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Workplace Health and Gender among Cotton Workers in America and Britain, c.1880s–1940s*

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ABSTRACT: This article clarifies the differences between occupational health and workplace health and reveals how the two overlap. It unravels a multi-layered narrative about cotton textile workers' understandings and experiences of ill-health at work in America and Britain, utilizing a combination of oral histories, government documents, company and union records, and the trade press. It aims to identify the multiple influences on contemporary debates about health at work. Contrary to current historiography, I argue that gender was only occasionally important to such discussions among workers, and that gender did not significantly influence their responses to unhealthy conditions. Workers' understandings of, and responses to, workplace hazards were individual and related to knowledge about risk, ill-health and socioeconomic factors. American and British workers' understandings of and responses to their working environment reveals more convergence than divergence, suggesting a universal human response to the health risks of work that is not significantly influenced by national or industrial constraints, or by gender.

Cotton textile manufacturing in America and Britain was one of the few trades where men and women could work alongside each other, performing the same tasks for the same rates of pay and experiencing the same workplace health hazards. The two cotton industries, centred in Lancashire and New England, grew rapidly during the nineteenth and early twentieth centuries and subsequently declined, albeit at different rates. While studies of industrial strategy and production choices in cotton textile

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manufacturing regularly compare Britain and America and relate gender to costs and manual dexterity, industrial health has received limited comparative attention. Analysing workers' understandings of and responses to an unhealthy working environment provides a multi-layered narrative involving official authorities, employers, medical advertising, and workers, in which the importance given to the role of gender depended on the context and discursive level. This article explores how working-class social realities influenced understandings of and responses to work-related health disorders, highlighting the similarity of the industrial experience across national and gender boundaries, thereby also broadening understandings of occupational health. Many causes of ill-health relate to both working and living conditions. Hence, workplace health encompasses ill-health experienced at work but not necessarily caused by it and overlaps with occupational health, or ill-health caused by specific work processes.

When men and women work alongside each other work-health relationships become entwined with broader histories of women's health and work, and of occupational health and safety. British histories of women's work-health relationship have followed broader histories of women's health, which argue that these issues rose to government interest tangentially through the development of maternal and child welfare policies in the early years of the twentieth century.[1] Industrial work histories have emphasized the dangers that work supposedly posed to women and their unborn children, focusing on how the British government introduced legislation to support a broader social agenda.[2] The health of unmarried girls in the workplace – the future mothers of Britain – became a legislative priority.

In America, too, social policy and historical debates have emphasized both working-class women's lack of agency and maternalist ideology.[3] In 1917, Alice Hamilton, physician, factory inspector, professor at the

1. E.g. Jane Lewis, *The Politics of Motherhood: Child and Maternal Welfare in England, 1900–1939* (London, 1980); Deborah Dwork, *War is Good for Babies and Other Young Children: A History of the Infant and Child Welfare Movement in England, 1898–1918* (London, 1989); Valerie Fildes, Lara Marks and Hilary Marland (eds), *Women and Children First: International Maternal and Infant Welfare, 1870–1945* (London, 1992); Seth Koven and Sonya Michel (eds), *Mothers of a New World: Maternalist Politics and the Origins of Welfare States* (New York, 1993); Seth Koven and Sonya Michel, "Womanly Duties: Maternalist Politics and the Origins of Welfare States in France, Germany, Great Britain, and the United States, 1880–1920", *American Historical Review,* 95, 4 (1990), pp. 1076–1108.

2. Barbara Harrison, *Not Only the 'Dangerous Trades': Women's Work and Health in Britain, 1880–1914* (London, 1996); Carolyn Malone, *Women's Bodies and Dangerous Trades in England, 1880–1914* (Woodbridge, 2003).

3. E.g. Kathryn Sklar, "The Historical Foundations of Women's Power in the Creation of the American Welfare State, 1830–1930", in Koven and Michel, *Mothers of a New World,* pp. 43–93; Richard Meckel, *Save the Babies: American Public Health Reform and the Prevention of Infant Mortality, 1850–1929* (Baltimore, MD, 1990); Sally Kenney, *For Whose Protection? Reproductive Hazards and Exclusionary Policies in the United States and Great Britain* (Ann Arbor, MI, 1993).

Harvard School of Public Health, and creator of the field of industrial toxicology, shifted the existing legislative emphasis on purely protecting women's health in factories to include hazards specific to reproductive health.[4] This marked a shift in workplace health policies reflecting gender and class norms that had previously sought to limit the hours that women could work, partly so that they had the time and energy to be a good mother. Indeed, assumptions about motherhood greatly influenced women's employment regulations,[5] although both historiography and social policy debates have prioritized the policy implications of such assumptions over medical and scientific rationales for sex-specific laws.[6] This article reveals how social and environmental factors influenced Lancashire and New England workers' conception of work-related disorders and did not necessarily correspond with the middle-class, gendered, social and political priorities.

In both countries, male experiences have dominated occupational health and safety discourses, with risk, cultures of masculinity, and the politics of compensation being the recurrent themes.[7] Broad labour issues, particularly legislation and compensation for occupational diseases, have overshadowed women's experiences of occupational ill-health. Where historiography has addressed gender, it has emphasized women's behaviour rather than their experiences at work. Women's occupational health has been overlooked due to wartime necessities or the ill workers have been removed from the health debates.[8] Trade unions, legislation, medical politics, employers and their

4. Alice Hamilton, "Possibilities and Limitations of Employment of Women in Industry", *Monthly Bulletin of the Pennsylvania Department of Labor and Industry,* 5 (1918), pp. 36–41, 37, 39, as cited in Allison Hepler, "From *Muller* to *Johnson Controls*: Mothers and Workplace Health in the US, from Protective Labour Legislation to Fetal Protection Policies", in Janet Greenlees and Linda Bryder (eds), *Western Maternity and Medicine, 1880–1990* (London, 2013), pp. 147–162, 147.

5. Allison Hepler, *Women in Labor: Mothers, Medicine, and Occupational Health in the United States, 1890–1980* (Columbus, OH, 2000).

6. E.g. Alice Kessler-Harris, *Out to Work: A History of Wage Earning Women in the United States;* Susan Lehrer, *Origins of Protective Labor Legislation for Women, 1905–1925* (Albany, NY, 1987); Koven and Michel, 'Womanly Duties'; Theda Skocpol, *Protecting Soldiers and Mothers: Political Origins of Social Policy in the United States* (Cambridge, MA, 1995).

7. Arthur McIvor and Ronald Johnston, *Miners' Lung: A History of Dust Disease in British Coal Mining* (Aldershot, 2007); Arthur McIvor and Ronald Johnston, "Dangerous Work, Hard Men and Broken Bodies: Masculinity in the Clydeside Heavy Industries, c.1930–1970s", *Labour History Review*, 69, (2004), pp. 135–152; Mark Aldrich, *Death Rode the Rails: American Railroad Accidents and Safety, 1828–1965* (Baltimore, MD, 2006); Mark Bufton and Joseph Melling, "'A Mere Matter of Rock': Organised Labour, Scientific Evidence and British Government Schemes for Compensation of Silicosis and Pneumoconiosis among Coalminers, 1926–1940", *Medical History,* 49 (2005), pp. 155–178; David Rosner and Gerald Markowitz, *Deadly Dust: Silicosis and the Politics of Occupational Disease in Twentieth-Century America* (Princeton, NJ, 1991).

8. Antonia Ineson and Deborah Thom, "T.N.T. Poisoning and the Employment of Women Workers in the First World War", in Paul Weindling (ed.), *The Social History of Occupational*

organizations, and sanitation have dominated debates about cotton textile manufacturing,[9] whereas women's contributions to trade unions and, indeed, the broader labour movement have been marginalized.[10] Overall, British and American historiography about industrial illness and injury emphasizes how capitalist neglect, official indifference, and compensation took precedence over better health and safety standards – although the dynamics of each situation varied according to individual case studies.

This article examines the lesser known and often informal actions of individuals and groups of cotton operatives between the 1880s and 1940s, the period when cotton cloth manufacturing in Lancashire and New England shifted from industrial growth to terminal decline after World War I. Throughout, operatives in both regions daily calculated the health risks associated with work and sought to address such risks when the boundary of what they deemed "acceptable" working conditions was crossed. This boundary was fluid and only sometimes corresponded with trade union or political agendas. It was also entwined with the agendas of employers and official authorities and was furthermore influenced by medical advertising. In both Lancashire and New England, workers' agency in responding to hazards depended on the relevant personal, industrial, and economic constraints, including the condition of the local labour market. When the need to earn a wage dominated priorities, operatives' responses included coping strategies. Utilizing a combination of workers' papers, oral history

Health (London, 1985), pp. 89–107; Angela Nugent, "The Power to Define a New Disease: Epidemiological Politics and Radium Poisoning", in David Rosner and Gerald Markowitz (eds), *Dying for Work: Workers' Safety and Health in Twentieth-Century America* (Bloomington, MN, 1987), pp. 177–191; Gail Braybon, *Women Workers in the First World War* (London, 1981); Claudia Clark, *Radium Girls: Women and Industrial Health Reform, 1910–1935* (Chapel Hill, NC, 1997).

