: UBC Press, 2007);. Nelles, *The Politics of Development*, 404; Fleming, *Power at Cost*, 29.

> face toward the town or city. If rural economists can help solve this problem of better homes they have gone far to find a solution of those other problems of under-production and depletion of rural populations.[29]

Inspired by the connections that many reformers were making between women's happiness and electrification, promotional campaigns reached deep into the countryside, touting electricity as the overarching solution to the problems that Canada was encountering with crime, poverty, and vice associated with increasing urban industrialization. While many rural women and men were, from the 1930s onwards, identifying falling prices and increasing production costs as their most significant problems, many urban-based reformers believed that electrification could more easily provide the means to make rural life more appealing.[30] This, in turn, it was hoped, would stem the outflow of rural young people off the farms, and into the cities, an issue of great concern to reformers.[31]

Rural reform possessed elements of a much broader international campaign that sought to transform women's energy behaviors in the home, as part of a drive to greater efficiency in society more generally, one that occurred first in industry, then the office and finally the home.[32] The late nineteenth century had generated a "new breed of domestic reformers to keep women abreast of the dramatic changes occurring not only in domestic technology but also in the home."[33] Home Economics developed as a blend of the domestic science and the cult of domesticity, eugenics and imperialism, and designed to ameliorate women's lives by bringing their domestic work within the purview of the scientific rationalism and the gospel of efficiency. As John A. Cormie argued in 1928, it was women who must bear most of the burden of creating a home, and, he cautioned, "If through her poor training for home life, or her lack of household equipment, she fails to do this great thing, it is not only

[29] The Rev. R. Simpson, "The Shack on the Hill: A Housing Law Stated in Graphic Rural Terms" *Social Welfare*, 3:2 (November 1920), 55-6.

[30] Sandwell, "Read, Listen, Discuss, Act."; Monda Halpern, "Such Outrageous Discrimination: Farm Women and Their Family Grievances in Early-Twentieth Century Ontario," in Sharon Anne Cook, Lorna McLean and Kate O'Rourke, eds. *Framing Our Past: Canadian Women's History in the Twentieth Century* ((Kingston and Montreal: McGill Queen's University Press, 2001) 111-15 and Monda Halpern, *And on that Farm he had a Wife: Ontario Farm Women and Feminism, 1900-1970* (Kingston and Montreal: McGill-Queen's University Press, 2001). The discernment that American rural dwellers displayed in practice in choosing which technologies to adopt and which to reject is explored in Kline, *Consumers in the Country* and Jellison, *Entitled to Power*. [31] A number of historians have explored the close relationship that many early twentieth century reformers saw between the nuclear household, particularly rural ones, and social stability. R.W. Sandwell, *Contesting Rural Space: Land Policy and the Practices of Settlement, Saltspring Island, British Columbia, 1859-91* (Kingston and Montreal: McGill-Queen's University Press, 2005), Christopher Clarkson, "Property Law and Family Regulation in Pacific British North America, 1862-1873" *Histoire Sociale/Social History*, 30:60 (November 1997), 386-416

[32] Electrification was "part of a campaign for the complete restructuring of society to facilitate greater ease in production and consumption: the gospel of efficiency." Stadfeld, *Electrical Space*, 39.

[33] Dodd, "Women and Domestic Technology," 103

she who suffers, but the whole community and the nation."[34]

At its first convention in 1894, the National Council of Women had passed a resolution requesting that all provincial departments of education introduce manual training for girls in the public schools of Canada. Two years later the National Council passed a second resolution, this time requesting that all provinces arrange for the training of home economics teachers. "The reason for this sudden demand for formal teaching of the domestic skills in the schools" the NCW explained, " is obvious." In the past, the skills that homemakers needed were learned in their homes "from their mothers and from other female members of the household.... But times were changing!" With compulsory schooling, and working outside the home before marriage, the resolution explained, appropriate training was sadly lacking. "Competent homemakers who know how many years they had spent learning the homemaking skills were justly alarmed about the kind of homes these unskilled homemakers would run!"[35] The "scientific understanding of food preparation and home management" provided by manual training for girls would "curb some of the evils of industrialization."[36] A Victoria Local Council of Women, in a submission to the Putnam Weir survey of B.C. schools, nicely sums up the ways in which the national and international domestic science movement promised to resolve some thorny issues relating to women's place and role in the modern world without disrupting gender norms:

> We believe that the home is the natural and rightful domain of women, and therefore that home economics, the science of the home, is pre-eminently the proper and logical study for womankind; we believe that as women are largely the spenders of money, national thrift would dictate that they be taught to spend wisely; that as the keepers of the health of the nation we believe they should be taught the principles of hygiene and dietetics; we believe that much undesirable and unnecessary conflict between the sexes will be avoided and many other social problems solved when the dignity of homemaking is adequately recognized and home economics given its rightful place in a national and international scheme of education. Finally, let us never forget that upon the physical stamina, the mental and moral fibre of the mother-to-be depends the character of life, yea, the very life of tomorrow.[37]

Across Ontario, girls participated in homemaking clubs sponsored by local organizations, where they "attended

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[34] John R. Cormie, "Reviving the Country Home, Part IX of Trends in Rural Life"; *Social Welfare*, 11:1 (October 1928), 9-10.

[35] Dr. Edith Rowles Simpson, U. of Saskatchewan, Typescript, "History of Home Economics in Canada," 2. University Teachers of Home Economics—Conference of the Learned Societies, The University of British Columbia, June 16-18, 1965, School of Family and Nutritional Sciences fonds, University of British Columbia Archives.

