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Résumé de l'article

La controverse entourant la pasteurisation du lait à Saint John au cours de la campagne électorale de 1925 au Nouveau-Brunswick était le reflet de débats plus larges sur la place du gouvernement dans la vie des citoyens, ainsi que sur le rôle de la science et de la technologie dans le maintien d'une industrie laitière viable. Le débat, fondé sur ces questions politiques et économiques, s'articulait autour de ce qui constituait du lait « naturel ». Même si la plupart des agriculteurs s'opposaient à la pasteurisation, la jugeant trop coûteuse, leur acceptation d'autres options technologiques et scientifiques que la pasteurisation, axées sur l'amélioration de l'hygiène des vaches et des étables, révèle que les agriculteurs n'étaient pas opposés à la modernisation ou aux réformes progressistes.

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JANE E. JENKINS

La controverse entourant la pasteurisation du lait à Saint John au cours de la campagne électorale de 1925 au Nouveau-Brunswick était le reflet de débats plus larges sur la place du gouvernement dans la vie des citoyens, ainsi que sur le rôle de la science et de la technologie dans le maintien d'une industrie laitière viable. Le débat, fondé sur ces questions politiques et économiques, s'articulait autour de ce qui constituait du lait « naturel ». Même si la plupart des agriculteurs s'opposaient à la pasteurisation, la jugeant trop coûteuse, leur acceptation d'autres options technologiques et scientifiques que la pasteurisation, axées sur l'amélioration de l'hygiène des vaches et des étables, révèle que les agriculteurs n'étaient pas opposés à la modernisation ou aux réformes progressistes.

The controversy over milk pasteurization in Saint John during the 1925 New Brunswick election mirrored wider debates over the place of government in citizens' lives as well as the role of science and technology in maintaining a viable dairy industry. Fought on these political and economic grounds, the debate centred on what constituted "natural" milk. While most farmers opposed pasteurization as too expensive, their acceptance of other technological and scientific alternatives to pasteurization, which focused on improving cow and barn hygiene, reveal that farmers did not oppose modernizing or progressive reforms.

IN 1917 PROMINENT SAINT JOHN PHYSICIAN William F. Roberts ran for a seat in the provincial legislature with the explicit goal of establishing a provincial department of health. Such ambition was typical of early-20th-century progressive reformers who believed their expertise and professionalism could be brought to bear for the general betterment of society. After winning his seat, Roberts was promptly appointed minister of health, the first ever in the British Empire. He immediately set upon his task of instituting public health reform in New Brunswick after first dealing with the terrible 1918 influenza epidemic, an event that Roberts called the department's "baptism of fire." Over the next seven years Roberts built up an impressive list of accomplishments, including the establishment of municipal boards of health chaired by medically trained health officials, the health inspection of schools and restaurants, free clinics for venereal disease and tuberculosis patients, free smallpox vaccinations, and general child welfare services across the province.

A key part of Roberts's vision to improve the health of New Brunswickers was to reduce the incidence of milk-borne diseases such as non-pulmonary tuberculosis.

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Contracted from consuming the milk of cows infected with bovine tuberculosis, this form of tuberculosis hit children particularly hard, causing tuberculosis of the bones, joints, lymph nodes, and skin.[1]

One step towards ridding milk of bovine tuberculosis was made in 1923 when municipal bylaws were passed in Roberts's home riding in Saint John requiring all milk for sale in that city to be either pasteurized or certified as disease-free. Seeking re-election in 1925, Roberts hoped that his past successes would ensure a win and allow him to continue reforming the province's public health system. But voters rejected Roberts's bid to remain in the provincial political arena, and contemporary accounts suggest it was the local "milk question" that had contributed to his defeat.

This article examines the controversy surrounding the pasteurization of milk in 1920s Saint John, New Brunswick, and it does so from the perspective of both science studies and the history of New Brunswick agriculture. Moving beyond a straightforward case study of pasteurization as a triumphant story in the history of science and technology, this study draws upon the body of scholarship in science studies that addresses the rhetoric of the natural in food and nutrition.[2] While the pasteurization debate examined in this paper was contested on political and economic grounds, it was aired in terms of what constituted "natural" milk. A rhetoric of the natural disguised the political and economic agendas of both sides of the debate over whether milk should be pasteurized, and opponents and supporters of pasteurization alike made claims that the procedures they favoured produced milk that was pure, wholesome, and natural.[3] The study of this controversy also adds to existing

1 An American study done in 1911 estimated that 27 per cent of tuberculosis cases in children under the age of five years were of the bovine variety; see Charles E. North, "Milk and its Relation to Public Health," in Mazyck P. Ravenel, ed., *A Half-Century of Public Health* (New York: American Public Health Association, 1921), 25. A 1920s study of children with tuberculosis in Toronto found that 15 per cent of the cases were caused by the bovine tubercle bacillus; see R.M. Price. "Milk and its Relation to Tuberculosis," *The Canadian Dairy and Ice Cream Journal* 13, no. 3 (May 1934): 19. For more on tuberculosis in children, see F.B. Smith, *The Retreat of Tuberculosis, 1850-1959* (London: Croom Helm, 1988), 174-94; Richard A. Meckel, *Save the Babies. American Public Health Reform and the Prevention of Infant Mortality, 1850-1929* (Baltimore: Johns Hopkins Press, 1990), 62-91; Linda Bryder, "'Wonderlands of Buttercup, Clover and Daisies': Tuberculosis and the Open-Air School Movement in Britain, 1907-39" in Roger Cooter, ed., *In the Name of the Child. Health and Welfare, 1880-1940* (London: Routledge, 1992), 72-95; and Katherine McCuaig, *The Weariness, the Fever, and the Fret: The Campaign against Tuberculosis in Canada, 1900-1950* (Montreal & Kingston: McGill-Queen's University Press, 1999), 157-78.

2 For an overview of scholarship in food studies, see Peter Atkins and Ian Bowler, *Food in Society: Economy, Culture, Geography* (New York: Oxford University Press, 2001), 3-17. For the discourse of the natural in science studies, see David Rothenberg, *Hands End: Technology and the Limits of Nature* (Berkeley: University of California Press, 1993); Les Levidow, "Simulating Mother Nature, Industrializing Agriculture," in G. Robertson et al., eds., *Future Natural: Nature/Science/Culture* (New York: Routledge, 1996); Klaus Eder, *The Social Construction of Nature: A Sociology of Ecological Enlightenment* (London: Sage, 1996); Frederick H. Buttel, "Nature's Place in the Technological Transformation of Agriculture: Some Reflections on the Recombinant BST Controversy in the USA," *Environment and Planning A* 30 (1998): 1151-63; and Kevin Edson Jones, "Constructing rBST in Canada: Biotechnology, Instability and the Management of Nature," *Canadian Journal of Sociology* 25, no. 3 (2000): 311-41.

3 The classic socio-historical study of milk pasteurization examining the interactions of Louis Pasteur and other actors, including the non-human agency of microbes, in a network of reinforcing interests is Bruno Latour, *The Pasteurization of France* (Cambridge, MA: Harvard University Press, 1988).

scholarship, most of which focuses on the situation in American and central-Canadian jurisdictions dealing with the growth of public health reform in the progressive era.[4] Examining the roles of science and technology in the New Brunswick dairy industry extends the scope of understanding how the modernizing influences of the relatively new science of bacteriology as well as innovative technologies such as milking machines and the pasteurization of milk were appropriated into the political and economic agendas of governments eager to increase competitiveness in agricultural export markets.[5] Attention to how this played out in the dairy industry has been overshadowed by interest in the more dominant economies of the lumber and fishing industries. Tracing the story of the campaign to pasteurize milk not only reveals the interplay between the public health initiatives of urban public health officials and the economic realities of rural farmers, it also contributes to the history of New Brunswick agriculture in the context of the social, political, and economic movements heralding progressive reform and prosperity in the early-20th century. In particular, it demonstrates that dairy farmers did not share the social reformist agenda of the United Farmers movement; instead, their interests dovetailed with Liberal government interests, which were focused on economic progress, as they sought to preserve their economic well-being by appropriating techno-science.[6] Here is further evidence to enhance the nuanced picture of the agricultural movement in 1920s New Brunswick as one of diverse interests.[7]

There has been some coverage of pasteurization debates in other regions of

For other studies of the debate over milk quality see James Cross Giblin, *Milk: The Fight for Purity* (New York: Thomas Y. Crowell, 1986); Daniel Block, "Saving Milk through Masculinity: Public Health Officers and Pure Milk, 1880-1930," *Food and Foodways* 13, no. 1-2 (2005): 115-34; and Alan Czaplicki. "'Pure Milk is Better than Purified Milk': Pasteurization and Milk Purity in Chicago, 1908-1916," *Social Science History* 31, no. 3 (2007): 411-33.