9. Geoffrey Tweedale and Sue Bowden, "Poisoned by the Fluff: Compensation and Litigation for Byssinosis in the Lancashire Cotton Industry", *Journal of Law and Society,* 29:4 (2002), pp. 560–579; Sue Bowden and Geoffrey Tweedale, "Mondays without Dread: The Trade Union Response to Byssinosis in the Lancashire Textile Industry in the Twentieth Century", *Social History of Medicine,* 16:1 (2003), pp. 79–95; Arthur McIvor, "State Intervention and Work Intensification. The Politics of Occupational Health and Safety in the British Cotton Industry, c.1880–1914", in Ad Knotter *et al.* (eds), *Labour, Social Policy, and the Welfare State* (Amsterdam, 1997); Alan Fowler, *Lancashire Cotton Operatives and Work, 1900–1950: A Social History of Lancashire Cotton Operatives in the Twentieth Century* (Aldershot, 2003), chapter 6; Robert Botsch, *Organizing the Breathless: Cotton Dust, Southern Politics, and the Brown Lung Association* (Lexington, KY, 1993); Charles Levenstein, *et al., The Cotton Dust Papers: Science, Politics, and Power in the "Discovery" of Byssinosis in the U.S.* (Amityville, NY, 2002); Charles Levenstein, *et al.*, "Labor and Byssinosis, 1941–1969", in Rosner and Markowitz, *Dying for Work,* pp. 208–223; Christine Hallett, *et. al.,* "The Struggle for Sanitary Reform in the Lancashire Cotton Mills, 1920–1970", *Journal of Advanced Nursing,* 48, 3 (2004), pp. 257–265.

10. For a recent historiographical summary, see Louise Raw, *Striking a Light: The Bryant and May Matchwomen and their Place in History* (London, 2011), Chapter 2.

collections, government documents, and health reports, this article argues that the importance of gender in workplace health debates depended on the context and the dominant actors, but was never of central importance to workers. Instead, individuals and groups of workers daily determined the workplace health risks and responded accordingly. Risk was not determined by political and technical processes.[11] Rather, in both regions, the social and economic context dominated workers' decision-making and was not overtly gendered.

Firstly, this article provides the health context of the cotton textile manufacturing regions of Lancashire and New England, with the textile mills of the American South excluded from analysis due to differences in industrial structure, labour, and the timing of industrial change.[12] The focus is the chronic health risks associated with cotton manufacturing, rather than accidents or compensation campaigns against life-threatening diseases, such as mule-spinners' cancer and byssinosis – the respiratory disease whereby lung capacity is increasingly restricted after prolonged exposure to cotton dust. Because many chronic health problems attributable to textile work had multiple contributing agents – for example, pneumonia, bronchitis, and hearing loss – these were not high on the political reform agenda. Moreover, as with many health problems, individual and collective responses to the perceived workplace hazards varied depending on context. Secondly, it analyses the changing knowledge and expectations about work-health relationships and responsibilities, revealing contrasting understandings of workplace health between politicians, medical professionals, employers, workers, and their representatives. Thirdly, it analyses the formal and informal strategies men and women cotton operatives utilized to address an unhealthy workplace, demonstrating the fluidity of the relationship between the working environment, health, and gender. It reveals how, through periods of industrial growth and subsequent decline, gender was more important to official authorities than it was to workers. The medical market, social reformers, and employers all utilized gender to suit their agendas. Unlike debates about industrial structure and strategy and union activism, workers' understandings of and responses to the working environment in both countries reveals more convergence than divergence, where social and economic realities superseded national and industrial constraints as well as gender. These contextual relationships at any given point in time determine health priorities and responses – both formal and informal.

11. Joseph Melling, "The Risks of Working and the Risks of Not Working: Trade Unions, Employers and Responses to the Risk of Occupational Illness in British Industry, c.1890–1940s", *ESRC Centre for Analysis of Risk and Regulation Discussion Paper, 12* (2003), pp. 14–34.

12. For health in the southern industries, see Botsch, *Organizing the Breathless,* and Edward Beardsley, *A History of Neglect: Health Care for Blacks and Mill Workers in the Twentieth-Century South* (Knoxville, TN, 1987).

TEXTILE REGIONS, OCCUPATIONAL HEALTH AND RESPONSIBILITY

Historically, the cotton industry has been labelled one of the pillars of industrialization in both Britain and America. In eighteenth- and nineteenth-century Britain, the industry found its ideal location in Lancashire where the humid climate aided the fragile cotton fibres. Towns such as Blackburn, Burnley, Bolton, Preston, Oldham, and Nelson became synonymous with cotton textile manufacturing. Both men and women entered the mills, particularly in towns where cotton textile manufacturing dominated the local economy, including Blackburn and Burnley. Towns with more diverse economies, including Bolton and Preston, provided greater employment opportunities for males, while textiles remained a better paid choice for females. Cotton manufacturing expanded in a largely unregulated manner until the mid-nineteenth century, when concerns grew about the impact of mill work on operatives' health and the high morbidity and mortality rates in many Lancashire towns.[13] That said, regulation was gradual and piecemeal and aimed more at restricting women's labour than reforming working conditions.

In nineteenth-century America, entrepreneurs found the abundant rivers and available female labour in New England ideal for cotton textile manufacturing. While isolated rural mills survived, the Massachusetts towns of Lowell, Holyoke, Fall River, New Bedford, and Lawrence became thriving textile communities, employing men, women, and sometimes children. Increased immigration during the latter years of the nineteenth century provided a ready supply of labour for the mills. The low wages paid frequently required more than one family member to work in order to sustain the household, with over half the weavers of cotton goods in the United States being women and young people by 1905.[14] Factory regulation in America was state specific and, similar to British legislation, Massachusetts legislation was gradual and piecemeal, prioritizing restricting the working hours of women and children rather than industrial reform. Indeed, the concentration of cotton textile manufacturing in particular areas of the two countries created a regional component to occupational diseases and their regulation.[15] In both countries, health and safety laws and the evolution of factory inspection were strongly shaped by mill

13. Janet Greenlees, "The Dangers Attending these Conditions are Evident": Public Health and the Working Environment of Lancashire Textile Communities, c.1870–1939", *Social History of Medicine,* 26, 4 (2013), pp. 672–694, 676, 678.

14. *Census of Massachusetts,* (1905), part III, p. 50, as cited in "The Mortality from Consumption in Dusty Trades", *The Bulletin of the United States Bureau of Labor Statistics, Vol. XVII 1908,* No. 791–A (Washington, DC, 1909), p. 740.

15. Geoffrey Tweedale, "Occupational Health and the Region: The Medical and Socio-legal Dimensions of Respiratory Disease and Cancer in the Lancashire Textile Industry",

experiences.[16] Consequently, both mill operations and the labour force were under regular observation by social reformers and politicians, whose priorities were influenced by factors external to the mill, rather than internal ones.

The health risks specific to mill work are well recorded, with causation both occupational and environmental. Long hours and the gruelling pace of work caused fatigue and migraines. Cotton and size dust caused or exacerbated multiple respiratory problems, including bronchitis, pneumonia, and tuberculosis. Long-term exposure could also cause byssinosis, which acquired its medical name between 1885 and 1890. Dust was a particular problem in raw cotton processing, while weavers were concerned about both dust inhalation and contagious diseases through the use of the suction shuttle, which required weavers to use their mouth to repeatedly draw thread through a tiny hole. Excessive heat and humidity contributed to high levels of respiratory illnesses, including pneumonia and bronchitis, and could cause rheumatism. Poor lighting strained operatives' eyes, while excessive machine noise could eventually cause deafness. And, from 1922, the carcinogenic lubricating oils used on spinning mules were a recognized problem in Lancashire.[17] Indeed, the risks attributable to textile work were such that in 1914 the British government classified working in cotton factories a "dangerous" trade, despite the comparatively low rate of work injuries and fatalities compared with other industries.[18] By World War I, the government had regulated many workplace hazards, yet employers repeatedly breached the legislation. In 1903 alone there were 569 recorded breaches of the Cotton Cloth Factories Act, which regulated heat and humidity, in addition to those that went unrecorded.[19] Moreover, the factory inspectorate was grossly understaffed and many workers had never known an inspector visit their firm.[20]

With similar timing to Britain, in 1915, the Massachusetts Industrial Accident Board labelled the cotton manufacturing industry the state's second most dangerous, surpassed only by iron and steel.[21] Despite

in John Wilson (ed.), *King Cotton: A Tribute to Douglas A. Farnie* (Lancaster, 2009), pp. 325–341; Levenstein, *et al.*, *Cotton Dust.*

16. Eddie Crooks, *The Factory Inspectorate: A Legacy of the Industrial Revolution* (Stroud, 2005), pp. 8–23.

17. Terry Wyke, "Mule Spinners' Cancer", in Alan Fowler and Terry Wyke, (eds), *The Barefoot Aristocrats: A History of the Amalgamated Association of Operative Cotton Spinners* (Littleborough, 1987), pp. 184–196.