[36] Marta Danylewycz, "Domestic Science Education in Ontario: 1900-1940" in Ruby Heap and Alison Prentice, eds. *Gender and Education in Ontario: An Historical Reader* (Toronto: Canadian Scholar's Press, 1991), 129-47, 127.

[37] Riley, "Six Saucepans to One," 162.

meetings, practised cooking, sewing and entertaining and kept detailed account books."[38]

The emphasis on creating a clean, sanitary, and efficient home with a modern kitchen at its centre made its way into the formal educational systems of the provinces' schools and universities. Urged on by the National Council of Women, the Ontario government established domestic science courses in the public schools, and a 1904 amendment to the School Act insured financial support. By 1903, would-be teachers could take normal school in home economics in Toronto and Guelph, as well as some in-service weekend classes.[39] Thousands of girls took an elementary course in "food processing, table etiquette, laundry work, general housework and home nursing" while older girls in collegiate schools could study "hygiene, sanitation, cooking, needlework, basket and raffia work [that] offered a more thorough and scientific grounding in women's domestic work."[40] The same educational trend that favoured the addition of 'manual training' for boys and girls in schools led to the 1911 Industrial Education Act and the 1919 Technical Education Act, both of which helped to institute new vocational training schools in Ontario, which rose from just 1 in 1901 to 63 in 1935. Here girls could study household science or business and commercial training; two third chose household science. From 1902, the University of Toronto offered a degree in household science, "The university's confirmation of their expertise with in 'scientific homemaking' allowed graduates to enter the professional world as well as to create new occupations in the area of nutrition and dietetics,"[41] while still occupying appropriate roles within the 'domestic' sphere.[42]

Even the federal government actively promoted the domestic energy revolution. While federally-funded Women's Institutes and the National Council of Women spearheaded their domestic science campaigns, the federal government introduced the Agricultural Instruction Act in 1913. It was losely modeled on an American Act that aimed to inspire farmers to achieve a higher standard of living through education. Farm women were encouraged to participate more actively in the new world of domestic technologies and gendered politics of consumerism through funding directed

[38] Sandwell, Heat, Light and Work in Canadian Homes Project, File 3.1, 26 September 2010.

[39] Danylewycz, "Domestic Science Education," 136, 7

[40] *Ibid*., 130.

[41] *Ibid*., 135

[42] *Ibid*., and Dodd, "Women and Domestic Technology". Domestic science campaigners resembled the "maternal nationalism" that Shauna Wilton attributes to an active group of Manitoba women of a similar class and ethnic background at about the same time: "These women were not radicals. They did not seek to change the gendered nature of British-Canadian society. They were not trying to change women's roles. Rather, they sought to use their traditional female and maternal roles to protect the power such roles accorded them. As well, they wanted to justify the presence of feminine values within pubic politics." Wilton, "Manitoba Women Nurturing the Nation," 151.

at Homemakers' Clubs and Women's Institute meetings.[43] In 1937 the federal government launched the Home Improvement Plan, again modeled on an American Act, but directed at rural and urban women alike. While it was purportedly "designed to relieve unemployment through a nation-wide scheme of residential renovation and repair,"[44] historians agree that the program itself had little impact on those really in need in the Depression era. Instead, it successfully advertised "images of middle-class women in heels and fashionable dress confronting the multilegged fragments of the interwar kitchen and contemplating the gleaming, unified, modern lab that might succeed it—more sanitary, more efficient, more standardized."[45] Re-education campaigns actively associated the use of electricity with the idea of modernity more generally; the old-fashioned "dirt, inconvenience and danger" of wood and coal was contrasted with "clean, cool, safe and convenient" attributes of modern electrical power.[46]

Did the campaign work as the pedagogues hoped? Historians generally agree that in the nineteenth century, women tended to be defined and constrained by their domestic roles within the home, and that by the end of the twentieth century they were able to make a broader range of economic, political and cultural choices within a more egalitarian society. But few historians, in the end, looked to changes inside the home, in women's domestic labour, or in the educational campaign that so actively sought to change their domestic practices, to explain the transition. Most scholars have been skeptical that any of the promises made about an electrical future—less work, more income, and a resultant 'liberation' for (particular) women—were ever realized for most in the pre-Second World War period. Most have accepted Ruth Schwartz Cowan's conclusions in *More Work for Mother*: women's role changed little with the new technologies, and mostly in negative ways. Early twentieth-century women spent more time, not less, on a series of tasks that had more to do with ensuring women's low status and ongoing oppression within the patriarchal domestic sphere.[47] The factors bringing about the well-documented changes in women's lives in the 1960s and '70s have

[43] Ambrose argues that the initiative was not particularly effective. Farm women and men were, she argues, suffering from changing economic conditions that were beyond shifts in consumer desire; indeed, "introducing farmwomen to standards of living they could not hope to achieve often served to strengthen their resolve to escape from the farm." Linda Ambrose, "'Better and Happier Men and Women': The Agricultural Instruction Act, 1913-1924" *Historical Studies in Education* 16 (Fall 2004), 257-85, 281.

[44] Margaret Hobbs and Ruth Roach Pierson, "A Kitchen that Wastes No Steps: Gender, Class and the Home Improvement Plan, 1936-40," *Social History/Histoire Sociale*, 21:41 (1988), 9-37, 9.

[45] Joy Parr, "Modern Kitchen, Good Home, Strong Nation," *Technology and Culture*, 43:4 (October 2002), 657-67, 665.