4 See Rima D. Apple, "'To be used only under the direction of a physician': Commercial Infant Feeding and Medical Practice, 1870-1940," *Bulletin of the History of Medicine* 54 (1980): 402-17; Judith Walzer Leavitt, *The Healthiest City: Milwaukee and the Politics of Health Reform* (Princeton: Princeton University Press, 1982); Susan Turnbull Shoemaker, "The Philadephia Pediatric Society and its Milk Commission, 1896-1917: An Aspect of Urban Progressive Reform," *Pennsylvania History* 53, no. 4 (1986): 273-88; Michael E. Teller, *The Tuberculosis Movement: A Public Health Campaign in the Progressive Era* (New York: Greenwood Press, 1988); Heather MacDougall, *Activists and Advocates: Toronto's Health Department, 1883-1983* (Toronto: Dundurn Press, 1990); Thomas R. Pegram, "Public Health and Progressive Dairying in Illinois," *Agricultural History* 65 (1991): 36-50; Julie Miller, "To Stop the Slaughter of the Babies: Nathan Straus and the Drive for Pasteurized Milk, 1893-1920," *New York History* 74, no. 2 (1993): 159-84; E. Melanie DuPuis, *Nature's Perfect Food: How Milk Became America's Drink* (New York: New York University Press, 2002); and Alan L. Olmstead and Paul W. Rhode, "'The 'Tuberculous Cattle Trust': Disease Contagion in an Era of Regulatory Uncertainty," *Journal of Economic History* 64 (2004): 929-63.

5 Vernon Fowke, *Canadian Agricultural Policy: The Historical Pattern* (Toronto: University of Toronto Press, 1946); Roy C. Barnes, "The Rise of Corporatist Regulation in the English and Canadian Dairy Industries," *Social Science History* 25, no. 3 (Fall 2001): 381-406.

6 The term "techno-science" is a term common in science and technology studies that conflates the terms "science" and "technology" in order to emphasize their dynamic relationship, i.e. that they are inseparable from each other.

7 E.R. Forbes and D.A. Muise, eds., *The Atlantic Provinces in Confederation* (Toronto: University of Toronto Press and Fredericton: Acadiensis Press 1993), 192-229, 233-71. The agricultural movement was diverse in that it included those who supported the United Farmers Movement and others, like dairy farmers, who leaned more towards the Liberal government's approach. This diversity is discussed in Ian MacPherson, "Patterns in the Maritime Co-operative Movement, 1900-1945,"

Canada. Gordon C. Church's history of the Saskatchewan dairy industry includes reference to the pasteurization debate in 1920s Regina in the context of tensions within the co-operative movement – tensions that pitted farmers and their interests to maximize profitability against government interests to improve milk safety through greater regulation and requirements to pasteurize.[8] Heather MacDougall's history of Toronto's public health department details the education campaign launched by officials seeking to convert milk producers and public opinion to the merits of pasteurization and Katherine McCuaig evaluates the pasteurization campaign in the context of the anti-tuberculosis movement in Canada.[9] Studies of the transition to mandatory pasteurization regulations in Britain portray a sharp division between reform-minded, urban physicians and more traditionally minded, rural farmers whose anti-pasteurization sentiment was aligned with antimodernizing ideologies deemed characteristic of rural alienation or even antagonism towards techno-scientific and, by implication, urban initiatives.[10] This study extends the scope of both the history of the dairy industry and pasteurization campaigns in Canada while also highlighting the unique situation in New Brunswick. In contrast to the situation described in Britain, this study argues there was no gap between urban and rural interests when it came to techno-scientific initiatives in New Brunswick's dairy industry. As the agricultural economy of the province shifted to meet the demands of growing urban markets, farmers were under commercial and cultural pressure to be modern and scientific and to mobilize techno-scientific practices such as new milking and clipping machines into milk production. Their rejection of pasteurization, therefore, rather than being rooted in antimodernizing sentiment, grew instead out of fears that the process would drive up the cost of milk and put farmers out of business.

Politics and Pasteurization

When Premier P.J. Veniot announced in the early summer of 1925 that New Brunswickers would go to the polls, his governing Liberals held 23 of the 48 seats in the legislature.[11] Veniot, who had taken over when W.E. Foster stepped down from

Acadiensis V, no. 1 (Autumn 1975): 75. For a discussion of the economic, as opposed to the political or social reformist, underpinnings of the co-operative dairy movement in early-20th-century New Brunswick, see Timothy D. Lewis, "Defeating the Farmers' Efforts to Help Themselves: The Role of the State in the Collapse of the United Farmers Co-operative Company of New Brunswick, 1918-1922," *Acadiensis* XXXV, no. 1 (Autumn 2005): 50-73.

8 Gordon C. Church, *An Unfailing Faith: A History of the Saskatchewan Dairy Industry* (Regina: Canadian Plains Research Center, 1985), 181-2, 249.

9 MacDougall, *Activists and Advocates*, 97-106; McCuaig, *The Weariness, the Fever, and the Fret*, 168-71.

10 The model linking anti-pasteurization sentiment to a broader antimodernization trend that pitted rural and urban interests against each other was developed in studies of early-20th-century Britain. See Jim Phillips and Michael French, "State Regulation and the Hazards of Milk, 1900-1939," *Social History of Medicine* 12, no. 3 (1999): 371-88 and Peter J. Atkins, "The Pasteurization of England: The Science, Culture and Health Implications of Milk Processing, 1900-1950," in David F. Smith and Jim Phillips, eds., *Food, Science, Policy and Regulation in the Twentieth Century: International and Comparative Perspectives* (London: Routledge, 2000), 37-51.

11 The opposition Conservatives held thirteen seats, members of the United Farmers of New Brunswick held eight seats, and the remaining four seats were held by Independents. See Calvin A. Woodward, *The History of New Brunswick Provincial Election Campaigns and Platforms, 1866-1974* (n.p.: Micromedia, 1976), 49.

the premiership in 1923, was both an early supporter of regional rights in the Maritimes and a champion of the kind of progressive reforms initiated by his Minister of Health W.F. Roberts. But anti-Liberal sentiment was on the rise – stirred up, in part, by Conservatives who deliberately lumped the provincial Liberal party together with the federal Liberal party, which was disliked by New Brunswickers for turning a blind eye to eastern concerns. During a provincial by-election held in Moncton in 1924, this tactic had been used successfully and the Conservatives had won the seat. Another disadvantage came in the form of a whisper campaign that grew after Veniot took over as premier, when people wondered if his Acadian roots and Roman Catholic religion would undermine the fortunes of the Liberals. Another difficulty for the ruling Liberals arose when the Conservative party was revitalized by the return of John B.M. Baxter as its leader, fresh from a stint in the federal cabinet.[12]

The dominant issues that emerged as the election campaign unfolded in the summer of 1925 dealt with the development of hydro-electric power and high freight rates. Sides were picked depending on views about the role of government. While there was general agreement that a hydro-electric power project should be developed at Grand Falls, for instance, debate swirled around whether the project should be funded, owned, and operated by public or private interests.[13] A similar division fueled debate over how to deal with high freight rates. No one disputed that high transportation costs hobbled the province's ability to compete in the national market, but opposition Conservatives ridiculed the government record by pointing out the failure of the Liberals to step in and lower rates – something which undermined Liberal claims that they fought for "Maritime Rights."[14] And when powerful lumber interests shifted their support to the Conservatives, the game was all but lost for Veniot and his team.