18. McIvor, "State Intervention", pp. 138, 139; Arthur McIvor, *History of Work in Britain, 1880–1950* (London, 2001), p. 120

19. F. S. Crum, "The Health and Mortality of the Cotton-Mill Operatives of Blackburn, England", *New York Medical Record,* 11 August (1906), p. 19.

20. McIvor, *History of Work,* p. 129.

21. State House News Service, as cited in the *Lowell Courier,* 21 January 1915.

Massachusetts' progressive labour legislation and despite the Bureau of Labor's studies about the dusty trades from 1903, *preventive* legislation that would have protected workers' health and safety was absent other than the 1911 ban of the suction shuttle from public health concerns over tuberculosis. While State and Federal officials readily noted the health risks attributable to textile work, Massachusetts legislation prioritized women's and children's working hours (1874), employer's liability for accidents (1887), and Workers' Compensation (1912). Similar to the situation in Lancashire, legislative enforcement was limited, with factory inspections few and the department understaffed and underfunded. While occupational legislation secured limited factory health reforms, responsibility for working conditions and for managing ill-health remained predominantly with employers and workers.

Cotton manufacturers blamed workers for accidents and workplace ill-health. In 1920, the *Textile World Journal* neatly summarized the Massachusetts' employers' arguments that had been reiterated in testimony to state inquiries over the previous fifty years and which government officials largely seem to have accepted:

> Textile workers are apt to be careless, ignorant of the dangers of infection and disease, not always cleanly, and many of the alien rather prefer to herd together in their habitations. They have borne the ill effects of accident and sickness with a stoicism handed down through several generations. They have accepted these ills as the customary lot of their class, without much thought that they could be alleviated, and without dreaming that in large measure they might be eliminated.[22]

Blaming the victim and holding workers accountable for accidents and acute diseases under an assumption of risk, fit the broader ideology of the American legal system through the first two decades of the twentieth century. Yet, consensus about responsibility was lacking. Some Progressive Era employers acknowledged the work-health connection, recognizing the production benefits from improved working conditions and linking responsibility with profits; others did not.

Lancashire employers also blamed workers for their own ill health, bemoaning in 1914 that: "How is it that the factory is always denounced as the only cause of sickness? Overcrowded housing, careless dietary, and habits that make for ill-health never seem to enter the calculations of the [trade union] officials".[23] Responsibility for ill-health was placed on the workers, their lifestyles, dietary choices, and carelessness.

> How much, for instance, have the conditions of the home got to do with sickness, especially the almost always closed bedroom windows. How much is a careless

22. *Textile World Journal,* 7 February 1920, p. 200.
23. *The Textile Mercury (*hereafter *TM),* 9 May 1914, p. 369.

system of dietary responsible for illness? And how much carelessness in other matters that need not be specifically indicated?[24]

To employers, health problems were the fault and prevention the responsibility of workers. Nevertheless, in both Lancashire and Massachusetts, without firm workplace legislation variations in working conditions between firms remained as employers sought to maximize production.

For their part, workers and their unions needed to balance the health risks attributable to work with those of not working – particularly the risk of no income. Yet, while documentary and some oral testimony supports Elizabeth Roberts idea of a "social calm" in Lancashire, whereby people accepted their lot, including poverty and poor conditions, and which is reflected in the absence of class protest,[25] this does not mean operatives were always deferential and submissive or that they left industrial health to their unions. Similarly, Mary Blewett has argued that, in Massachusetts, the female mill workers of Lowell accepted their lot as working-class children, with all that it entailed, from leaving school at a young age to many years in the mills.[26] Yet, while health did not always dominate workers' priorities, this should not imply worker passivity. Rather, this article suggests that workers' priorities were fluid and dependent on personal and industrial circumstances, particularly because many health issues related to both the working and living environment.

BIOMEDICAL KNOWLEDGE AND EXPECTATIONS ABOUT HEALTH AT WORK

From the late nineteenth century, formal medical knowledge about the workplace causes of ill-health grew alongside developments in biomedicine, while health expectations in mill communities were tempered by living conditions. Levels of understanding about different workplace diseases varied, but in the latter decades of the nineteenth century the leading fear in both Lancashire and Massachusetts was tuberculosis. The medical community raised concerns about the spread of TB into the factory before medical knowledge differentiated byssinosis and tuberculosis. It was 1902 before the British physician Thomas Oliver recognized byssinosis as one of the four types of pneumoconiosis, or industrial lung diseases.[27] Nevertheless, distinguishing between industrial and contagious respiratory

24. *TM,* 30 May 1914, p. 438; see also 10 May 1890; 3 January 1891, pp. 5–6; and 13 August 1914.
25. Elizabeth Roberts, *A Woman's Place: An Oral History of Working-Class Women, 1890–1940* (Oxford, 1984), pp. 46–47.
26. Mary Blewett, *The Last Generation: Work and Life in the Textile Mills of Lowell, Massachusetts, 1910–1960* (Amherst, MA, 1990), p. 31.
27. Thomas Oliver, *The Dangerous Trades* (London, 1902), p. 273.

illnesses, particularly byssinosis and bronchitis, remained difficult well into the twentieth century. It was the mid-1950s before the British physician, Richard Shilling, made significant progress in separating the two and 1969 before the American medical community acknowledged that byssinosis was, indeed, a disease.[28]

A different trajectory of understanding followed industrial deafness. In 1911, the Massachusetts' legislature acknowledged that certain occupations associated with loud noises produced permanent injury to the ear, including weaving. Yet, deafness was not considered the serious handicap for weavers that it was for other occupations. Rather, weavers' deafness was merely seen as an "inconvenience".[29] It was the 1920s before audiometric techniques were developed and 1942 before a hearing impairment formula was developed and accepted by the American Medical Association.[30] Hence, until the 1940s, medical consensus was lacking about the boundary between hearing loss and deafness as well as about the causes.[31] With similar timing, in the 1930s, the British government's Industrial Health Research Board conducted experiments about the effects of excessive noise on weavers' efficiency, concluding in 1935 that:

> it may be doubted whether complete immunity from the inimical effects of excessive noise can ever be acquired so long as normal hearing is retained, and that the development of partial deafness appears to be the only effective protection which the individual can acquire.[32]

The following year, the *British Medical Journal* further deflected attention about hearing loss from the factory, arguing that it was "by no means easy to define precisely the working conditions which are in themselves calculated to produce partial or total deafness in a given time".[33] Clearly, well into the twentieth century, both governments and medical communities in Britain and the United States were unable or unwilling to link specific health problems to work, making easier employers' ability to ignore the working environment. Consequently, operatives lacked a formal, medical framework to which to attach any physical symptoms they believed were caused by occupation. Instead, workers' expectations and knowledge about

28. R. S. F. Schilling, "Byssinosis in Cotton and other Textile Workers", *Lancet,* 2 (1956), pp. 261–265 and 319–325.
29. Paul. S. Peirce, "Industrial Diseases", *The North American Review,* 1 October 1911, pp. 529–540, 532.
30. R. E. Grinnold, *Occupational Hearing Loss: Workers Compensation Under State & Federal Programs,* (Ann Arbor, MI, 1979), p. 4.
31. Roy Mills, "Noise Reduction in a Textile Weaving Mill", *American Industrial Hygiene Association Journal,* 30:1 (1969), pp. 71–76.
32. H. Weston and S. Adams, *The Performance of Weavers under Varying Conditions of Noise,* Industrial Health Research Board, Report No. 70 (London, 1935).
33. "Occupational Deafness", *BMJ,* 2 (3959), 21 November 1936, p. 1037.

the working environment was based on a personal model of illness, not a medical model, where many health issues translated to both working and living conditions.