[46] Dodd, *Women and Domestic Technology*, 105. For a development of these ideas, see Kristin Ross, *Fast Car, Clean Bodies: Decolonization and the Reordering of French Culture* (Cambridge: MIT Press, 1996); Stadfeld, "Introduction," *Electric Space*.

[47] Ruth Schwartz Cowan, *More Work for Mother: The Ironies of Household Technologies from the Open*

been firmly located *outside* the constraining contours of the home, outside the domestic sphere of intensely delivered pedagogies of modernity, in the larger political and economic structures and contexts of the world into which women were escaping as integral political agents and full time workers.

Historians have, therefore, looked with apparent equanimity at that fact that Ontario women in the post-Second World War period finally did obtain *en masse* the electrified households filled with automated machines, almost exactly as the pedagogues of modernity had prescribed to previous generations of women. Any causal connection between the massive re-education campaign of the first half of the century and women's energy-related behaviours in the second seems to have been fractured by women's one significant deviation from their early twentieth century imagined future. For women's overwhelming response once they finally had obtained the new energy carriers in the home in the 1950s was not to remain there to celebrate a domestically-centred life of relative luxury within that "gilded cage." By the late 1960s (and not without some ironies) women were leaving those formerly idealized "domestic workshops" of the home to labour for money outside the home at a wide variety of occupations. Historians seem to agree that women's problem was their position in the patriarchal home, the solution, to leave it.[48]

In the end, it was the case that in Ontario "modernism in all its aspects would enter the whole dwelling through the kitchen door."[49] Evidence suggests, however, that women's adoption of the new appliances made possible by the shifting energy regime was both abrupt and late; as Joy Parr phrased it, "the industrial revolution, though presaged in the National Policy days of the late nineteenth century, really came to Canada after the Second World War."[50] These characteristics have been noted by other historians. In the early 1980s, Barbara Riley interviewed dozens of women, most of whom were born between 1910 and 1930 and came of age in the 1940s and 1950s. Her

Hearth to the Mircowave (New York, 1983). Cowan argues that women did not in fact have their labour 'saved' by the new technologies; instead, they were tied more firmly to housework through escalating standards of cleanliness and women's declining status as their role changed from producers to consumers within the home.

[48] Dianne Dodd succinctly summed up the consensus of historians studying women's domestic work: although women's lives changed as they began to enter the workforce, "technology has not improved the status of domestic labour. It remains as unrecognized and undervalued at the dawn of this new century as it was at the beginning of the last." Dodd, "Women and Domestic Technology," 110. Joy Parr is one of the few historians focusing on women's domestic lives in the post-war period. Her research question, however, is less "why did women take so long to respond to the pedagogies of modernity" and more "what happened when the factors limiting women's response to modernity—poverty, war-time shortages—were removed?" Parr, *Domestic Goods*.

[49] Citing Walter Dorwin Teague, *Design this day* (New York, 1949). Henry Dreyfus, *Designing for People* (New York 1955). Joy Parr,"Modern Kitchen, Good Home, Strong Nation," *Technology and Culture* 43:4 (October 2002), 657-67, 659.

[50] Parr, "Modern Kitchen, Good Home, Strong Nation," 666.

research project "Behind the Kitchen Door" focused on their experiences of home economics and homemaking. As Riley points out, whatever individual women *thought* of the new vision of domestic life being promoted through their home economics courses, all of those women had, as adults, domestic lives that different significantly from their mothers'.[51] Most of her interview subjects had grown up in households firmly rooted in an older energy regime, where their mothers 'kept house' by growing and preserving some of their own food and cooking it "from out of their heads" without recipes. Many houses were lit with coal oil (kerosene), and wood provided most of the energy for cooking, water heating, and home heat. Muscle power, not electricity or gas, provided the energy for most household tasks, from doing laundry to cleaning floors. By contrast,

> as adults all used the standardized methods, the authoritative cookbooks and the new technological devices first introduced in the [home economics] classroom. All eventually cooked, with no hired help, in standardized kitchens equipped with built-in cupboards, stoves, new fuels and electric refrigerators.[52]

While she hesitates to make a single causal connection between home economics classes and this significant transition, Riley notes the coincidence: most of the women and girls she interviewed were "introduced to new consumer goods—the carriers of new technologies—and new patterns of consumption through domestic science classes."[53] Her work raises important questions about the generational nature of women's sudden shift to the modern energy regime.

The abrupt and significant change in women's domestic behaviours around the time of the Second World War is explored by econometrician Emanuela Cardia. In a series of essays, including "Household Technology: Was it the Engine of Liberation?" and "The Household Revolution: Childcare, Housework and Female Labor Force Participation," she provides a different kind of evidence from Riley about a close relationship between new domestic technologies and transformations in women's lives around the time of the Second World War.[54] Drawing on an econometric analysis of census data in the United States, she finds a close positive correlation between women's workforce participation, and certain new technologies and systems within their homes, including running water and refrigeration. Her evidence suggests that without these modern amenities, it may have been impossible for the household to dispense with women's labour in provisioning, heating and lighting the home. Conversely, her research may just as plausibly suggest that households could only af-

[51] Riley donated these interviews to the British Columbia Archives, where they are available for use.

[52] Riley, "Six Saucepans to One, " 176

[53] Riley, "Six Saucepans to One."