The issue of milk pasteurization, hotly debated in the home riding of the incumbent Minister of Health W.F. Roberts, is a local case study in the wider provincial debate over the politics of government intervention and the trend towards modernization.[15] Roberts (1869-1938), an influential Maritime physician before running for political office and being appointed minister of health, had actively spearheaded a campaign as part of the broader progressive reform movement to reform and centralize public health in New Brunswick, and so milk pasteurization regulations would have marked a significant milestone in achieving his vision.

12 The issues of the 1920s in general and the 1925 election in particular are covered in Arthur T. Doyle, *Front Benches and Back Rooms* (Toronto: Green Tree Publishing, 1976), 242-63; Woodward, *History of New Brunswick Provincial Election Campaigns*, 49-51; Ernest R. Forbes, *The Maritime Rights Movement, 1919-1927: A Study in Canadian Regionalism* (Montreal & Kingston: McGill-Queen's University Press, 1979); Forbes and Muise, *Atlantic Provinces in Confederation*, 233-71; and Margaret R. Conrad and James K. Hiller, *Atlantic Canada: A Concise History* (Toronto: Oxford University Press, 2006).

13 Paul-Emile McIntyre, *The Development of Hydro-Electric Power at Grand Falls, New Brunswick: An Issue in Provincial Politics, 1920-1926* (master's thesis, University of New Brunswick, 1974).

14 For the relationship between freight rate increases and economic decline in the 1920s, see E.R. Forbes, "The Intercolonial Railway and the Decline of the Maritime Provinces Revisited," *Acadiensis* XXIV, no. 1 (Autumn 1994): 3-26.

15 The trend towards modernization in agriculture is covered in Timothy D. Lewis, "Agrarian Idealism and Progressive Agriculture in Maritime Canada: Agricultural Leadership in New Brunswick, 1895-1929" (PhD diss., University of New Brunswick, 2003).

Roberts had graduated with his medical degree in 1892 from New York City's famed Bellevue Hospital under Dr. Herman M. Biggs, the champion of extended powers for New York City's health board.[16] Settling in Saint John where he became a prominent physician and served as city coroner between 1902-17, Roberts typified middle-class professionals in the early decades of the 20th century who believed their expertise and training could be brought to bear to reform society and thereby improve its institutions for the benefit of the entire community.[17] Upon election in 1917 to the provincial legislature, Roberts was active in the transformation of the social order by instituting new policies to help ensure the regulation of food through inspections, the provision of free venereal disease and tuberculosis clinics, and the vaccination of school children.[18] His call for improvements to the collection of vital statistics reflects an important conviction, shared by other progressive reformers of the time, that social ills could be remedied after first being mapped out in a scientific and quantified manner.[19] Roberts, who had held his seat in Saint John since narrowly winning it in 1917, hoped that his past successes in public health reform would allow him to hold onto his seat in the legislature and continue his reforms.

Some of Roberts's public health successes were highlighted in campaign ads running in his home district. One showed the Department of Health personified, with sleeves rolled up, "ridding New Brunswick of the wolves of disease." The "wolves" of smallpox, diphtheria, and typhoid lie defeated outside as the determined health department stands at the doorway with a strangle-hold on the last culprit, tuberculosis, poised to throw it out too. Here was a graphic depiction of "a record that is amazing

16 Biggs was also instrumental in developing an anti-tuberculosis campaign in New York City in the 1910s. A key part of his campaign was to apply the relatively new science of bacteriology to public health policy. See Teller, *The Tuberculosis Movement*, 21-2.

17 Forbes and Muise, *Atlantic Provinces in Confederation*, 216-18; Colin D. Howell, "Medical Professionalization and the Social Transformation of the Maritimes, 1850-1950," *Journal of Canadian Studies* 27, no. 1 (1992): 5-20; Dorothy Porter, ed., *Social Medicine and Medical Sociology in the 20th Century* (Amsterdam: Wellcome Institute Series in the History of Medicine, 1997); Jennifer Koslow, "Putting it to a Vote: The Provision of Pure Milk in Progressive Era Los Angeles," *Journal of the Gilded Age and Progressive Era* 3, no. 2 (2004): 111-44.

18 A. Stanley Kirkland, "Obituary of Dr. W.F. Roberts," *Canadian Medical Association Journal* 38 (1938): 303. Roberts was also involved in the social reform movement in Saint John that called for better housing and votes for women. For Roberts's efforts in establishing New Brunswick's first Department of Health, see Jane E. Jenkins, "Baptism of Fire: New Brunswick's Public Health Movement and the 1918 Influenza Epidemic," *Canadian Bulletin of Medical History* 42, no. 2 (2007): 317-42.

19 William Warwick, "The Development of Public Health in New Brunswick," *Canadian Public Health Journal* 26, no. 4 (1935): 168-75; R.D. Defries, ed., *The Development of Public Health in Canada* (Toronto: Canadian Public Health Association, 1940); Douglas O. Baldwin, "The Campaign against Odors: Sanatarians and the Genesis of Public Health in Charlottetown, Prince Edward Island, 1855-1900," *Scientia Canadensis* 10 (1986): 72-82; Colin D. Howell and Michael Smith, "Orthodox Medicine and the Health Reform Movement in the Maritimes, 1850- 1885," *Acadiensis* XVIII, no. 2 (1989): 55-72; Michael J. Smith, "Dampness, Darkness, Dirt, Disease: Physicians and the Promotion of Sanitary Science in Public Schools," in Paul A. Bogaard, ed., *Profiles of Science and Society in the Maritimes prior to 1914* (Fredericton, NB: Acadiensis Press, 1990); Peter L. Twohig, *Labour in the Laboratory: Medical Laboratory Workers in the Maritimes, 1900-1950* (Montreal & Kingston: McGill-Queen's University Press, 2005), 2.

the outside world" and one that "the home folks of New Brunswick cannot ignore."[20]

Roberts bolstered his campaign further by making appeals to authorities in science, medicine, and politics. Just weeks before the election in mid-August of 1925, Roberts arranged for Dr. Archibald R. Ward, a leading bacteriologist from the Dairy Testing Laboratory in Detroit, to visit Saint John and evaluate its milk supply. Described in the press as "a famous authority" and "one of the leading milk experts of the world and prominent throughout the United States in that connection," Ward spent six days in the city before he concluded that "Saint John has a protective milk supply of which any city might well be proud."[21]

Roberts also counted on political support from outside the province by soliciting the endorsement of United States Senator Royal S. Copeland in dealing with the pasteurized milk questions. Copeland, along with his status as an American senator, also carried medical and public health status having served as president of the New York City Board of Health from 1918 to 1923.[22] During one of his election speeches Roberts shared with the audience a telegram he had just received from Copeland, which read "It would be a big mistake to amend regulations (re: pasteurized milk) which have been in operation for two years. Kindly advise compulsory pasteurization of all milk. A very necessary measure for the protection of babies and children."[23]

The provision of safe milk was, for Roberts, indeed a matter of life and death – especially for babies and infants who were dependent on clean, pure milk. A failure to subject milk to sanitary regulations that mandated cleanliness as well as pasteurization would, according to Roberts, be no less than "municipal manslaughter."[24]