While experiences of illness are individual, mill workers noted similarities of symptoms and the work-health connection. However, ill-educated workers focused on their immediate health and did not foresee any long-term health hazards from mill work. In the 1840s, Lowell operatives complained to family and friends how the dust and noise of the mills made them feel unwell.[34] By 1910, the majority of operative admissions to the Lowell Corporation Hospital, owned by the textile employers, were for respiratory problems.[35] In the 1920s and 1930s, mill workers still noted how inhaling textile dust made their breathing "uncomfortable", but did not understand the physiological implications. Some workers stoically commented that "you get used to it [the dust]",[36] while others identified a work-health connection. For example, Valentine Chartrand, who spent over twenty years working in the Lowell mills from World War I noted, "Because in the winter the windows are all closed, you know? And all you get is that lint flying around. And you breathe a lot of that. And I always had a feeling that wasn't good for your lungs […]".[37] Carder and dye house worker, Sydney Muskovitz, who entered the Merrimack Mills of Lowell in 1937, noted that "And before I got hired, I was told, keep your eyes open, ears open, and your mouth shut [because of the dust and dirt]. The superintendent says […] That [carding] is the most miserable, hottest, dangerous job I ever had". Thirty years later, Muskovitz found that, "I couldn't breathe, getting dizzy. Pains in the chest […] I believe it was the heat and the dust that irritated my heart".[38] He had never heard of byssinosis, possibly because there were few cases of byssinosis in New England.[39] Despite lacking the medical language, both male and female operatives clearly recognized the work-health relationship between dust and respiratory problems, but not the longer-term health consequences until it had become too late.

34. Lowell National Historic Park, LOWE 5130 Sophia Eaton to her mother, Mrs Betsey Eaton, 6 July 1847; LOWE 14425, Lydia A. Dudley to cousin Miss Olive Elzadah Dudley, Raymond, NH, 22 August 1847.

35. Mary T. Mulligan, "Epilogue to Lawrence: The 1912 Strike in Lowell, Massachusetts", in Mary Blewett, (ed.), *Surviving Hard Times: The Working People of Lowell* (Lowell, MA, 1982), pp. 79–103, 87.

36. National Child Labor Committee, "The Child in the Cotton Mill", (New York: Pamphlet 260, March 1916), p. 5; University of Lowell, Center for Lowell History, Working People of Lowell (WPOL), 85.26, Grace Burke.

37. Center for Lowell History, Mill Workers of Lowell (MWOL), 84.01 Valentine Chartrand.

38. MWOL, 84.09 and 86.31, Sidney Muskovitz.

39. Mark Aldrich, "Mortality from Byssinosis among New England Cotton Mill Workers, 1905–1912", *Journal of Occupational Medicine,* 24, 2 (1982), pp. 977–980.

In the mid-twentieth century, Lancashire mill workers' knowledge about biomedical and legislative developments concerning dust inhalation, its regulation, and the term byssinosis remained limited. They did not realize the potential for cotton dust to permanently damage health. For example, Mona Morgan worked in the cardroom between the 1930s and 1970s and, at the time of her interview, suffered from byssinosis. She claimed that: "If anyone would have told me this would happen, I wouldn't have gone in".[40] Fellow byssinosis sufferer and ring room worker between the 1940s and 1980s, Ethel Fielding noted, "We were never told anything like that. You never dreamt of work hazards".[41] Cardroom worker May Mitchell, employed in the 1930s and 1940s, confirmed that she had "Never heard the word [byssinosis], never heard the word till years after come out of t' mill".[42] Yet, from before World War I, trade union campaigns fought to secure compensation for male byssinosis sufferers, succeeding in 1941, suggesting that some men were aware of the health impact from long-term dust exposure. Indeed, the British discourse of byssinosis was predominantly male, comprising trade unions, medics, and government officials – not operatives.[43] While byssinosis compensation was extended to women from 1948, for years, ignorance of the disease and the law remained amongst women. Gendered understandings of the dust-disease relationship translated to unions and compensation, not reform or education.

Mill-workers could not avoid the deafening noise of machines. Yet, well into the twentieth century they remained unaware of the long term effects of exposure and did not consider industrial noise "dangerous".[44] Massachusetts mill worker Rene Desjardins noted that: "At that time, nobody knew anything about that [industrial deafness]",[45] while Mabel Mangan remembered that "The noise would drive you out of your mind […] but we didn't know it could hurt you".[46] Instead, the weavers compensated for hearing loss by either shouting directly into another's ear or by communicating with their hands in a crude type of sign language.[47] Twentieth-century Lancashire mill workers also complained about the noise. George Wrigley remembered how "The noise was horrendous. But, like anything else when you're young, you just take it.

40. Northwest Sound Archive (NWSA): Mona Morgan, b. 1922, cardroom worker, 1936–1946 and 1953–1970s; see also NWSA: Elsie Hansford, ring-, card- and winding room worker.
41. NWSA: Ethel Fielding, ring room worker, 1941–1980s.
42. NWSA: May Mitchell, cardroom worker, 1936–1946.
43. Tweedale and Bowden, "Poisoned by the Fluff" and "Mondays without Dread".
44. E.g. MWOL: 85.01 Rene Desjardins; 84.04, Blanche Graham; 85.03, Edward Hart; 84.02, Mabel Mangan; 85.04, Diane Ouellette; 84.08, Narcissa Hodges.
45. MWOL: 85.01 Rene Desjardins; WPOL: 85.29, John Falante.
46. MWOL: 84.02 Mabel Mangan; WPOL: 85.26, Grace Burke.
47. MWOL: 84.08 Narcissa Hodges.

It's your job. You've gone into it, get on with it".[48] Weaver Marjory Shaw remembered that:

> Oh, it was very noisy. But I knew that. Ahh, I knew it was noisy, but all the family had gone weaving, so I thought, well, it's in the blood. Foolish, you know. Very foolish, but there it is. And, ah, it didn't bother me, cause everybody was talking with yer lips, you know, lip reading, and you could have a conversation and nobody would know what you were talkin', only you who were eye to eye.[49]

Lancashire weavers were reputed for their lip-reading abilities, which enabled them to communicate. Yet, their denial of potential deafness was related to the gradual nature of the hearing loss. They could still communicate and friends and neighbours did not react to it. Throughout both regions, deafness was a socially accepted problem for men and women that could be overcome and one in which science, society, labour, and politics had little interest.

While operatives in both regions recognized that certain aspects of millwork made them feel unwell, the social context of the living environment tempered their understandings and expectations of health. Overcrowding, poverty, and poor sanitation featured in the textile towns of both Lancashire and New England. While direct comparisons are difficult, it is probable that the damp, stone houses of Lancashire were unhealthier than the wooden homes of New England. That said, the public health initiatives and agendas of different Lancashire town councils and their Medical Officers of Health suggest considerable variations in the living and working conditions between communities.[50] In Massachusetts, too, living and working conditions varied within and between communities, with Fall River living conditions reputedly some of the worst; rivalling those in parts of Lancashire.[51] Hence, within each region and, indeed, each town, the importance of both the living and working environment to the public health agenda fluctuated, making difficult any unified campaigns for workplace health reform.

Social factors meant that Lancashire women's health was frequently weaker than men's, more so than their New England counterparts and excluding the universal impact of pregnancy. American wages were higher than those in Lancashire. Nevertheless, diet and the quantity and quality of food varied between towns. Archaeological digs in Lowell revealed that skilled workers on higher pay, unsurprisingly, were more likely to have

48. *Nation on Film*, 2003, George Wrigley. Tom Young noted: "Within the first week, I was violently sick. The noise levels were extremely high. But it was a fact of life, you just went in". Raymond Watson recalled "They just didn't seem to bother about people goin' deaf".
49. NWSA: Marjory Shaw.
50. Nigel Morgan, *Deadly Dwellings: The Shocking Story of Housing and Public Health in a Lancashire Cotton Town: Preston from 1840–1914* (Preston, 1993); Greenlees, "The dangers".
51. John Cumbler, *Working-Class Community in Industrial America: Work, Leisure, and Struggle in Two Industrial Cities, 1880–1930* (Westport, CT, 1979), pp. 105–109, 114–117, 135.

better quality food than unskilled workers. Yet, the unskilled workers residing in Lowell boarding houses had sufficient food and did not note gender differences in diet, quantity or quality. During the textile recession of the 1920s and 1930s, families strove to ensure "three squares a day" for all members.[52]

In contrast, late nineteenth-century Fall River workers had poor diets in both quality and quantity, but the vital contribution of multiple family members to the household budget required all to have a fair share of the available food.[53] While family circumstance determined whether American women needed to enter the paid labour force on a short-term, intermittent, or long-term basis, society acknowledged women as essential contributors to the economy. In contrast, Lancashire diets were generally more meagre than those in New England, with cheap, filling foods rather than nutrition being the priority.[54] When times were hard, women and young girls often had the smallest portion at family mealtimes, lowering their resistance to disease[55] and making the long days in the mills more difficult. Through the mid-twentieth century, social reformers ignored economic realities and prioritized morality, a male-breadwinner and women's primary role being that of mother and homemaker. These factors, combined with the longer manufacturing decline than in New England, suggest that Lancashire women textile workers may have been consistently physically weaker than both their American counterparts and their male colleagues in their ability to cope with an unhealthy workplace. Variations aside, urban living conditions in both countries were bleak, with high mortality and morbidity rates. Being unused to a healthy living environment makes it unsurprising that textile operatives' tolerated some discomfort in the working environment.

