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ARTICLES

The Crisis of the Craftsman: Hamilton's Metal Workers in the Early Twentieth Century

Craig Heron

I

"WHEN YOU SPEAK of 'skill,' do you mean 'ability'? What you term 'skill' or 'ability' might in reality be only dexterity." It was spring of 1916, and a panel of royal commissioners was seated in Hamilton's court house to hear evidence on unrest in the city's munitions industry. An unidentified machinist in the audience had just disrupted the proceedings by requesting permission to question his employer, who was on the witness stand. "Let us presume," the worker went on, "that a man comes into your employ who soon becomes proficient in operating a machine, from the fact that he is very bright, and becomes a piece worker, earning even more than your skilled men, such as toolmakers, would you call him a 'skilled' man?" Without waiting for a reply, the angry machinist turned to address the whole court room:

I have seen men right in this shop who, by reason of doing the one thing day after day and week after week, the operation has become a part and parcel of their lives. . . . I have seen these piece workers move with the automatic precision and perform a certain operation with unerring facility. Yet you term these men 'skilled.' They are not skilled, . . . they have become automatons. Their work requires no brain power, whereas the toolmaker requires both brain and brawn. He must have constructive ability. And you, sir (he continued with a wave of his arms towards the witness), know nothing about that.

The worker sat down to loud applause from "many tool-hardened hands." The voice of Hamilton's beleaguered craftsmen had been heard.¹

¹ *Herald* (Hamilton), 4 May 1916. The literature on craftsmen has become voluminous. A few of the more insightful works which have influenced the ensuing discussion include the following: on Canada, Gregory S. Kealey, "'The Honest Workingman' and Workers' Control: The Experience of Toronto Skilled Workers, 1860-1892," *Labour/Le Travailleur*, 1 (1976), 32-68; Ian McKay, "Capital and Labour in the Halifax Baking and Confectionery Industry During the Last Half of the Nineteenth Century," *ibid.*, (1978), 63-108; Bryan D. Palmer, "Most Uncommon Common Men: Craft and Culture in Historical Perspective," *ibid.*, 1 (1976), 5-31; Wayne Roberts, "The Last Artisans: Toronto Printers, 1896-1914," in Gregory S. Kealey and Peter Warrian, eds., *Essays in*

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In recent years labour historians have been increasingly fascinated with the lively history of the skilled stratum of the nineteenth-century working class, the artisans. Often colourful, articulate, tough-minded men, these craftsmen were not only leading actors in the emergence of a working class in the early years of the century; when they gave up their self-employed status and entered the "manufactory" to practise their craft under one employer's roof, they brought with them the accumulated traditions, values, and institutions of the pre-industrial era. A vibrant artisanal culture therefore continued to thrive in late nineteenth-century industry, where the skills of these men were indispensable to many sectors of production.

Artisanal culture had much broader dimensions than life in the workshops where the craftsmen toiled. They were confident of the social worth their skills bestowed upon them and expected to lead dignified, respectable lives. Central to their outlook on the world was a gritty spirit of independence and determination to resist subordination. In the workshops, and in society generally, they demanded for all men and women the maximum of personal liberty and freedom from coercion and patronage, and politically they became the staunchest proponents of egalitarian democracy. From employers they expected no interference with their traditional craft practices, which controlled the form and pace of production. Their "manhood," they insisted, demanded such treatment. The principal institutions of collective self-help which promoted and defended this artisanal life were, of course, their craft unions.