Such sentiment was also evident in another of Roberts's campaign ads, which pictures the Department of Health as a nurse who was ahead of all the other Canadian provinces in leading the happy boys and girls of New Brunswick to better health. This ad was leveled directly at Roberts's long-standing political opponent in Saint John, F.L. Potts, who had fought the establishment of the Department of Health back in 1918, arguing that it would be expensive, invasive, and unnecessary. Claiming that politics had no business in the health of citizens Potts had fought progressive reforms, including bylaws requiring the pasteurization of milk for sale in Saint John. The ad, with the headline, "What Does Mr. Potts Say About This?" compares Potts's "tirades levelled against the Health Act" to "something akin to mocking sacred things" and adds that "All the wise men in the Opposition party could not scrap the Health Act if they got into power, they could not lay a vandal finger on pasteurized milk!"[25]

20 *Saint John Globe*, 25 July 1925.
21 *Saint John Globe*, 8 August 1925.
22 Royal Samuel Copeland (1868-1938), *Biographical Directory of the United States Congress*, http://www.bioguide.congress.gov (accessed 12 June 2008).
23 *Saint John Globe*, 8 August 1925.
24 *Telegraph Journal*, 8 August 1925. This view was common among public health proponents of the time. See Meckel, *Save the Babies*, 62; Beatrice Moring, "Motherhood, Milk, and Money: Infant Mortality in Pre-Industrial Finland," *Social History of Medicine* 11, no. 2 (1998): 177-96; Gretchen A. Condran and Harold A. Lentzner, "Early Death: Mortality among Young Children in New York, Chicago, and New Orleans," *Journal of Interdisciplinary History* 34, no. 3 (2003): 315-54.
25 *Saint John Globe*, 5 August 1925.

WHAT DOES MR. POTTS SAY ABOUT THIS?

THE TIRADES LEVELLED AGAINST THE HEALTH ACT by Opposition jokers is something akin to mocking sacred things. The first estate of man is saving his eternal soul, the second estate alleviating his suffering and salvaging his body. Along comes Mr. Potts and others and pokes fun at the idea. "Frills and fancies," says Mr. Baxter. Fine! Then how about our helpless children, our sick and infirm; the sudden check to infectious diseases, the decreased death rate, etc., etc.? All the wise men in the Opposition party could not scrap the Health Act if they got into power, they could not lay a vandal finger on pasteurized milk!

Pasteurizing Saint John's Milk Supply

Just over two years before the election, on 21 February 1923, Minister Roberts had signed regulations making it "unlawful for any person, firm or corporation to sell, hold for sale or offer for sale for human consumption in the Saint John Milk District any milk or cream that has not been scientifically pasteurized to the satisfaction of the District Medical Health Officer."[26]

Passage of this bylaw must have given Roberts a great sense of accomplishment, given his lament that infant mortality rates in New Brunswick during the early 1920s were the highest of all provinces in the Dominion. He identified one of the chief causes of this deadly situation as unsanitary supplies of water and milk, a link that had been reported in a sanitary survey commissioned by Roberts as one of his first ministerial decisions in 1917. John Hall, the sanitary engineer who completed the provincial survey, wrote in his 86-page report that diseases endemic in Saint John, notably typhoid fever, scarlet fever, and diphtheria, were caused by drinking unsanitary milk. This was milk adulterated by being mixed with unclean water or from being ladled from open containers sitting on shop counters or carried on horse-drawn wagons. Even though milk regulations passed in 1906 required milk offered for sale "in grocery or other shops" to be kept "in earthenware vessels, properly covered and perfectly clean," Hall had noted that this practice of ladling or "dipping" milk out of communal containers still existed and only spread disease. Sitting in unrefrigerated conditions, these open containers were subject to further contamination from insects and dirt. Although Hall noted that, at the time of his survey in 1917, half of the city's milk supply was sold in bottles, he recommended that the entire milk supply of the city be required to be pasteurized and bottled.[27]

The District Health Officer for Saint John District, Dr. George Melvin, agreed with the report's conclusions and joined Roberts in pushing for sanitary reforms for the city. Together they called for the removal of privies, standardized regulations for the sale of food, and construction of water and sewer lines. When Melvin was appointed chief medical health officer for the entire province, his duties in Saint John were taken over by Dr. William Warwick, who was appointed district medical health officer for the southern district of New Brunswick in 1920. One of the earliest recipients of a Diploma in Public Health from McGill University, Warwick was well-suited for the task and reported confidently in his first annual report that the public health problems associated with the milk supply in Saint John would be dealt with promptly.[28]

The pasteurization regulations, which came into effect on 1 May 1923, were a

26 The regulations governing the pasteurization of milk in Saint John and surrounding district were covered under the Regulations of the Department of Health Re: Dairies and Milk, which fell under the authority of Section 44 of the Public Health Act of 1918 and which Roberts had been instrumental in passing into law in the spring of 1917. Roberts signed the pasteurization regulations on 21 February 1923 and they came into effect on 1 May 1923. Amendments to the regulations, which defined "certified" milk, were passed a year later on 12 May 1924.

27 John Hall, *Report – Sanitary Survey of New Brunswick 1917* (Fredericton: New Brunswick Government Press, November 1917), RS 136, J 1, Provincial Archives of New Brunswick (PANB). Hall's report on conditions in Saint John appears on pages 9-18.

28 New Brunswick Department of Health, *Annual Report of Chief Medical Health Officer (for year ending October 30, 1920)* (Fredericton, NB: New Brunswick Government Press, 1921), 16.

testimony to the persuasive powers of District Medical Health Officer Warwick, who reported that the regulations had passed "with comparatively little trouble" resulting in the city "being supplied with milk of a higher standard than obtains in most cities and one which is essentially safe."[29] The regulations governed "The Saint John Milk District" which included the city and county of Saint John "within a radius of two miles of the Old Court House" as well as a populated area to the south. Milk from 39 registered milk producers in and around the milk district would be delivered to four pasteurizing plants. Two of these, the Standard Creamery Ltd. and Rockwood Dairy Farm, installed new pasteurizing equipment to meet the demands imposed by these new regulations. A third dairy company, Pacific Dairies, had been pasteurizing milk since 1918 when Hall reported that their product constituted about a quarter to a third of the total milk supply of the city.[30] Pacific Dairies was reported to be "one of the most modern plants in America," and with demand certain to increase once the new regulations were put in place, this dairy planned to install more pasteurizing equipment and hire more men to operate it. The Purity Ice Cream Co. Ltd. announced plans to construct a brand new plant for its pasteurizing operation that would be supplied by 43 different milk dealers and employ up to 30 men.[31]

The regulations mandating pasteurization of the milk supply were the culmination of previous attempts to regulate milk beginning as early as 1901. In that year, regulations governing the sale of milk in Saint John focused on the quality of the cow, its milk, and if the assorted vendors in the city who sold it operated in sanitary conditions (i.e., preventing flies and dirt from contaminating the milk). Milk deemed unwholesome by virtue of "adulteration, contamination with sewage, absorption of disease germs, infection of cows, uncleanliness, or any other recognized cause" was unsuitable for sale. Milk vendors needed licenses from the local board of health that had to be renewed annually. Wagons that carried milk for sale could not be used "for the conveyance of swill, manure, or any other offensive material" and licenses were required to be "conspicuously placed on the wagon or vehicle from which the milk is sold." Cows fed "upon garbage or other like substance" could not be used for milk production and health officers had free rein to inspect cows, barns, vendors and "all milk offered for sale, whether on any of the streets, public places or shops of the said City, and to seize and destroy all such milk which may on such inspection be found unwholesome or unfit for human food."[32]

By 1915 regulations governing the production and sale of milk in Saint John were still focused on "the cows, barns, stables, the food and water supply of said cows, the implements used in the handling of the milk and creams, and, in general, the whole

29 "Sub-District of Health of the City and County of Saint John," in New Brunswick Department of Health, *Annual Report (for year ending October 31, 1923)* (Fredericton: NB, New Brunswick Government Press, 1924), 89.