Textile workers' expectations about health and the working environment were continuously entwined with social realities. In a life of low wages and substandard housing, with a need to earn money and limited employment opportunities, both Lancashire and Massachusetts textile workers accepted certain health risks attributable to the workplace, including dust, accidents,

52. Stephen Mrozowski, *et al., Living on the Boott: Historical Archaeology at the Boott Mills Boardinghouses, Lowell, Massachusetts* (Amherst, MA, 1996), pp. 60–64; Blewett, *Last Generation,* pp. 31–32.

53. Cumbler, *Working Class,* pp. 118, 122, 132, 134; U.S. Department of Labor, *Women and Child Wage Earners,* p. 754; *Massachusetts Child Labor Bulletin* (Boston, 1917), p. 214.

54. Rex Pope, *Unemployment and the Lancashire Weaving Area, 1920–1938* (Preston, 2000), pp. 73–75; Miriam Glucksmann, *Cottons and Casuals: The Gendered Organisation of Labour in Time and Space* (Durham, 2000).

55. Robert Roberts, *The Classic Slum: Salford Life in the First Quarter of the Century* (Manchester, 1971; 1977 rpt), pp. 108–109; 110; Derek Oddy, "Urban Famine in Nineteenth Century Britain: The Effect of the Lancashire Cotton Famine on Working-Class Diet and Health", *Economic History Review,* 36:1 (1983), pp. 68–86.

and noise. Yet, both men and women operatives did not expect these risks to have long-term health consequences extending outside the factory walls. Such dissonance between means and ends, responsibilities and understandings of workplace hazards, left mill workers to daily address what they understood to be the immediate health risks attributable to work, rather than seeking prevention of long-term health conditions.

OPERATIVES' RESPONSES TO WORKPLACE HEALTH HAZARDS

Cotton operatives' responses to what they perceived to be the health risks of work were entwined with relationships with their trade unions, employers, and governments and influenced by local factors, including available medicines. Moreover, workers' attitudes and reactions to an unhealthy working environment cannot be pigeonholed. Rather, they reveal the multiple attitudes and methods workers adopted to address the workplace health risks, which only grew during the interwar recession as production was speeded up on outdated machines, increasing levels of noise and fatigue.[56] Throughout, coping strategies could include collective action, such as spontaneous protests and strikes, both with and without trade union support. At the same time, operatives supported union reform campaigns. What emerges is a universal picture of cotton operatives who were consistently concerned about the impact poor working conditions had on their immediate health, alongside a gendered commonality of experience and response. The exception is women who retained their traditional familial role as healthcare provider. Individually and collectively, workers dealt with whatever life threw at them, rather than merely accepting it, as Hallet *et al.* have argued.[57]

The working environment was firm specific which prevented sustained, widespread action for reform. Individual firms earned reputations for their working conditions, making some firms more desirable places to work than others. In the 1880s, the Granite Mills in Fall River began improving their factory environment by tackling the high heat and humidity levels. The firm continued investing in new technologies into the 1920s. Not only did some new machines meet legislative requirements, they also earned the firm a good reputation.[58] Similarly, the Merrimack, Hamilton and Bunting Mills

56. O. Howarth, (ed.), *Textile Voices: Mill Life This Century* (Bradford, 1989), p. 31; McIvor, *History of Work,* pp. 140–141.

57. Christine Hallett, *et al.,* "Industry and Autonomy in Early Occupational Health Nursing: The Welfare Officers of the Lancashire Cotton Mills in the Mid-Twentieth Century", *Nursing History Review,* 14 (2006), pp. 89–109, 104.

58. Thomas R. Smith, *The Cotton Textile Industry of Fall River, Massachusetts: A Study of Industrial Localization* (New York, 1944), p. 58; Fall River Historical Society, Granite Mills, Record Book of the Directors Meetings, 23 October 1911–31 December 1928, 23 December 1912.

in Lowell also invested in more modern technologies. By the end of the nineteenth century, these employers recognized the production benefits that translated from reforming the mill environment to improving the health of their workforce, while operatives found these firms more desirable places to work.[59] In contrast, in 1932, the fire insurance company identified the Boott Mills of Lowell as the dirtiest and dustiest firm in the American textile industry. The Boott also ignored legislation about humidity, child labour, and sanitation. Consequently, when possible, Boott operatives sought employment elsewhere.[60] In Lancashire, too, mill workers regularly switched employers when dissatisfied with conditions.[61] Oldham operatives remembered how the working environment in the Bee and Maple Mills was better than at the Borough or Monarch Mills, being cleaner and having newer technology that minimized atmospheric dust.[62] These employers recognized the production benefits of technological investment, while workers reaped the health benefits.

In both countries, women workers were more likely than men to switch jobs or firms because they were denied access to more highly skilled, better paid jobs like loom fixing. Equally, a poor working environment hastened some operatives' exit from the textile labour market.[63] In New England, cotton manufacturing left the region more rapidly than in Lancashire and where, in some towns, employment options in other industries grew during the twentieth century. From the 1940s, light industry and electronics firms moved into Lowell, providing jobs with better pay and conditions than the mills, especially for women. Nevertheless, in both regions the regular switching of firms and jobs provided women with a sense of empowerment in an otherwise powerless environment because the mills offered little opportunity for either advancement or consistent employment. Switching employers demonstrated individual worker agency, although the way in which this agency was expressed remained locally determined.

59. Janet Greenlees, "'Technological Change and Environmental Inequalities': The New England Textile Industry, 1880-1930", in G. Massard-Guilbaud and R. Rodger, (eds), *Environmental and Social Justice in the City: Historical Perspectives* (Winwick, 2011), pp. 249–270; MWOL 85.04 Diane Ouellette; MWOL 85.03 Jean Rouses.

60. Lawrence Gross, *The Course of Industrial Decline: The Boott Cotton Mills of Lowell, Massachusetts, 1835–1955* (Baltimore, MD, 1993), pp. 133–138, esp. 134; 136; 137; MWOL 84.04 Blanche Graham.

61. Roberts, *Woman's Place,* pp. 46–47.

62. NWSA: Elsie Hansford; Hallett, *et al*., "Struggle", p. 260; NWSA, Harvey Kershaw, "The conditions in the mill were very much dependent on the employer"; NWSA: Bill Disby and Joe Richardson, "Conditions always varied".

63. E.g., MWOL: 84.04, Martha Doherty and Blanche Graham; 85.08, Raymond Gaillardetz; 85.03 Edward Hart; 84.02, Mabel Mangan.

Workers in both Lancashire and New England developed coping strategies when switching employers was not possible, when the risk of not working was greater than the health risks of working, or when the health risks associated with work were within the boundaries of "acceptable" risk. Although varied, there were similarities in the strategies workers used to cope with the factory health risks. For example, dust inhalation caused workers to cough and sometimes vomit. To try and remove the dust from their mouth and lungs, workers spat.[64] When this did not work, well into the twentieth century, both men and women chewed tobacco to induce coughing to try and clear the airways.[65] To workers, spitting served an immediate, practical, preventive health function. Such actions had no direct effect on employers' technological choices, but elicited both social and political responses. Social reformers considered "spitting" a disgusting habit, particularly by women; while early twentieth century public health officials argued that spitting spread disease.[66] The emphasis on morality and contagion prevented social or professional support for workers needing causational reforms from employers.