[54] Emanuela Cardia, "Household Technology: Was it the Engine of Liberation?" unpublished paper, March 2009 <http://www.cireq.umontreal.ca/personnel/cardia.html>; Emanuela Cardia and Paul Gomme, <http://www.emanuelacardia.com/wp-content/uploads/2014/05/household-revolution-2014-02-19.pdf>.

ford these modern conveniences when a household had two breadwinners. Either way she posits the centrality of women's energy use in the home as an important factor in their transition to modernity, particularly their work outside the home. Graeme Gooday and Anne Clendinning are among those in Britain arguing that new centrally-provided services, including electricity and gas, dramatically changed women's allocation of time within the home over the course of the twentieth century, and in ways that have had a huge impact on the work they now do, the incomes they now earn, and the status that so many now enjoy.[55]

The rest of this article seeks to contribute to this renewed interest in women's domestic practices within the home, focusing on Ontario women's energy-related practices before the rapid widespread adoption of new appliances and practices in the late 1940s and '50s. While acknowledging that "[e]nergy systems and their accompanying technologies tend to be 'naturalized' and their structures and dynamics are too often explained as being preordained and apolitical,"[56] this paper "suspends the assumption that electrification was historically inevitable."[57] Leaving aside for now the very interesting question of what did encourage so many women to change familiar patterns at that time, this article interrogates instead the question of why women took so long to make the change, frustrating the many and varied pedagogues of modernity. Let's go inside the house to look for more evidence about women's energy-related practices, in a search for possible explanations as to why women took so long to make the transition to the electrical future.

Pedagogies of the Unimpressed

The existence of a decades-long massive energy re-education campaign is a compelling piece of evidence in itself that women were *not* responding in ways that met the needs of the new energy economy, or the expectations of those who believed in its liberating promise for women. Statistics documenting low rates of electrical consumption, even in the country's most 'electrified' province, confirm women's reluctance to accept modern energy carriers into their homes. Statistics on domestic (i.e. household) electrifica-

[55] Gooday, *Domesticating Electricity*, 1; On the "domestication" of electricity in the United States and Britain respectively, see Carolyn M. Goldstein, "From Service to Sales: Home Economics in Light and Power, 1920-1940," *Technology and Culture* 38:1 Special Issue: Gender Analysis and the History of Technology, (Jan 1997), 121-52; Anne Clendinning, *Demons of Domesticity: Women and the English Gas Industry, 1889-1939* (Hampshire: Ashgate Publishing Ltd., 2004).

[56] Stadfeld, *Electric Space*, 13.

[57] Gooday, *Domesticating Electricity*, 1. As he goes on to say, "which cannot be defended anyway." As Gooday explains, "Techno-cultural scholarship adopted the term "domestication" as an alternative to "somewhat deterministic analyses of the putative 'impact' of new technology arriving in the home." and presents "a more plausible and interesting account of artifacts as needing to be 'tamed' by householders to assimilate them to appropriate performance and this process of domestication is characteristically prolonged, fallible and reversible." 1.

tion do indeed chart the rapid increase in the number of Canadian households with electricity. Between 1921 (when the first national data was available) and 1951, the number of households that were electrified grew from just over half a million to almost 3.5 million across the country.[58] Ontario developed the first provincially-owned hydro-electrical utility in North America in 1906, Ontario Hydro (known then as the Hydro-Electric Power Commission of Ontario), which provided the energy that this coal-starved industrializing province desperately needed. Still, in 1921, a full generation after electricity had become available in many Ontario towns and cities in the 1890s, only half of homes province-wide had electric lighting. It was only in 1941 that electrification was almost universal in Ontario towns and cities.

Home electrification remained a significantly urban phenomenon, however, until the 1950s. Economies of scale meant that it was impossible, or prohibitively expensive, to provide electricity to rural areas, and rates of electrification remained very low, with only 37% of Ontario farms having electricity by 1941.[59] Even when rural and farm families did sign on to the grid, they tended use less electricity than their urban neighbours.[60] In a province where rural households accounted for a steady 40% of the population between 1901 and 1941, this was a problem for the electrical industry.[61] Indeed, by the late 1930s, long frustrated by the slow uptake of electrical service in rural areas of the province, Ontario Hydro was beginning to despair about the possibilities of ever increasing the number of rural customers; as W.L. Houk, Ontario Hydro's vice-chairman, told the Ontario Agricultural Council in 1939, "the only growth on the Rural System would be 'in volume'... due to increased usage of power by existing customers rather than in new customers"[62] Notwithstanding its relatively high levels of rural electrification nationally, Ontario shared with the rest of Canada a serious problem in supplying rural households, particularly in remote areas, with centrally-generated electricity.[63]

But it wasn't just rural supply that was the problem: utility companies continued to complain that urban household consumers—typically identified as women—were simply not doing their part in

[58] Sandwell, "Mapping Fuel Use in Canada," 248-49. 261-62.

[59] Census of Canada, 1941, Volume 2, Table 14. [60] Comparative data is difficult to obtain, but provincial data for 1951 indicates that the average kwh/month was significantly less than in urban. Source: Government of Canada, *Central Electrical Stations, 1951* (Ottawa, 1953) "Farm Service, 1951," p. 11; and "Domestic Service, 1951," p. 13. See also Fleming, *Power at Cost*.

[61] Census of Canada 1951, Volume 1, Table 8, Number of Incorporated cities, towns and villages by type, aggregate population and percentage of total population for provinces and territories, 1901-1951, p. 8-1; Census of Canada 1931, Population by counties and census divisions, rural and urban, 1851-1951, Vol. 1, table 5; Census of Canada, 1941: Volume 1 – General Review and Summary Tables, pp. 563-65; Census of Canada, 1951, Volume 1, population for counties and census divisions, rural and urban, 1951 and 1941 (1941 definitions used for both), pp. 14-1 to 14-4.