All of these social and ideological phenomena, however, rested on the craftsmen's continuing shop-floor power, and by the end of the nineteenth century that power was being challenged by employers who saw these men and their mode of work as serious obstacles to larger corporate strategies. This essay will concentrate simply on the workplace crisis facing these craftsmen, without further reference to its implications for working-class ideology, politics, and social life. It will deal with the skilled men in one Canadian city, Hamilton, Ontario, and, more specifically, with that city's largest group of craftsmen at the turn of the century, the metal workers. An analysis of the clash

Canadian Working Class History (Toronto 1976), 125-42; on Britain, Geoffrey Crossick, "The Labour Aristocracy and Its Values: A Study of Mid-Victorian Kentish London," *Victorian Studies*, 19 (1976), 301-28; R. Q. Gray, "Styles of Life, the 'Labour Aristocracy,' and Class Relations in Later Nineteenth Century Edinburgh," *International Review of Social History*, 17 (1973), 428-52; James Hinton, *The First Shop Stewards' Movement* (London 1973), 56-100; E. P. Thompson, *The Making of the English Working Class* (Harmondsworth 1968), 259-96; on the United States, Paul Faler, "Cultural Aspects of the Industrial Revolution: Lynn, Massachusetts, Shoemakers and Industrial Morality, 1826-1860," *Labor History*, 15 (1974), 367-94; Herbert Gutman, *Work, Culture and Society in Industrializing America* (New York 1976), 32-54; Bruce Laurie, "'Nothing on Compulsion': Life Styles of Philadelphia Artisans, 1820-1850," *Labor History*, (1974), 337-66; David Montgomery, "Workers' Control of Machine Production in the Nineteenth Century," *ibid.*, 17 (1976), 485-509.

between artisanal culture and industrial capitalist rationality will bring into focus the ambivalence of the artisanal legacy for the working class in the early twentieth century. On the one hand, these workmen battled valiantly against the more dehumanizing, authoritarian tendencies of modernizing industry; they levelled an intelligent and impassioned critique at the process of change in Canadian industrial life. On the other, in fighting back, they failed to transcend the sense of proud exclusiveness which their traditionally privileged position in the workplace engendered. For the most part, the response of these workers to the industrial age ushered in with the rise of corporate capitalism in Canada was an attempt to defend their shop-floor prerogatives, not to lead a broader working-class revolt. Craft pride tended to override class solidarity.

This essay will move from a description of the state of the two largest metal-working crafts at the end of the nineteenth century, the moulders and the machinists, to a discussion of the efforts of employers to transform their factories into more efficient, centrally managed workplaces, and finally to an assessment of the response of the craftsmen to these new conditions.

II

METAL-WORKING SHOPS, especially foundries, machine shops, and agricultural implement works, had predominated in Hamilton's industrial structure since the mid-nineteenth century. According to one study, 50 metal-working firms employed 2,634 workers, or 38 per cent of the city's workforce, in 1891.² Particularly important were the stove-manufacturing shops, whose size and production made the city a national leader in the industry. The leading stove foundry, the Gurney-Tilden Company, was described in 1892 as "the largest industry of their kind in the Dominion."³ It was in this industrial setting that Hamilton's artisans worked the metal into the wide range of products that won for Hamilton the epithet "The Birmingham of Canada."

² R.D. Roberts, "The Changing Patterns in Distribution and Composition of Manufacturing Activity in Hamilton Between 1861 and 1921," MA thesis, McMaster University, 1964, 78.

³ *Hamilton: The Birmingham of Canada* (Hamilton 1892), n.p. The E.C Gurney Company became Gurney-Tilden during the 1890s when John H. Tilden moved into control. The Toronto branch of the firm became independent and retained the Gurney name. Stoves were Canada's most important foundry products at the turn of the century; in 1902 there were 297 stove foundries in Canada out of a total of 527. Clyde A. Saunders and Dudley C. Gould, *History Cast in Metal: The Founders of North America* (n.p. 1976), 15. On the growth of industry in Hamilton see, in particular, Marjorie Freeman Campbell, *A Mountain and a City: The Story of Hamilton* (Toronto 1966); C.M. Johnston, *The Head of the Lake: A History of Wentworth County* (rev. ed., Hamilton 1967); Bryan Douglas Palmer, "Most Uncommon Common Men: Craft, Culture and Conflict in a Canadian Community, 1860-1914," Ph.D thesis, State University of New York at Binghamton, 1977; Roberts, "Manufacturing Activity;" Robert H. Storey, "Industrialization in Canada: The Emergence of the Hamilton Working Class, 1850-1870s," MA thesis, Dalhousie University, 1975.