30 Hall, *Report – Sanitary Survey of New Brunswick,* 12.

31 *Saint John Globe,* 20 April 1923.

32 *Regulations of the Local Board of Health for the District of the City and County of Saint John Re: Sale of Milk* (June 1910), RS 136 N2, PANB. Similar regulations passed by the municipal Board of Health had been passed in August of 1901, March and May of 1906, and April of 1915 before being superceded by the 1923 regulations covered by the provincial Public Health Act.

dairy plant of the producer of such milk or cream." Producers and vendors required licensing and had to meet strict conditions for the storage and sale of milk. It again fell upon local health inspectors to evaluate the quality of milk.[33]

With the passing of the 1923 regulations, which mandated pasteurization, restrictions were further tightened to ensure that the supply of milk was clean right from the cow barn. Farmers were required to pour milk into cans "of a type and size approved" by the health district. Cans were to be closed tightly and sealed in the milk houses of dairy farms before delivery to the plants. Seals were to indicate "the name, initials or identifying number of the producer." Empty milk cans were returned to their home farm after first being "cleaned, sterilized and sealed" at the plant and these cans were to be used exclusively for milk and not even for milk products such as skim milk, whey, or sour milk.[34]

The main focus of the regulations, however, was on pasteurization – the process that began shortly after milk arrived at one of Saint John's four pasteurizing plants. Milk was subjected for "at least twenty minutes and not more than thirty minutes to a temperature of not less than 142 degrees (Fahrenheit) and not more than 148 degrees (Fahrenheit) or under." It was then "cooled to 55 degrees (Fahrenheit) or under and kept at that temperature or below until delivered to the purchaser or consumer."[35]

A description of the process, published in the local newspaper, explained that pasteurization is "the elimination, by heating, of germ life dangerous to health; it is necessary because milk is a perishable product open to the entrance of disease producing germs which only pasteurization will utterly destroy – and that pasteurization makes no significant change in the food value, the physical condition or the appearance of milk, but simply removes the danger – by killing the dangerous germ life."[36] Once milk was pasteurized, any loose or unbottled milk could be sold from the plant; all other milk sold in the milk district, however, was to be delivered in "sealed cans or glass bottles tightly stoppered." And all milk or cream that was sold in bottles was to be bottled in the plant where it had been pasteurized. The bottled milk was delivered by truck and wagon to vendors' shops and consumers' homes throughout Saint John. The largest dairy company in the city, the Purity Ice Cream Co. Ltd, had a fleet of five trucks and three horse-drawn wagons in 1920, and no doubt had expanded their ability to deliver once their new plant opened in 1923.

With the implementation of these new milk regulations, Saint John became one of only three Canadian cities mandating compulsory pasteurization. Toronto had been the first to establish such regulations in 1915, with Saskatoon passing a similar bylaw in 1923, the same year as Saint John.[37] From the early 1890s, as cities across North

33 *Regulations of the Local Board of Health for the District of the City and County of Saint John concerning the production and sale of Milk and Cream destined for human consumption in the City of Saint John, New Brunswick* (April 1915), RS 136 N2, PANB.

34 *Regulations of the Saint John Sub-District Board of Health, additional to the Regulations of the Department of Health regarding Dairies and Milk, under authority of Section 44 of the Public Health Act 1918,* 21 February 1923, RS 136 N2, PANB.

35 *Regulations of the Saint John Sub-District Board of Health*, 21 February 1923, RS 136 N2, PANB.

36 *Saint John Globe*, 20 April 1923.

37 H.A. Innis. ed., *The Dairy Industry in Canada* (Toronto: Ryerson Press, 1937), 30-2, 69-77; MacDougall, *Activists and Advocates*, 97-106; Church, *An Unfailing Faith*, 179.

America grew in size, municipal ordinances and statutes had been put in place to deal with the regulation of milk quality; bylaws requiring compulsory pasteurization followed as one process to achieve this goal.[38] In Canada, after Toronto, Saskatoon, and Saint John, compulsory milk pasteurization laws were passed in Regina in 1925 and Hamilton in 1928. In 1938, Ontario became the first province to pass laws requiring all milk in the towns of the province to be pasteurized.[39]

Some jurisdictions required that milk, if not pasteurized, be certified that it was from disease-free cows. Such amendments to the regulations governing the Saint John Milk District were made a year after the initial pasteurization regulations, in May 1924. In order to be certified, milk had to be taken from "cows semi-annually subjected to the tuberculin test and found without reaction." These tests for bovine tuberculosis had to be performed by an approved veterinarian and paid for out of the dairy farmer's pocket. In addition to semi-annual testing, a veterinarian had to test the entire herd every month to ensure all cows in the herd were "free from infection." A qualified physician also had to perform monthly inspections of all employees of the dairy farm to ensure they too could be "certified free from the infection of any communicable disease." Again, all expenses for these inspections of people and cattle were to be borne by the farmer alone. Milk from cows, even if certified as being tuberculosis-free as well as free from other diseases, had to be tested within 30 hours of milking for bacteria.[40] In addition to a low-bacteria count, certified milk would be required to be "free from blood, pus, sediment or disease producing organisms" as well as "free from disagreeable odor or taste." It needed to be cooled to 45 degrees or lower within 30 minutes of milking, "bottled in sterile bottles and . . . immediately sealed" and delivered to the consumer quickly, no more than 30 hours after milking. All bottles were to be clearly labeled as containing certified milk, with the name and address of the dairy producer and the date of milking visible. These certification regulations, however, which focused attention on the health of milk cows and their milkers, were not widely followed because they were so elaborate and, probably most importantly, because they involved considerable expense to be paid out of the farmers' own pocket – although he Dominion Department of Agriculture did establish a plan in 1914 that offered federal assistance to municipalities that wanted to test cows supplying milk to urban centers.[41]

38 McCuaig, *The Weariness, the Fever, and the Fret*, 168-78; MacDougall, *Activists and Advocates*, 97-106; Meckel, *Save the Babies*, 62-91; Alan L. Olmstead and Paul W. Rhode, "An Impossible Undertaking: The Eradication of Bovine Tuberculosis in the United States," *Journal of Economic History* 64, no. 3 (2004): 734-72; Aleck Samuel Ostry, *Nutrition Policy in Canada, 1870-1939* (Vancouver: University of British Columbia Press, 2006).

39 MacDougall, *Activists and Advocates*, 106. Next was Saskatchewan, which passed laws making pasteurization compulsory in all towns with a population over 1000. See Church, *An Unfailing Faith*, 249.

40 If collected during the summer months, from June to September, milk samples could not contain more than 20,000 bacteria per cubic centimetre, and if collected from October to May, could not contain more than 10,000. See *Regulations to Amend Regulations of the Saint John Sub-District Board of Health, additional to the Regulations of the Department of Health regarding Dairies and Milk, under authority of Section 44 of the Public Health Act 1918*, 21 August 1924, RS 136 N2, PANB.

41 Moncton was the only municipality in New Brunswick to take advantage of the federally financed Municipal Tuberculosis Order, established in 1914. This plan was part of the federal government's national campaign to eradicate bovine tuberculosis through a test-and-slaughter process. In 1919, another federally sponsored plan, the Accredited Herd Policy, tested cows being exported to

Pasteurization was the method promoted by New Brunswick health officials, part of a public health spin-off of the progressive reform movement. W.F. Roberts stated in his annual report for 1923 that he considered the pasteurization regulations "a radical change" and "perhaps the most forward . . . any community can adopt in the matter of the conservation of young child life." His proof for this claim was the dramatic decline in Saint John of milk-borne diseases in the year following the passing of pasteurization regulations. The typhoid fever rate dropped a dramatic 68 per cent, with 61 fewer cases recorded than in 1922. The infant mortality rate also took a dramatic tumble, dropping from an average of 141 per 1000 in July 1923 to 75 per 1000 at the end of June 1924.[42] And, Roberts reasoned, "the only change that has taken place in the general life of the people is the using of pasteurized instead of raw milk."[43]

Warwick, too, proudly pointed out "the influence of this safer milk supply has already . . . made itself apparent in the very marked decrease in our typhoid rate, in our lower infant mortality, and has removed that danger of possible epidemics which continually threatened us under the old conditions. As time goes on the advantages will be more marked and we will wonder how the public tolerated the old order of things for so long."[44] But the matter was not entirely settled, for the debate over whether pasteurization should be required or not was one of the key issues highlighted in W.F. Roberts's Saint John riding during the 1925 provincial election.