The public moral priority, combined with legislative indifference, led operatives in both countries to turn to kinship and friendship networks and "wise women" for advice on managing the ill effects of work, while utilizing patent medicines to alleviate discomfort.[67] Indeed, the multiple health problems, made cotton regions a ready market for patent medicines, especially when whole families were employed. It is unsurprising that two of the leading patent medicines, Beechams in Britain and Father John's Medicine in America, were developed in the textile regions. By the 1920s, these firms had clearly identified women as the core purchasers of medicine and targeted them in advertising family remedies.[68] As both victims of occupational maladies and in charge of the household health, women provided a dual market for patent medicines.

Late nineteenth- and twentieth-century Beecham's adverts claimed that their pills cured consumption, fatigue, and women's problems. In 1918, Beecham's advertised in the operatives' newspaper, the *Cotton Factory Times,* that Beecham's Pills were designed for "Weary Women Workers". They could prevent or cure fatigue.[69] While initially advertised as a cure-all,

64. E.g. *Cotton Factory Times* (hereafter *CFT*), 17 February 1911.
65. E.g. Blewett, *Last Generation,* pp. 152, 179; JG. Interview with Anon, April 2001.
66. Nancy Tomes, *The Gospel of Germs: Men, Women, and the Microbe in American Life* (Cambridge, MA, 1998); Greenlees, "Stop Kissing!".
67. Roberts, *Woman's Place,* p. 191. Francesca Moor, "'Go and see Nell: She'll put you right': The Wisewoman and Working-Class Health Care in Early Twentieth-Century Lancashire", *Social History of Medicine,* 26, 4 (2013), pp. 695–714, 707.
68. Charles McGowen, *Sold American: Consumption and Citizenship, 1890–1945* (Chapel Hill, NC, 2006), pp. 37–40, 214–215.
69. *The Graphic,* 22 February 1899; *CFT,* 2 August 1918.

Figure 1. Immigrants from many countries entered the Lowell mills, working alongside each other and experiencing the same work-related health problems.
Boott Mills Employees (no date). Image courtesy of Lowell Museum.

Beecham's pills also had a positive effect on the digestive system,[70] which may well have appealed to operatives working in dusty environments. Despite the growing authority of biomedicine in the twentieth century, Lancashire workers continued utilizing traditional and patent medicines, herbal remedies, and consulting wise women.[71] Women learned about such remedies in the mills from listening to conversations of older women or directly seeking their advice in health matters.[72]

New England mill workers similarly used kinship, friendship, and workplace networks for health advice, with women central to such care networks. Yet, the multi-ethnic composition of the New England textile workforce meant makers of patent medicines adopted different marketing strategies than in Lancashire, although women remained the target customer. New immigrants reconstructed their ethnic support networks

70. Available at http://en.inforapid.org/index.php?search=Beecham%27s%20Pills, last accessed 16 February 2015.
71. Moor, "Go and see Nell"; Roberts, *Woman's Place.*
72. Moor, "Go and see Nell", p. 706.

and traditions from their home country,[73] with many coming from Catholic traditions, including French Canadians, Irish, and Southern Europeans (see Figure 1). Perhaps the most famous patent medicine, Father John's Medicine, was named after the Lowell priest, Father John O'Brien in 1855. It targeted Catholic families with Father John's personal, product endorsement. Father John's Medicine was widely available and claimed to cure: "consumption, grip, croup, whooping cough, and other diseases of the throat". It was a "A fine tonic: Good for the whole family".[74] Unlike another well-known New England patent medicine, Lydia Pinkham's vegetable compound, which in 1906 was found to contain fifteen per cent alcohol, Father John's medicine contained no alcohol. Initially, comprising cod liver oil, with liquorice flavouring, after fifty years, the ingredients remained virtually the same. Hence, the makers of patent medicines in the British and American textile regions recognized a burgeoning market with mill workers, but marketed their product within the local gender context.

Another component of the operatives' mixed economy of healthcare was that offered by employers. Some employers increasingly recognized the production benefits from onsite welfare, in part because it could prevent workers from going home. The 1916 British Factory Act mandated a sick room where workers could rest and return to work when well. By the 1950s, Lancashire workers regularly utilized certain company health initiatives. Welfare Officers, who were occupational nurses or first aiders, provided workers with aspirins or a chance to rest in the sick room. They also supported operatives with cases to go home sick. Yet, if a firm did not have a Welfare Officer, or if operatives chose to ignore her advice, sick operatives continued to go home – much to the employers' chagrin.[75] The Welfare Officers retained their autonomy and resisted management aims for them to serve the employers, rather than the workers. Although employed to support all workers, Welfare Officers particularly catered to women. They allowed tired women to rest, particularly if they had their periods, or listened to domestic troubles, providing a cup of tea and sympathy rather than rushing operatives back to work.[76] For minor

73. E.g. MWOL: 84.02, Mabel Mangan, "If anybody was sick, they'd go to Mrs Delehanty, and she'd have a remedy".

74. The true story of Father John's medicine, available at http://library.uml.edu/clh/Fath/Fath5.Html, last accessed 16 February 2015; Images of labels, available at http://img.groundspeak.com/waymarking/display/fofa439c-0f1d-4ecb-9bfa-28af2c6bf357.jpg, last accessed 16 February 2015.

75. Hallett, *et al*., "Industry and Autonomy", pp. 93, 94; "Departmental Committee on Humidity and Ventilation in Cotton Weaving Sheds, Minutes of Evidence and Appendices", *BPP* 1909, XV, p. 699; Lancashire County Record Office (LRO): DDX 1145/1/1/3, *Burnley Manufacturers' Association, Minute Book, 25 June 1909–1 May 1919*; Aug 15, 1911; LRO DDX 1115/1/6 *Blackburn Employers' Association Minute book 5 Oct. 1927–7 Sept. 1931;* 11 March 1929.

76. Hallett, *et al*., "Industry and Autonomy". Men also consulted welfare officers: NWSA: Bill Disby and Joe Richardson.

illnesses and fatigue, Welfare Officers bridged the gap between self-help and employer control. Hence, Lancashire operatives expanded their healthcare networks to take advantage of the free healthcare provided, including that offered by employers, while retaining the autonomy of individual choice.

American textile employers also increasingly sought to manage workers' ill health, particularly after a 1929 U.S. Department of Labor investigation into mill workers' absences revealed high absentee rates due to illness and accidents, home duties, and personal reasons, especially by women who were both workers and the primary care-givers.[77] The Lowell employers were unique because they operated a hospital between 1840 and 1930 to attend workers' injuries and illnesses, albeit with limited success. Workers preferred to manage their own health and avoided the employers' hospital when possible.[78] Starting in the interwar years, some employers introduced company nurses to provide minor health services and to determine whether individuals were sick enough to leave. Previously, this had been the managers' decision.[79] While little is known about company nurses, Lawrence operatives remembered them as being kind and resourceful. They dressed wounds, treated burns, and advised on pregnancy.[80] While company nurses were associated with the employer and consulted with caution, generally, mill hands responded favourably to them and the free, professional health advice they provided.[81] Nevertheless, similar to their Lancashire counterparts, Massachusetts working-class mill operatives retained autonomy by seeking health advice from whomever they wished.

Being ill was costly because time off work was unpaid. Hence, cooperative networks played an important role in mill workers management of ill-health. In fact, cooperation was essential for managing the heat, dust, humidity and pace of work. Lancashire and New England operatives watched co-workers' machines to enable breaks. They helped struggling colleagues, for example, to lift something heavy, while neighbouring workers might help an individual keep up when sick or pregnant. Twentieth-century mill worker Jean Rouses remembered how in Lowell: "We took care of one another. Sometimes you'd say, Would you watch my

77. U. S. Department of Labor, *Causes of Absence for Men and for Women in Four Cotton Mills,* Bulletin of the Women's Bureau, No. 69 (Washington DC, US Government Printing Office, 1929).

78. Janet Greenlees, "For the Convenience and Comfort of the Persons Employed by them': The Lowell Corporation Hospital, 1839-1930", *Medical History*, 57:1 (2013), pp. 45–64.

79. E.g. MWOL 84.04, Martha Doherty.

80. University of Lowell, Shifting Gears Collection, Lawrence. SG-LA-T509 William Beaulieu; MWOL 84.06, Camile Theriault.

81. Beardsley, *History of Neglect,* p. 195; Harriet Herring, *Welfare Work in Mill Villages* (Whitefish, MT, 1929), pp. 155–160.

Weavers' plaint: "If they'd give us better cotton, they wouldna ha' to put steam in to howd it together. They'll be wearin' beawt cotton o' together next news, an' folks 'ull soon be walkin' abeawt i' steeam treawsers an' vapoury vests."