[62] Fleming, *Power at Cost*, 176

[63] See Fleming, *Power at Cost* for an overview of rural electrification in Ontario.

boosting consumption, thereby ensuring that rates would remain high and usage low. For average rates of consumption remained well below the goals of the electrical companies. The average household in Ontario, and counting only those that had electricity, were consuming just 124 kwh in 1931, 171 in 1941, and 297 in 1951. To put these numbers in perspective, before 1951 the average Ontario home simply did not use the 300 kwh of electricity needed to provide lighting, electric refrigeration and an electric stove; some were not using even the 100 kwh needed to support lighting and refrigeration.[64] To the constant frustration of the interested companies, many people continued to use electricity for lighting only, typically four lights in the ceiling of main floor rooms, despite the barrage of encouragement and educational materials directing women how and why they should be using more electricity in their homes, and for a broader range of purposes. Energy consumption rates would soar after 1950, as electricity became ever more integrated into urban life and more people moved to urban areas, but in the first long decades of electrification it was the low rates that were identified by utility companies as the problem within the new grid system.

What explains the resistance of Ontario women to fully embracing (as it were) electricity? An examination of their energy-related practices suggest two factors influenced the late transition. First, women already had ways of effectively meeting their energy needs, ones that had worked well for generations, in ways that women could both afford and understand. Second, early networks often worked poorly and erratically, and in ways that often mystified consumers. Both of these meant that there was often a poor fit between women's daily energy needs on the one hand and the ability of the grid to meet them on the other. As a result of these factors, women responded only slowly and cautiously to changing the energy landscape in their homes.

The Household and the Changing Energy Regime

Certainly daily life for women in Ontario was beginning to change as early as 1880, particularly in urban areas, as a result of the new energy regime. By the 1920s, most urban houses were electrified, and some had gas stoves. New forms of transportation and communication began to change how people lived. But the transformation of women's domestic life should not be overstated. Evidence from both the statistical record documenting low usage rates, and the long continuation of a campaign to persuade women to change their energy practices is further supported by oral histories and memoirs documenting that many aspects

[64] R.W. Sandwell, "Mapping Fuel Use in Canada: Exploring the Social History of Canadians' Great Fuel Transformation" in Jennifer Bonnell and Marcel Fortin, eds., *Historical GIS in Canada* (Calgary: University of Calgary Press, 2014), 239-68. By 1971, the average household customer was consuming almost 700 kwh a month, 676 in 1975, compared to 77 in 1930. Source: Statistics Canada, Series Q97-101; Q102-106; By 1990, average household consumption of electricity was 1,093 kwh per month. *Energy Use Data Handbook, 1990-2008* (Ottawa: Statistics Canada Cat. No. M141-11/2008E PDF), 22-23.

of the organic energy regime persisted, well into the twentieth century, even in urban areas.[65] Urban women were among those continuing to tap into the flows of energy that characterized the relationship between people and their environment in the organic regime, even as their lives began to change. Local sources of energy, including food and fuel wood, were still utilized to support daily life.[66] Even in Ontario's largest city, Toronto, people continued to keep chickens, cows and geese, until health concerns stimulated new regulations in the early decades of the century. Women continued to cook and preserve foods from their own gardens until much later. Some urban people continued seasonal patterns of the organic regime by visiting with rural family and friends, bringing back produce in the fall and fuel wood in the winter.[67] Ice, another link to the organic economy, continued through the 1930s, and even in urban areas most women did not have electric refrigerators.

Most urban people did not have cars before the 1940s, and not only because they were expensive. A number of interview subjects noted the seasonality of car use before the Second World War, some explaining that their cars had no heaters, others that roads, particularly rural ones, were not routinely plowed before that time. Energy historians have noted that energy uses in one area often had a bearing on its use in others; women's car usage had a direct bearing on other energy practices in the home. Without cars, women tended to still provision their families every day, relying on what they could comfortably carry and what would fit into an icebox. Refrigeration was not such an urgent issue, therefore, particularly when vegetables, meat, milk, bread, eggs, and fish, would be delivered to their homes on a regular basis, typically by horse drawn or by smaller hand-drawn carts until the 1940s. For rural women, few of whom had electricity or gas in their homes, rural life continued to be defined by the organic energy regime, even as gasoline engines and fertilizers were beginning to change the larger economic structures of farm and rural life.[68]

Inside the home, the late adoption and minimal use of electricity suggest

[65] See Riley,"Six Saucepans'" Sandwell*, Contesting Rural Space;* R.W. Sandwell, *Canada's Rural Majority, 1870-1940* (Toronto: University of Toronto Press, forthcoming 2015) .

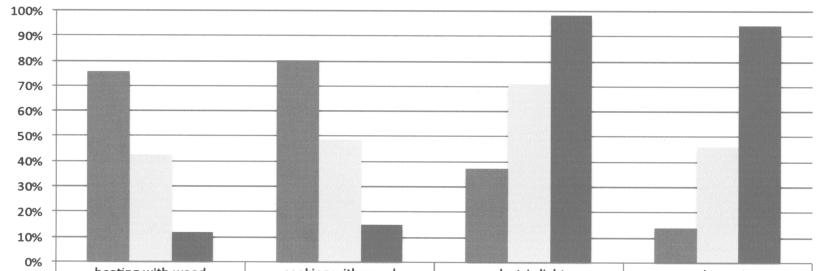
[66] For the importance of fuel wood in southern Ontario into the twentieth century, see Josh MacFadyen, Hewers of Wood, in R.W. Sandwell *Powering Up Canada*.