American markets. Farmers could apply to have their herds tested, but since regulations were designed for the large dairy herds of the larger provinces, New Brunswick farmers were not able to take full advantage of them. Tuberculin testing was to be done by federally licensed veterinarians, who would only travel to test herds of at least 12 purebred cattle. Since herds in New Brunswick were mostly small and composed of "grade" cows, farmers had difficulty getting their herds tested. These difficulties were removed with the establishment of the Restricted Area Plan, which had no herd-size or grade restrictions and, by 1934, all of south-west New Brunswick qualified as an area designated free of bovine tuberculosis. See Louise Barnes, *Health of Animals Division* (Ottawa: Department of Agriculture, 1961) and reports of the minister of the Department of Agriculture for years 1925-1935, RG 17, vol. 3263, Library and Archives Canada (LAC). Studies of bovine tuberculosis and its relation to public health include the following: Barbara Rosenkrantz. "The Trouble with Bovine Tuberculosis," *Bulletin of the History of Medicine* 59 (1985): 155-75; Susan D. Jones, *Valuing Animals: Veterinarians and their Patients in Modern America* (Baltimore: Johns Hopkins University Press, 2002); Marion McKay, "'The Tubercular Cow Must Go': Business, Politics, and Winnipeg's Milk Supply," *Canadian Bulletin of Medical History* 23, no. 2 (2006): 355-80; Keir Waddington, *The Bovine Scourge: Meat, Tuberculosis and Public Health, 1850-1914* (Rochester, NY: Boydell Press, 2006); and Alan L. Olmstead and Paul W. Rhode, "Not on My Farm! Resistance to Bovine Tuberculosis Eradication in the United States," *Journal of Economic History* 67, no. 3 (2007): 768-809.

42 New Brunswick Department of Health, *Seventh Annual Report of the Chief Medical Health Officer (for the year ending October 31, 1924)* (Fredericton, NB: New Brunswick Government Press, 1925), 8.

43 W.F. Roberts speech, 7 October 1923, RS 136, A23 h4, PANB.

44 "Sub-District of Health of the City and County of Saint John," in New Brunswick Department of Health, *Annual Report (for year ending October 31, 1923)* (Fredericton, NB: New Brunswick Government Press, 1924), 89. The merits of pasteurized milk in preserving infant lives was further attested to by Harriet T. Meiklejohn, New Brunswick's director of the Public Health Nursing Service, in her annual report of 1924; she reported that quadruplets born on Christmas Day, 1923, were "all normal and healthy" having been fed "modified (pasteurized) milk" since three weeks of age. See New Brunswick Department of Health, *Sixth Annual Report of the Chief Medical Health Officer (for the year ending October 31, 1923)* (Fredericton, NB: New Brunswick Government Press, 1924), 18.

The Naturalizing Myth of Pure Milk

When the election campaign in Saint John turned nasty over the milk question, such as occurred when unfounded accusations were made that Roberts and his family secretly drank unpasteurized milk, he stubbornly declared that he was "prepared to go down to defeat on the issue" of pasteurization. His conviction about the merits of pasteurization was rooted in medical and scientific knowledge of bacteriology that underpinned his progressive reform political stance. Here was a prime example of science as a modernizing tool for progress.[45] He applauded both the pasteurization process and other milk regulations, the latter of which helped ensure milk in the city was clean of other contaminants, including dirt, hair, and manure. Roberts, and other public health officials, portrayed milk as natural – as indeed the best natural food for babies. But by virtue of being natural milk was also highly perishable. The municipal government's interventionist regulations ensured that milk in the Saint John Milk District was clean and free from the intrusion of invisible disease-causing bacteria as well as more obvious bits of cow hair, straw, and manure. Pasteurized milk was natural milk that had been purified and cleaned, thereby preserving its natural merits.

Opposition to pasteurization was vocal in the city and came from various sources including dairy farmers, milk distributors, and the public. Rather than being rooted in antimodernizing sentiment, this opposition was motivated by political and economic concern that the process was prohibitively expensive in an already-tight market. Pasteurization also symbolized the unwanted stretch of the government's arm into the affairs of farmers, vendors, and consumers. It was a matter of civil liberties: consumers ought to have the right to choose whether they drank pasteurized or raw milk rather than the government making decisions about the health and diet of its citizens. Opposition candidates promised in their election ads to pass legislation giving people "the option of purchasing pure milk or pasteurized milk, whichever you prefer. The new Government will NOT make it compulsory for you to use pasteurized milk. Today you MUST drink pasteurized milk when in the city, and if in the country for the summer months, you drink pure milk straight from the cow. There is something wrong with Legislation which forces you to drink pasteurized milk in the city, and does not compel you to do likewise the minute you get out into the country."[46]

Besides the right to choose their diet, popular opposition to pasteurized milk focused on its bad taste and high cost.[47] In Saint John in 1922 the cost of a bottle of milk was 14 cents and the pasteurization regulations had caused a one-cent-a-bottle increase. Milk dealers, who delivered milk to consumers or sold it from their vending wagons in public places, feared that the higher price would reduce demand for the product and put them

45 For studies examining the use of science and technology in furthering public health campaigns, see Richard A. Jarrell, "Science and Public Policy in Nineteenth-Century Canada: Nova Scotia Promotes Agriculture," in Paul A. Bogaard, ed., *Profiles of Science and Society in the Maritimes*, 221-41; Keith Vernon, "Pus, Sewage, Beer and Milk: Microbiology in Britain, 1870-1940," *History of Science* 28, no. 3 (1990): 289-325; Ronald G. Walters, ed., *Scientific Authority and Twentieth-Century America* (Baltimore: Johns Hopkins University Press, 1997); and Keir Waddington, "The Science of Cows: Tuberculosis, Research and the State in the United Kingdom, 1890-1914," *History of Science* 39 (2001): 355-81.

46 *Saint John Globe*, 6 August 1925.

47 This was a response in other areas as well. See Jones, *Valuing Animals*, 145; MacDougall, *Activists and Advocates*, 102; and Leavitt, *The Healthiest City*, 162.

out of business. Small distributors, who transported milk from farm to consumer and often bottled it, worried that they would not be able to afford the high cost of pasteurizing equipment and the experts to run it. Their fear was that the dairy industry would end up monopolized by the companies able to afford the necessary equipment and expertise.[48] Farmers too, whose cows produced the milk, worried that pasteurization regulations would raise the cost of milk, thereby greatly reducing demand for it.[49]

Whatever the specific nature of anti-pasteurization arguments, whether from producers, distributors, dealers, or consumers, the opposition was embedded in appeals to the natural and the pure. Roberts's main political opponent F.L. Potts, for instance, during one of his campaign speeches stated "If the Lord had intended us to drink pasteurized milk he would have put a cooler on a cow." He questioned how pasteurized milk could be "better than pure whole milk." The technical process of pasteurization "modified" the milk, whereas "whole milk from a good dairy farm will be of better quality."[50] Government intervention simply could not improve on nature.