So long as you can't give us better cotton,
So long as we have milk without the cream,
So long as fibre's short and shoddy's rotten,
Give us steam.

The air is moist, so why should we be grieving?
Because of shoddy in the cop and beam.
But if you'd have us flourish with the weaving,
Give us steam.

"Aye! by gum! an' if we arenn' fat, we'st soon be t' colour on it!" Sam Fitton.

Figure 2. Lancashire operatives were aware of both the economic and health issues related to the use of steam in weaving sheds. Cartoons in the workers' newspaper, *The Cotton Factory Times,* provided poignant comment on both issues.
"*Give Us Steam*", *Cotton Factory Times, 12 May 1912. Image courtesy of https://lancashirecottoncartoons.com.*

frame? And you'd take off. They'd watch it. It was pretty good".[82] Similarly, Lancashire mill worker Elsie Hansford remembered how "We always used to help one another".[83] Such informal networks secure little written documentation; yet, collectively and individually, for short periods, they allowed ill workers to keep earning when unable to afford time off. Mill managers seemingly accepted such arrangements because workers retained their jobs, possibly because production was not impeded.

Nevertheless, if working conditions became unbearable, operatives were not averse to collective action. Accounts of collective action happening

82. MWOL 85.03, Jean Rouses.
83. NWSA: Elsie Hansford.

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outside those recognised by trade unions paralleled individual responses. New England newspapers record mills voluntarily closing for a few days in the summer due to the heat as well as operatives walking out and effectively shutting the mills when they considered the weather too hot for work, to take advantage of the berry picking season, or to go fishing.[84] In 1873, women operatives walked out of the Lawrence Mills in Lowell because of poor ventilation.[85] Unable to assert their authority and prevent walkouts, or because of a local labour shortage, employers seem to have accepted these informal disruptions because the newspapers do not mention workers being dismissed. More formally, in 1903 and again in 1912, Lowell mill workers struck for higher wages and "better, cleaner and healthier conditions in the city of Lowell".[86] While strikes and walkouts were mostly mill specific and returned only limited success, they reveal how working-class cooperation prioritized dignity, autonomy, conditions, and wages. In collective forms of protest outside the factory, as on the shop floor, women worked alongside men organizing and participating in strikes. In fact, of the recorded, spontaneous walkouts mentioned in New England newspapers, most were started and led by women, including the 1912 strike, which started in Lawrence.[87] While this does not imply that men were less interested than women in working conditions, it highlights the importance of working conditions to women. Women played a leading role in coping with or protesting bad working conditions and ensuring that factory conditions remained on the reform agenda. Despite the lack of a strong trade union tradition in New England, working-class collaboration on the shop floor strove for better factory conditions.

In Lancashire, male trade union activity and government priorities have overshadowed spontaneous and non-union collective action about the working environment.[88] White's study of Lancashire textile workers' strikes between 1910 and 1914 found that of 130 weavers' strikes, twenty-four (eighteen per cent), related to undefined working conditions.[89] Yet, additional, unofficial action throughout the first half of the twentieth century went unrecorded in White's union and government sources. Male and female operatives walked out when managers used bad language,

84. E.g. *Lowell Courier-Citizen,* 11 July 1912.
85. *Lowell Courier-Citizen,* 7 July and 8 July 1873; *Vox Populi,* 9 July 1873; *Lowell Daily Courier,* 7 July and 8 July 1873.
86. Mulligan, "Epilogue to Lawrence", p. 95.
87. E.g. *Lowell Courier-Citizen,* 7 July 1873; 8 July 1873; 11 July 1912; and 16 July 1912; *Lowell Daily Courier,* 7 July 1873; *Portland Transcript*, 8 April 1854; New Bedford *Evening Standard,* 20 January 1898.
88. Historiographical discussion in Raw, *Striking a Light,* ch. 2.
89. Joseph White, *The Limits of Trade Union Militancy: The Lancashire Textile Workers, 1910–1914* (Westport, CT, 1978), pp. 186–200.

including at Marsden in 1900 and Blackburn in 1925,[90] or when the moisture was excessive, including in 1895 in Burnley and Padiham and in 1913, in both Blackburn and Burnley.[91] While a local labour shortage minimized the long-term risks of such action, the state of the local labour market was not always relevant. When the humidity became too oppressive (see Figure 2), workers sometimes left anyway, including at Burnley in 1900 and Preston in the 1930s.[92] Impromptu strikes were also staged at mills that were too cold or if temperatures were below that required by the Factory Acts, such as in Nelson, Oldham and Burnley in 1918.[93] Indeed, working conditions were important to male and female workers and their representatives. In 1910, the Blackburn and District Power-Loom Weavers', Winders' & Warpers' Association argued that weavers:

> […] are even willing, to receive less wages if they can bring about the abolition of artificial humidity. That to our minds gives us the possibility of arriving at only one conclusion, namely, that the system is considered and believed to be so injurious to their health that the weavers are prepared to face other difficulties rather than carry on their vocation under its operation.[94]

While Lancashire mill workers accepted that working conditions were not always ideal, such non-gendered collective action to improve working conditions helps counter the argument that the Lancashire working-class stoically accepted their lot[95] and highlights workers' proactive efforts to improve working conditions, with and without union support. Nevertheless, the localized nature of such protests secured little national political attention.

During the interwar years, when the textile industries began their long decline, British government investigations into the effect of mill conditions on operatives' health increased. In 1925, an Industrial Fatigue Research Board investigation revealed no significant difference in the morbidity rates of weavers who worked in sheds that used steam and those that did not. The report, published in 1927, and the 1928 Home Office Report effectively

90. LRO DDX1115/1/2 *Blackburn Manufacturers' Association, Minute Book,* 26 November 1900; LRO DDX 1115/1/5 *Blackburn Minute Book*, 6 May 1925.
91. LRO DDX1145/1/1/1 *Burnley, Minute Book, 29 May 1894–15 Nov. 1899*, 11 November 1895; LRO DDX1123/6/2/130 *Blackburn and District Power-Loom Weavers', Winders' & Warpers' Association*, Memorandum from Padiham Weavers' Association, 24 September 1910, Robert Hargreaves, Sec. to J. Cross; LRO DDX1115/4/2 *Blackburn and District Cotton Manufacturers' Association, Letter Book 1906-1913*, 18 November 1913.
92. LRO DDX1145/1/1/1 *Burnley Manufacturers' Minute Book 1895*.
93. *CFT,* 18 January 1918; *CFT,* 1 February 1918; *CFT* 22 February 1918; LRO DDX1145/1/1/3 Burnley Manufacturers' Association, Minute Book, 8 March 1918.
94. LRO DDX 1123/6/2/130 *Blackburn and District Power-Loom Weavers', Winders' & Warpers' Association*, Letter from Jos Cross, David Shackleton and Fred Thomas of the Weavers' Association, 30 November 1910.
95. Roberts, *Woman's Place,* pp. 46–47.

"confirmed" that humidity did not pose a risk to workers' health.[96] With similar timing, the workers' newspaper, the *Cotton Factory Times,* placed greater responsibility on operatives for their own health, hinting at the unions shifting priorities to wages and jobs.[97] Indeed, both government and the unions prioritized industrial survival over workers' health. When a 1935 Industrial Health Research Board investigation revealed that the noise in weaving sheds seriously impaired hearing and impeded production, the government accepted the employers' argument that industrial reforms were prohibitively expensive.[98] The government demonstrated a similar disinterest in complaints about eyestrain and fatigue and formally ignored workplace health by not including an occupational health service in the original mandate for the National Health Service (NHS).[99]

Despite industrial decline and political disinterest, Lancashire workers continued their sporadic collective action against unhealthy conditions. For example, in August 1932, 150 weavers at Clover Mill in Nelson struck, claiming that the excessive use of steam caused numerous cases of rheumatism. The Nelson Weavers' Association provided little support other than claiming "that the people who work in that atmosphere are the best judges".[100] Instead, the Association prioritized an ongoing wage-battle with employers, the outcome of which held wider implications for all Lancashire weavers.[101] The growing government and trade union apathy towards the working environment helps explain the decline in recorded collective action and the preference for individual strategies and cooperative networks for managing the ill-effects of work. Mill workers continued to switch employers or walk out. They still spat and self-medicated. After the 1948 introduction of the NHS, operatives incorporated state healthcare into their network, including Welfare Officers and NHS doctors. While outside the scope of this article, such initiatives began replacing rather than paralleling collective action to improve factory conditions. Nevertheless, a constant through the years of industrial growth and decline in both Lancashire and New England was the commonality of working-class experiences of workplace ill health and responses to it. Addressing the consequences of industrialization was a class issue, not a gendered one, with operatives left to address the working environment themselves. The human costs of industry were universal; so too were the methods of managing them.