[67] My own interviews indicate that many urban women continued these older practices. Many urban people interviewed spoke about their return to rural areas for part of the year. See for example, interview by author; Heat, Light and Work Project, August 2012, file 6.0; Toronto September 2010, file 2.8; Toronto, 23 November 2010, File 4.6; Toronto, 20 July 2010, File 5.4. In the interviews completed by Barbara Riley in coastal British Columbia in the early 1980s, "Of thirty-six families, twenty-seven had a vegetable garden and sixteen had fruit trees or fruit bushes. Virtually all put up preserves: bottled fruits, jams, jellies relishes, pickles, salmon, salted fish, and vegetables." Riley, "Six Saucepans to One", 172.

[68] Anecdotal evidence suggests that many Canadians, rural and urban, put their cars up on blocks during the winter. More research is needed to explore this aspect of automobility in Canada. See Sandwell, Canada's Rural Majority; Kline, *Consumers in the Country.* It would not be until 1951, two full genera-

Figure 1: Percentage of Ontario Farm, Rural Non-Farm and Urban Homes with Various Amenities, 1941

Source: 1941 Census, Volume 9, Housing, Table 11, 12, 13, 14.



	heating with wood	cooking with wood	electric light	running water
farm areas	76%	80%	37%	14%
rural non-farm	42%	49%	71%	46%
urban	12%	15%	98%	94%

that, particularly in rural areas, many women simply did not see the advantages of the kinds of electrical appliances that were needed to "boost the load", or at least not at the prices they were obliged to pay. The coal-and-wood stove is a case in point. By the later decades of the nineteenth century, open hearth cooking had been replaced by cast iron wood and coal stoves in most rural, and many urban, households. These versatile stoves, credited as being "the most drastic of all steps taken to reduce the housewife's drudgery" in the nineteenth-century rural home, were kept fired up all day and most of the night, and provided a variety of functions.[69] They doubled as the main source of heat for the kitchen and often the rest of the house, with heat distributed through ventilating holes in ceilings where an upper floor existed, or through a series of large-diameter pipes, installed and cleaned seasonally, running through the house. From the 1880s onward, hot water tanks or "reservoirs" were often attached at the side, providing hot water that could be ladled out and used to wash dishes. The large volume of hot water for washing clothes and for the weekly bath continued to be heated in a large copper pot on the top of the stove. In 1941, still only 14% of rural women had running water in their houses (Figure 1).

By the end of the nineteenth century, stoves often included a warming shelf and could include a built-in waffle maker and tea-pot warmers, as well as providing a place to dry laundry and snow-covered clothing. Wood heat also provided the means for heating the 'sad irons' used to iron sheets and clothing. Some women even claimed that the considerable labour involved in keeping the stove burning provided an important element in

tions after electricity had transformed other parts of the continent, that a scant majority, 51%, of Canadian farms had power line service, compared to about 4/5 of the farms in the United States. Katherine Jellison, *Entitled To Power.*

[69] Loris Russell, *Handy Things to Have around the House: Old-Time Domestic Appliances of Canada and the United States* (Toronto: McGraw Hill Ryerson, 1979), 29.

disciplining growing boys, who were almost always responsible for keeping full the kindling and wood box for the kitchen stove: "no wood, no fire, no food."[70] Given these varied functions—cooking, heating, washing, ironing, and disciplining—and the considerable economic advantages of use of locally harvested, and generally inexpensive or free wood fuel, it is no wonder so many Ontario women foreswore the expense of installing the new heavy duty wiring and of running an electric stove. Happy enough to have electric light if it could be available for a low price, most balked at purchasing technologies that were unfamiliar and often seemed wasteful, frivolous, redundant and ill-adapted to established patterns of daily life.[71]

If women were continuing to rely on older, time-tested forms of energy even as new technologies were appearing, it was also partly because the electrical system just did not work very well in the early years, even by its own standards of performance. Records of electric lighting companies are filled with references to the poor and erratic service provided. For women used to managing and controlling many of their own energy needs within the household, by burning more wood, or filling more kerosene lamps, this was a particular frustration. Even in the cities, hydro-electric power could be intermittent due to frequent equipment failure brought about by droughts, by storms, by ice, and by scheduled maintenance.[72] Brown-outs were common. In March, 1930, for example, a meeting of department heads at Hamilton's Dominion Power and Transmission Co. heard that their total number of customers had recently fallen, probably "due to the interruptions in December."[73] On 14 July 1930 an irate customer wrote that the power was so low, she "cannot get enough power to run our pump properly and sometimes even the radio will bring in local stations only faintly."[74] In the early days, companies charged for electricity by providing and charging for individual light bulbs, and these were a frequent cause of complaint. Fluctuating and erratic voltage caused other problems: an internal memo of 5 March 1930 from the manager notes: "I have had at least 25 complaints during the last month of the burning out of lamps due to high voltage."[75] People complained about the general quality of the light. Before On-

[70] Sandwell Heat Light and Work Oral History Project, file 2.3, 2010.

[71] Bea Millar, interview with author, 20 May 1998. Joy Parr, "Shopping For a Good Stove: a Parable about Gender, Design and the Market," in Joy Parr, ed. *A Diversity of Women: Ontario, 1945-1980* (Toronto: University of Toronto Press, 1995), 75-96. This point was made repeatedly in my oral history interviews with rural women. [72] Tobey, *Technology as Power*, ch. 1. For more Canadian examples, see B.C. Electric and Ontario Hydro lighting customer accounts files cited.