By the 1920s, New Brunswick dairy farmers who hoped to survive the economic and social challenges of high freight rates and a declining rural population had to consider innovative responses. Rural agrarian interests had shifted towards supplying the dietary needs of a growing urban population, and these new and expanding markets were ripe for the sale of valuable new commodities such as liquid milk.[51] Dairy farmers emulated other farmers and established industry co-operatives that served to increase efficiency and profits. Unlike many other agricultural co-operatives that conflated anti-capitalist and social reform ideology into political action, however, the dairy co-operative movement kept their sights singularly on the economics of how to improve profits.[52]

Price was everything. If dairy farmers wanted to exploit the new liquid milk market in the face of pasteurization regulations they had to increase production efficiency and convince people to keep drinking milk. They knew that if the cost of producing pasteurized milk drove up the price to the point where people stopped buying it, then the

48 This sentiment was also common in other jurisdictions. See Charles M. Godfrey, *Medicine for Ontario* (Belleville, Ontario: Mika Publishing Company, 1979), 157; Church, *An Unfailing Faith*, 181; and Leavitt, *The Healthiest City*, 162.

49 Economic arguments against pasteurization were also common in other areas. See Jones, *Valuing Animals*, 145.

50 As quoted in W. Brenton Stewart, *Medicine in New Brunswick* (Saint John: New Brunswick Medical Society, 1974), 106.

51 Ernest R. Forbes, "The Origins of the Maritime Rights Movement," *Acadiensis* V, no. 1 (1975): 61-2. In the late-19th and early-20th centuries the Canadian dairy industry had been built almost entirely around the production and export of cheese and butter. Output from Canadian dairy factories was spectacular. Ontario and Quebec were the top producers, but production in the Maritime Provinces was not insignificant. In 1924, the New Brunswick dairy industry produced 870,000 pounds of cheese and just over a million pounds of butter. See New Brunswick Department of Agriculture, *Annual Report* (1924), 46.

52 See Lewis, "Defeating the Farmers' Efforts," 53-5, for a discussion of the province's influential Farmers and Dairymen's Association of New Brunswick and its promotion of the international market as the means to provincial economic stability for dairy farmers. The federal government was interested in bolstering the dairy industry because butter and cheese exports made up such a significant component of Canada's export portfolio. Federal subsidies included assistance to install refrigeration on steamships, subsidize rail transportation and facilitate construction of cold-storage warehouses. See Barnes, "The Rise of Corporatist Regulation," 381-406.

industry was in trouble. In response to these fears, an industry-driven campaign educated consumers about the food value of milk and the costs to farmers of producing it.[53]

The need to supply the urban liquid milk market in an economically viable way got the dairy industry into the pasteurization debate. Dairy industry experts did not challenge the bacteriological principles that motivated advocacy of pasteurization by public health officials as there was unambiguous recognition that disease-causing, bacteria were found in milk. But focusing on pasteurization as the solution to this problem could be economically disastrous. Furthermore, pasteurization alone could not clean milk that came out of the barn with manure and straw floating in it. For these reasons, dairy experts surmised that the production of a good clean product, "contrary to a somewhat common belief, . . . does not require expensive equipment, high priced cows, or much extra work."[54]

This view, that pasteurization could not remedy problems of unclean milk at its source, was implicit in an article written by a trained bacteriologist at the Dominion Agricultural Department and published in *The Maritime Farmer and Co-operative Dairyman*.[55] Dr. A.G. Lochhead presented the results of a five-month study conducted at the Central Experimental Farm in Ottawa to determine "the various factors upon which the germ content of the milk leaving the stable depends." These factors included the condition of the stable, animals, milkers, and utensils, but ultimately it found that milk of excellent quality could be produced "without resorting to elaborate or expensive methods."[56] Instead, the process of producing clean milk began with clean, healthy cows. They needed to be tested regularly for tuberculosis, groomed daily, and their udders and flanks cleaned thoroughly before milking. Besides clean cows, it was essential that milkers too were clean and healthy and not carriers of any infectious diseases. In order to protect the milk from macro-contamination, it was recommended that milkers use either hooded or small-top milk pails and that utensils should be rendered sterile by scrubbing in hot water and steaming for five minutes before use. Finally, milk should be cooled promptly. If these practices were followed, the result would be "whole milk . . . [that is] clean and of good flavor" and which would lead ultimately to "a wider market and increased prices for dairymen."[57]

Focusing attention on the cow, barn, and milker by emphasizing hygiene was the response promoted in farm journals to the public health initiatives of urban physicians and politicians such as Roberts to provide clean, pure milk to consumers.[58] Techno-

53 *United Farmers Guide* 3, no. 22 (15 November 1922): 10.

54 *United Farmers Guide* 31, no. 12 (23 March 1926): 12.

55 This complaint that pasteurization would only mask unclean milk was common in other jurisdictions. See Susan D. Jones, "Mapping a Zoonotic Disease: Anglo-American Efforts to Control Bovine Tuberculosis before World War I," *Osiris* 19 (2004): 136.

56 *Maritime Farmer and Co-operative Dairyman* 30, no. 20 (9 June 1925): 10.

57 *Maritime Farmer* 31, no. 13 (6 April 1926): 14. While these recommendations were similar to procedures mandated to produce milk that could be "certified," the onus here was on the producer to ensure clean milk and did not require the additional, logistically cumbersome, and expensive oversight of physicians, veterinarians, and government bureaucracy.

58 In his "Defeating the Farmers' Efforts" (64), Lewis provides convincing evidence that the farm journal, *Maritime Farmer and Co-operative Dairyman* – the official mouthpiece of the Farmers and Dairymen's Association of New Brunswick – had close ties to the provincial Liberal organization through its owner and editor. Lewis maintains that this farm journal was used to launch attacks against the United Farmers Co-operative Company of New Brunswick, which was seen by the Liberal government of Premier Foster as a political rival.

scientific, urban initiatives focused on pasteurization. While not rejecting techno-scientific initiatives in general, farm journals focused instead on the role of farmers in the production pathway that got milk from the rural cow to urban pasteurization plants. And, in fact, new technologies played an important new role in rural milk production. Just as farmers recognized that plow horses would eventually be replaced by mechanized tractors, technology could also help maintain the clean, pure, wholesome, and therefore, natural quality of milk. An ad appearing in the *Maritime Farmer and Co-operative Dairyman*, for instance, described a "new mechanical milking unit" just on the market. It was predicted to "reduce the cost and labor of milk production, facilitate the keeping of records, and produce a cleaner product. . . . The milk reaches the dairy house without having come in contact with the air, human hands, or any other contaminating agency. No milk is spilled on the floor to attract flies . . . [and] sterilization of the mechanical equipment is accomplished quickly and easily." Another ad in the same journal presented a McCormick-Deering Milker as "favorably recommended by hundreds of dairymen."[59]

These modern machines were heralded not only for their ability to reduce the costs of milk production, but because they would do so while also providing a product that would meet new regulations put in place to meet scientific expectations. In this view, science and technology could be employed to modernize the cow barn and keep farmers in business. Farmers were encouraged to buy this new milking machine, not only for its "remarkable features of sanitation" but also because of the "important reductions it effects in the cost of producing milk." Using it would mean farmers could "produce a high grade of milk with low bacteria count."[60] The producers of a competing model, the Surge Milker, were bold in their guarantee of clean milk because of the elimination of long rubber tubing in their milker and its replacement with short tubing.[61]

Another technological tool was promoted in advertisements to deal with the problem that recognized that "manure, swarming with dangerous bacteria, collects and cakes on the long hair" and "rubs off into the milk pail" during milking. The ad promoted the use of the "No. 1 Clipping Machine" that would "clip flanks, udder and underline so there are no long hairs to gather up stable filth." The results would be "low bacteria counts" in milk, which would help ensure farmers "top prices and [that] their milk is never rejected."[62] Here again, techno-science was in the barn. Rather than shying away from any modernizing trend, New Brunswick farmers were being encouraged, for economic reasons, to use new, modern tools to meet scientific expectations for clean milk.