96. A. Bradford Hill, *Artificial Humidification in the Cotton Weaving Industry: Its Effect upon the Sickness Rates of Weaving Operatives*, IFRB Report No. 48 (London: HMSO, 1927); J. Jackson (chair), *Home Office Report of the Departmental Committee on Artificial Humidity in Cotton Cloth Factories* (London: HMSO, 1928).
97. E.g. *CFT,* 29 June 1928 and 15 February 1929.
98. Weston and Adams, *Performance.*
99. McIvor, *History of Work,* p. 141 and *Factory Inspectors Report 1937,* p. 24.
100. *The Manchester Guardian,* 11 August 1932.
101. Alan Fowler and Lesley Fowler, *The History of the Nelson Weavers' Association* (Nelson, 1984), pp. 73–76.

CONCLUSION

Both social policy and historical arguments suggest that many Western nations were headed towards a paternalistic welfare state in the twentieth century, seeking to aid industrial workers and their dependents, with America heading towards a pioneering maternalist welfare state.[102] The patriarchal discourse of gender comprised campaigns to either "protect" women or to remove them from the workplace.[103] This paper provides a parallel, multi-layered narrative about working-class experiences of health at work and the associated role of gender. It reveals how the social, political, and economic contexts affected both the conception of work-related ill-health and responses to them. Gender only entered the working-class experience because women were responsible for the household health, which explains why medical advertising targeted women. Ultimately, however, workers were left to address working conditions as they saw fit. As McIvor and Johnston found with British coal miners facing dusty conditions, mill workers in both countries were pragmatic and realistic.[104] How operatives responded to conditions depended on understandings of the causes of ill-health and on local and individual circumstances. This article has shown how British and American operatives' daily management of unhealthy working conditions suggests a commonality of textile workers' experience of workplace health that incorporates working and living conditions. Here, occupational health overlapped with workplace health. These understandings were framed by the broader social and economic conditions.

This multi-layered synthesis of medical, business, and labour history highlights the commonality of the industrial experience and how this overshadowed social and political perceptions of gender. While it supports Dembe's argument that medical knowledge is a contested terrain and occupational diseases are socially constructed, it also reveals how occupational health is entwined with broader workplace health and living conditions.[105] If we are to fully understand the intricate and changing relationship between health, work, and gender, further studies are needed about the complex relationship between health in the living and working environment and working-class experiences of ill-health.

102. E.g. Theda Skocpol, *Social Policy in the United States: Future Possibilities in Historical Perspectives* (Princeton, NJ, 1995); Seth Koven, "Borderlands: Women, Voluntary Action, and Child Welfare in Britain, 1840 to 1914", in Koven and Michel, *Mothers,* pp. 94–135; Lewis, *Politics of Motherhood;* Dwork, *War is Good for Babies*; Koven and Michel, "Womanly Duties".

103. E.g. Harrison, *Not only the 'Dangerous Trades'.*

104. Johnston and McIvor, *Miners' Lung,* esp. p. 310.

105. Allard Dembe, *Occupation and Disease: How Social Factors Affect the Conception of Work-Related Disorders* (New Haven, CT, 1996), pp. 3–21.

TRANSLATED ABSTRACTS
FRENCH – GERMAN – SPANISH

Janet Greenlees. *Le lieu de travail, la santé et le genre parmi les travailleurs du coton en Amérique et en Grande-Bretagne de 1880 à 1940*

Cet article clarifie les différences entre la santé professionnelle et la santé sur le lieu de travail, et montre comment l'une et l'autre se recoupent. L'auteur démêle un récit à plusieurs niveaux sur les travailleurs textiles du coton et sur les interprétations et les expériences de la mauvaise santé et du travail en Amérique et en Grande-Bretagne, en utilisant une combinaison d'histoires orales, de documents gouvernementaux, de dossiers de sociétés et de syndicats, ainsi que la presse commercial. Il vise à identifier les influences multiples des débats contemporains sur la santé au travail. Contrairement à l'historiographie actuelle, je soutiens que le genre n'était important qu'occasionnellement à ces discussions parmi les travailleurs, et que le genre d'influença guère leurs réponses à des conditions malsaines, les interprétations et les réponses des travailleurs aux accidents du travail furent individuelles et liées aux connaissances sur les risques, la mauvaise santé et des facteurs socioéconomiques. La compréhension des travailleurs américains et britanniques de leur environnement de travail et leurs réponses à celui-ci présentent plus de convergence que de divergences, suggérant une réponse humaine universelle aux risques sanitaires du travail, sans être influencée par des contraintes nationales ou industrielles, ou par le genre.

Traduction: *Christine Plard*

Janet Greenlees. *Betriebliche Gesundheitsförderung und Gender unter den Baumwollarbeitern und -arbeiterinnen Amerikas und Großbritanniens von den 1880er bis zu den 1940er Jahren*

Dieser Beitrag erläutert die Unterschiede zwischen Arbeitsschutz und betrieblicher Gesundheitsförderung und zeigt die Überschneidungen zwischen beiden Bereichen auf. Der Beitrag entwirrt ein vielschichtiges Narrativ über die Auffassungen und Erfahrungen der Baumwollarbeiter und -arbeiterinnen Amerikas und Großbritanniens hinsichtlich der Frage der Berufskrankheiten. Dabei wird auf oral-history-Quellen ebenso zurückgegriffen wie auf Regierungsdokumente, Firmen- und Gewerkschaftsunterlagen sowie die Branchenpresse. So sollen die verschiedenen Einflüsse bestimmt werden, von denen zeitgenössische Debatten um Gesundheit am Arbeitsplatz geprägt wurden. In Abgrenzung zur gegenwärtigen Geschichtsschreibung wird die These vertreten, Gender sei für entsprechende Diskussionen, wie sie unter Arbeitern und Arbeiterinnen geführt wurden, nur gelegentlich von Bedeutung gewesen: Genderfragen hatten keinen nennenswerten Einfluss darauf, wie die Arbeiter und Arbeiterinnen auf gesundheitsschädliche Arbeitsbedingungen reagierten. Die Auffassungen von arbeitsbedingten Gesundheitsgefahren, die Arbeiter und Arbeiterinnen an den Tag legten, waren, wie auch die Reaktionen auf solche Risiken, individueller Natur und hingen zusammen mit dem Wissen um Risiken, Krankheit und sozioökonomische Faktoren. Die

Auffassungen und Reaktionen amerikanischer und britischer Arbeiter konvergierten häufiger als sie divergierten, was die Annahme einer allgemein menschlichen Reaktion auf arbeitsbedingte Gesundheitsrisiken nahelegt: eine Reaktion, die nicht auf nennenswerte Weise von nationalen oder industriespezifischen Zwängen geprägt war, und auch nicht von Genderfragen.

Übersetzung: *Max Henninger*

Janet Greenlees. *Salud laboral y género entre los trabajadores del algodón en Estados Unidos y Gran Bretaña, c.1880–1940*

Este artículo aporta luz sobre las diferencias entre la salud ocupacional y la salud laboral y revela la forma en que ambas se solapan. El texto deshace la maraña de una narrativa con múltiples estratos sobre la visión y las experiencias de los trabajadores textiles del algodón con enfermedades laborales en Estados Unidos y Gran Bretaña, haciendo uso de una combinación de historias orales, documentos gubernamentales, archivos de empresa y de sindicatos y la prensa económica. Se trata de identificar las numerosas influencias en los debates contemporáneos sobre la salud en el trabajo. De forma diferente a lo que plantea la historiografía actual, en el artículo defendemos que la cuestión de género fue sólo ocasionalmente importante en las discusiones entre los trabajadores y que no tuvo una influencia significativa en sus reacciones ante las deficientes condiciones laborales. Las visiones de los trabajadores, y sus respuestas a, los riesgos en los espacios de trabajo fueron planteadas de forma individual y se relacionan con el conocimiento que se tenía sobre los factores de riesgo, sobre las enfermedades y sobre el ámbito socioeconómico. Las visiones que los trabajadores estadounidenses y británicos tenían de su entorno laboral, y las reacciones que promovían, revelan muchas más convergencias que divergencias, lo que permite sugerir una respuesta humana universal frente a los riesgos para la salud en el trabajo que no se encuentra influencia de forma significativa por los límites nacionales o industrial, ni tampoco por las cuestiones de género.

Traducción: *Vicent Sanz Rozalén*