[73] File 57.25 "Departmental Activities, RG1-0-2-2 Box 57 [labelled 3-3-057], Ontario Hydro Archives.

[74] Correspondence regarding Complaints [scope: consists of correspondence regarding general service complaints and complaints relating to Voltage] Hamilton Cataract Power, Light and Traction Co., Ontario Hydro Archives.

[75] File 57.25 "Departmental Activities, RG1-0-2-2 Box 57 [labelled 3-3-057], Ontario Hydro Archives.

tario Hydro increased its voltage from twenty-five to sixty Hertz in 1949, "one could notice the flickering of the lights around the periphery of vision... If we were transported back to the time of our study, we would think the lighting was very poor. Certainly it did not have the brightness found in today's homes."[76]

If lighting was poor, the price was perceived as high, curbing demand for electricity in the home. High initial purchase and installation and the new ongoing usage costs discouraged many women, particularly those whose household incomes had fallen substantially with the Depression. Most men and almost all women lacked the skills or training to wire their houses themselves, and many simply "have not in the past had the means to wire their homes and purchase appliances. The cost of their present methods of lighting are so small that even a low monthly cash outlay for electric current would be a big factor in the family budget."[77] Even the most basic electrical service was expensive in households where every penny counted. While many houses in cities had acquired basic wiring required for a ceiling light on the main floor in the early decades of the twentieth century, many lacked the electrical outlets—termed convenience outlets—needed to plug in the appliances that would boost electricity consumption. In many houses, the only plugs available were in fact inconvenient; they were created by screwing a plug outlet into one of the light bulb sockets in the ceiling. In one house at least, upstairs lighting was provided by a long extension cord from a main floor ceiling light, which at least had the advantage that lights out for the children was simply achieved every evening.[78] Always inconvenient and sometimes dangerous, these methods of obtaining and using electricity were not conducive to increased demand for electrical consumption. Upgrading the service to include even heavier-load items such as electric stoves and even small electric appliances could mean installing new and prohibitively expensive wiring, even before the high cost of purchasing and running the new high-energy consuming appliances like stoves was taken into account.

Other aspects of early electrification clearly limited demand. One of the most difficult aspects of the new energy regime for consumers was not simply paying for the appliances and the electricity, but in trying to understand the complex and mysterious nature of the electrical grid itself. The workings of the new system—its complicated, centralized infrastructure created and run by highly specialized experts and systems—simply eluded most people. Unlike organic forms of

[76] R.W. Sandwell, "Heat, Light and Work in Canadian Homes Project" File 3.3., 10 July 2010.

[77] *Progress Report of the Rural Electrification Committee as of January, 1945*, Victoria, B.C. 1945, 71, NW333.7932 B862r, British Columbia Archives.

[78] Sandwell, Heat, Light and Work Archive; File 3.7, 20 August 2010. This interview subject also noted his parents' strategy of using a piece of foil from a cigarette package to get a fuse working again once it had blown due to being overburdened with current, which happened frequently in their apartment.

energy, particularly wood that was often harvested from rural people's lands and provided heat and light in predictable ways, electricity was generated a long way from where it was used, and it behaved according to principles that found little resonance with people's day-to-day experience, which perhaps explains the tendency of Ontarians to refer to it as "the juice."[79] Women understood how much wood was needed to make bread, or heat water, or how many candles were needed to provide light. Few understood where electricity came from, how it was generated, or knew for sure how to tame its potentially dangerous rays. Furthermore, it was invisible. As one writer summed up, people watched substations go up "like ancient temples; they are places of mystery understood only by those who design build and operate them."[80]

The problem manifested itself most urgently in what households were being charged for, and how. For most consumers, the system of charging for electricity remained (and for many indeed still remains!) as obscure as the processes of generation and transmission. Men and women, rural and urban, harboured deep suspicions about the new network system, and particularly with regard to pricing.[81] Many consumers simply could not understand a system where they should consume more electricity in the interests of reducing the per-unit cost. Notwithstanding Ontario Hydro's slogan "the more you use, the cheaper it gets,"[82] when electricity was metered at a regular rate, canny consumers tended to be careful to use as little as power as possible, due to the high rates that low usage created. Because of the expense of reading meters in rural areas, many rural utilities relied on flat rates for a minimum amount of power. In most cases, this also put a ceiling on usage, because customers would, to the extreme irritation of the company, refuse to exceed their maximum flat rate consumption, that was generally for a level of service that provided lighting only.[83] Summing up many people's frustration

[79] These factors were not unique to Canada. Graeme Gooday in *Domesticating Electricity* does an excellent job of articulating how all of these factors limited the initial uptake of electricity in England in the late nineteenth and early twentieth centuries. [80] Frederick F. Thompson, "A Brief History of the Electric Department," Royal Military College, 55, typescript, Public Utilities Commission, Kingston, Ontario.

[81] Tobey, *Technology as Freedom*, 21-36; Luckin, *Questions of Power*, 57-67 Similar problems plagued the early gas industry. See Armstrong and Nelles, Monopoly's Moment, 27

[82] Dodd, "Women and Domestic Technology," 105.