This push for the modernization of New Brunswick dairy farming signaled the rise of a techno-scientific impulse that served to eventually transform agriculture in the province. Faced with commercial and cultural pressure to be modern and scientific while also trying to ensure economic viability of its members, the dairy industry in New Brunswick – as represented in the pages of the *Maritime Farmer and Co-operative Dairyman* – opted for the more cost-effective approach of general farm

59 *Maritime Farmer* 35, no. 20 (15 July 1930): 28; *Maritime Farmer* 37, no. 8 (19 January 1932): 19.
60 *Maritime Farmer* 37, no. 8 (19 January 1932): 19.
61 *Maritime Farmer* 36, no. 1 (7 October 1930): 20.
62 *Maritime Farmer* 36, no. 2 (21 October 1930): 18.

hygiene, rather than pasteurization, in order to meet public health standards for milk. Pasteurization was an expensive process, requiring costly equipment and experts to run it, which would push up milk prices. In a time of economic recession, when Maritime farmers were fighting for survival, it is reasonable to assume that they simply could not afford to advocate pasteurization.[63]

The dairy industry, however, did not emphasize cost-effectiveness to make its point about the advantages of techno-scientific alternatives to pasteurization. Instead, it used the same naturalizing myth that supporters of pasteurization were using to emphasize the cleanliness and safety of milk. In this way, the merits of positions both for and against pasteurization hinged on its natural benefits and purity. Milk straight from the cow and unmodified in any way, according to producers, was pure, natural, and therefore "the perfect food; the most perfect available to the human race." It is "designed by nature to meet all needs. It is . . . the most concentrated natural nutrition in the world."[64] And the best way to preserve and maintain these natural qualities did not involve subjecting milk to unnatural heating. Instead, the merits of milk were best preserved by staying ever-vigilant to hygiene.[65]

Conclusions

When the votes were counted on election day, 10 August 1925, W. F. Roberts went down in defeat, as did the Liberal Party as a whole. The Conservatives won a resounding 37 of the 48 seats in the legislature. Speculation about the causes of the Liberal defeat include that the Conservatives successfully stirred up negative sentiments for the provincial Liberals by blurring the lines between the provincial party and the federal, anti-Maritime, Liberals. Others suggested that New Brunswickers voted against the Liberal interventionist push for public ownership of the Grand Falls power project. Perhaps too, prejudices against Veniot himself may have cost the Liberals votes.[66]

A contemporary account suggests that Roberts's personal defeat was due, in no

63 This stance of the dairy industry, to promote less expensive techno-scientific alternatives over pasteurization to help ensure a safe milk supply, dovetailed with the progressive reform agenda of the Liberal government, which had initiated programs, including free smallpox vaccinations and the health inspection of schools and restaurants in order to help preserve and promote public health, as one component of their path to an improved economy. Dairy farmers fell in line with the Liberal agenda of appropriating any science or technology that might bring economic advantage. Such economic pragmatism was clearly on display in ads and advice columns that highlighted cost-saving new technologies in the *Maritime Farmer and Co-operative Dairyman* journal. This journal, as argued by Lewis, serving as a mouth-piece for the Liberal agenda, attacked only those farmer co-operatives with political and social reformist agendas while leaving the dairy farmers alone, since they shared Liberal economic priorities and were, therefore, not seen as politically dangerous. See Lewis, "Defeating the Farmers' Efforts," 55-60.

64 *Maritime Farmer* 30, no. 21 (23 June 1925): 12.

65 The suggestion, however, that attention to standards of hygiene would preserve the natural merits of milk was not universally shared. In a 1905 British report, one farmer is quoted as saying, "If the Almighty had intended that there should be no manure in the milk, he would have placed the udder at the other end of the cow." See P.J. Atkins. "White Poison? The Social Consequences of Milk Consumption, 1850-1930," *Social History of Medicine* 5, no. 2 (1992): 212.

66 See Doyle, *Front Benches and Back Rooms*; Woodward, *History of New Brunswick Provincial Election Campaigns*; Forbes, *The Maritime Rights Movement*; Forbes and Muise, *Atlantic Provinces in Confederation*; and Conrad and Hiller, *Atlantic Canada*.

small part, to the milk question.[67] The battle lines over milk pasteurization mirrored the wider political debate over the role of government and the issue of maintaining the economic viability of the dairy industry. Required to exploit the liquid milk market in growing urban centers, milk prices had to be affordable and pasteurization was simply too expensive. Fought on political and economic grounds, the debate over milk pasteurization had been aired, however, in terms of what constituted "natural" milk. For producers, milk subjected to pasteurization simply was not as natural as that which came straight out of the cow, while for Roberts only milk that had undergone the heating procedure would be pure and therefore natural enough to reduce deaths from milk-borne diseases. Yet even though his defeat was due, in part, to his support of the milk pasteurization regulations, the regulations themselves remained in place after the election. Other municipalities gradually began implementing similar pasteurization regulations and, by 1946, almost all urban centers in New Brunswick had milk supplies that were pasteurized.[68] And Roberts was not done either, returning to public office in 1935 and serving as the minister of the Department of Health and Labour until his death in 1938.

The establishment by Roberts of centralized government oversight of public health was, perhaps, one of his most important legacies. And his efforts to push for mandatory pasteurization of milk in 1923 in order to rid it of bovine tuberculosis made Saint John one of the first Canadian cities to participate in the nation-wide reform and modernization of public health and food safety regulations. Rather than merely exemplifying a triumphalist tale of the modernizing influences of science, medicine, and technology, however, the milk pasteurization debate reveals the influence of economic, political, and social reform forces in directing decisions. Focusing on the pressures New Brunswick dairy farmers felt to supply growing urban markets with milk provides a more nuanced understanding of the agricultural movement in early-20th-century New Brunswick. Unlike the political and social reformist agenda that underpinned the United Farmers Movement, it was primarily economics that drove the co-operative dairy movement.

Economic realities made farmers receptive to modern techno-scientific approaches to milk production. These same realities led farmers to reject pasteurization, simply because they feared it would drive up milk costs and put them out of business. Other studies, particularly of the anti-pasteurization debate in early-20th-century Britain, correlate a rejection of pasteurization with antimodernizing sentiments. In this view, rural farmers felt alienated from urban, reform-minded physicians and medical scientists who promoted the modern theories of bacteriology and public health reform by recommending such food safety processes as pasteurization. In contrast to the situation in Britain, however, New Brunswick dairy farmers did not recoil from

67 An article in the *Saint John Globe* (11 August 1925) reported that the government had been defeated because "people objected to being forced to drink pasteurized milk in Saint John."

68 *Report of the Chief Medical Officer (for the year ending October, 1946)* (Fredericton, NB: Government Press, 1947), 14. It would not be until 1967 that government officials in New Brunswick could report that "pasteurized milk is available in all areas of our province and the regulations under the Health Act require that all milk offered for sale be pasteurized." See *50th Annual Report of Chief Medical Health Officer (for year ending 31 October, 1967)* (Fredericton, NB: Government Press, 1968), 229.

modern technologies since these could help preserve competitiveness and profitability. There was no tense ideological divide between rural milk producers and urban public health interests as existed in Britain.[69] Rather, anti-pasteurization sentiment in New Brunswick, masked by a discourse of the natural, grew out of the economic self-interest of farmers. Utilizing the same discourse helped public health advocates dampen potential objections to their reforms. This study of what motivated improvements to milk safety in early-20th-century New Brunswick, therefore, broadens the scope of historical studies of the public health reform movement, especially as related to infant and child welfare. It also contributes to recent scholarship that links milk to an emerging politics of consumption in the 20th century.[70]

69 Keir Waddington. *The Bovine Scourge,* 153-74.

70 See Frank Trentmann. "Bread, Milk, and Democracy in Modern Britain: Consumption and Citizenship in Twentieth-Century Britain," in Martin Daunton and Matthew Hilton, eds., *The Politics of Consumption* (Oxford: Oxford University Press, 2001), 129-63.