[83] Tobey, *Technology as Freedom*, 12-15; Luckin, *Questions of Power*, 57-67. Recognizing that "the cost of electricity is one of the most controversial topics in Canada," the Canadian Government began in 1917 to compile an annual index of different rates across the country to establish that "there is no 'cost of electricity' in the same sense as cost of flour, sugar, milk and such like which enter into the budget of the housewife where the cost of ten pounds is approximately ten times the cost of one pound." He concluded with a well-meaning, but almost incomprehensible series of definitions, including watt, watt hour, horse power year; connected load, load factor, and power factor outlining the "great many factors entering into the price of electricity." *Index Numbers of Cost of Electricity for Domestic Service and Tables of Monthly Bills 1913, 1924-26, 1930*), published by authority of the Hon. James Malcolm, MP, Minister of Trade and Commerce Ottawa, 1927, 3-4

with a system they simply did not understand, one irate customer wrote to the Kingston Public Utilities Commission in 1935,

> Speaking of rates, no one ever saw a kilowatt-hour, yet the public has paid for billions of them. When a merchant sells you a sack of potatoes he talks about the potatoes, and not the sack; when he sells you a gallon of whisky [sic] he talks about the whisky, not the gallon. We have talked too long about rates and kilowatt-hours, rather than the cost and value of service....[84]

Struggling to understand the contention that neither industry nor the government could account for the price of electricity, hundreds of customers every year requested government sponsored meter-testing, as they simply did not believe that they were being charged correctly.[85]

As one disgruntled customer pointedly wrote "Gentlemen Kindly advise if you have any lower light rate to offer. I am not satisfied with your charges."[86] With well-established energy practices that were affordable, comprehensible and controllable, it is little wonder that women eschewed for so many decades the expensive, incomprehensible, and often erratic service offered by central electrical stations.

Conclusion

In the nineteenth century, most Ontario women had obtained the energy they required to support their homes and families by capturing, "renewable flows of solar energy, largely by growing plants that can be eaten, fed to animals, and burned,"[87] mostly with the household's labour and that of their draught animals, and from their local environments. By the end of the twentieth century, while a handful were still relying on wood for heating and cooking, most had replaced organic and local flows of energy with reliance on huge, centralized stocks of energy extracted from the ground or from electrical plants and processed by expert people and specialized machines, usually transported vast distances through complex networks to be delivered to individual homes, industries and businesses. Automated systems now provide the energy for a wide variety of essential tasks that used to be performed by women, particularly heating, lighting and the provision of water. As David Harvey notes, this is part of a larger trend in a society that has moved "from a social condition in which we depend directly on those we know personally, to one in which we depend on impersonal and objective relations with others."[88]

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[84] Thompson, "A Brief History of the Electrical Department."

[85] See, for example, Correspondence regarding Complaints Hamilton Cataract Power, Light and Traction Co., RG1-1/1-4; File 3.22, Box 3, 1928-30, Ontario Hydro Archives.

[86] File 24.6 Letter from Mrs. T.D. White, May 26, 1913, ibid.

[87] Jones, *Routes of Power,* 3

[88] David Harvey, *The Condition of Post-Modernity: An Enquiry into the Origins of Cultural Change* (Cambridge MA and Oxford: Blackwells, 1989), 100. A rich literature, drawing on Henri Lefebvre explores the nature of this new world, where "The concrete space of everyday life, of tangible and knowable bonds and relations between people and between communities and nature are undermined; the role of producers and the conditions of production and consumption are obscured," Stadfeld, *Electric Space*, 17.

By the 1970s, women had joined men in selling their labour and using their wages to purchase most of the energy they needed in their homes, as well as a new range and volume of consumer goods that were an important feature of the new energy regime. As Ontario society was increasingly freed by the new and highly transportable fossil fuels and electricity from its reliance on physical labour of men, women, children and draught animals and other forms of energy from local environments, production increased, transportation expanded, and real incomes rose as the new (that is, newly exploited) stocks of energy allowed people to make things, do things, transport things and purchase things on a scale never seen before.[89] Like other industrializing countries, therefore, Canada made the transition from being a relatively low-energy consumers of energy in the organic regime to being high energy consumers of first coal, then electricity (provided by running water or steam heated by nuclear energy or coal), then oil, and natural gas. Per capita energy consumption doubled in Canada between the early years of the nineteenth and the early twentieth centuries; by the 1960s, it had increased three-fold from the early nineteenth century, and by the end of the millennium, almost six-fold.[90]

Abundant energy users, Ontario households were later than those in Britain or the United States in switching from muscle power and fuel wood to the new energy carriers. Evidence presented here suggests that women were important agents in the late transition. Ontario's relatively large rural population, and large urban lots in many of its towns and cities guaranteed that many women and women had the choice of continuing to extract energy, particularly wood, from their own and near-by lands "for free" well into the twentieth century. They also had a wealth of knowledge and skills that shaped their energy-related practices, and ones that persisted even as utility and appliance companies developed an astonishing variety of initiatives to re-educate them about how and why to use new forms of energy in their homes. Corporate interests dovetailed nicely in the first half of the century with reformers' beliefs that using these modern forms of energy would comprise a key strategy in improving women's lives, reducing drudgery and thereby ameliorating their quality of life along with their self-respect. This article has stopped short of exploring how homeowners, or more accurately homemakers, eventually found ways to incorporate electricity as a benign or even helpful force that could be "sufficiently tamed to be safely, reliably and comfortably introduced into the home."[91] It has suggested that their late and abrupt transition to the new energy regime needs to be understood within the broader contexts of women's pre-existing energy practices and preferences examined here, as well as the attempts at their re-education.

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[89] For an discussion of the spatial dimensions of changing energy use, see Sandwell, "Mapping Fuel Use in Canada" and Jones, *Routes of Power.*

[90] Unger and Thistle, *Energy Consumption in Canada*, 103.

[91] Gooday, *Domesticating Electricity,* 1.