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Of the two most prominent groups of craftsmen in the city, the moulders could lay claim to the deepest roots in pre-industrial society. In fact, moulders liked to trace their ancient traditions to the biblical figure Tubal Cain. From their skilled hands came metal castings as diverse as stoves, machinery casings, and ornamental iron and brass work. Technological change had almost completely bypassed the foundry, which remained down to the end of the nineteenth century a classic "manufactory" of highly skilled craftsmen working in one employer's shop. A turn-of-the-century article in *Iron Age* emphasized that the craft "is learned almost entirely by the sense of feeling, a sense that cannot be transferred to paper. It is something that must be acquired by actual practice. A sense of touch plays such an important part in the construction of a mold that without it it is impossible to construct a mold with any reasonable expectation of success."⁴ This sense was what craftsmen liked to call the "mystery" of their trade. With a few tools and the knowledge under his cap, the moulder prepared the moulds to receive the molten iron or brass. A mould began with a "pattern," usually wooden, in the shape of the finished casting, which was imbedded in sand. Preparing and "ramming" the sand (that is, pounding it firmly with iron-shod poles) required great care and precision so that when the pattern was drawn out a perfect mould remained to hold the molten metal. If a cast product was to have a hollow space, the moulder



A large Canadian foundry in 1872. Public Archives of Canada C 58597.

⁴ John Sadlier, "The Problem of the Molder," *Iron Age*, 6 June 1901, 26b.

inserted a "core," a lump of specially prepared sand that had been carefully shaped and baked hard at the coremaker's bench (originally moulders made their own cores, but gradually a division of labour emerged). Once cool, the casting was shaken out of the sand and cleaned, to be ready for any finishing processes. The size of the objects to be cast ranged so widely that the moulder might work on a bench or prepare his moulds in great stretches of sand on the foundry floor.⁵ "The jobs he undertook," recalled one observer of Canadian foundries, "were varied in the extreme, a single job sometimes entailing days of careful labor, and the work being given a finish in which the maker took pride."⁶

That pride also fed on the physical demands of the work, which was notoriously heavy, dirty, and unhealthy. One Hamilton moulder described the city's foundries as "the darkest and rottenest places in Hamilton, and so stuffy that you can hardly breathe." He claimed the shop he was working in was so dark "that he had had to use a torch to see what he was doing." Ontario's factory inspectors repeatedly criticized foundry working conditions for the thick, smoky air, the extremes of heat and cold, and the heavy, dangerous tasks required. An American study also found abnormally high rates of death by respiratory diseases among foundry workers.⁷

Passing from the foundry to the machine shop in, say, the Sawyer-Massey agricultural implement works was to cross the great divide of the Industrial Revolution, from the more primitive methods of handicraft to the clatter of complex machinery. Machinists were a much newer group of craftsmen, whose role in industry was little more than a century old by 1900; yet, despite their position at the centre of the machine age, they too had developed a workplace culture in the artisanal mode. When the peripatetic Royal Commission on the Relations of Capital and Labour opened its hearings in Hamilton early in 1888, an elderly machinist named William Collins appeared. A retired artisan with British training, Collins described himself as "a general workman": "I learned the whole art or mystery of mechanics — that is, so far as human skill, I suppose, could accomplish it, either wood, iron, brass, blacksmithing, or anything; I am one of the old school."⁸ He was, in fact, a relic of that period in

⁵ Benjamin Brooks, "The Molders," reprinted from *Scribner's in Iron Molders' Journal* (hereafter *IMJ*), XLII, no.11 (November 1906), 801-8; Margaret Loomis Stecker, "The Founders, the Molders, and the Molding Machine," in J.R. Commons, ed., *Trade Unionism and Labor Problems* (2nd ed., Boston 1921), 343-45.

⁶ *Canadian Foundryman* (hereafter *CF*), XIX, no.5 (May 1928), 39.

⁷ *Herald*, 8 October 1910; Ontario, Factory Inspectors, *Report, 1908* (Toronto 1909), 34; *IMJ*, XLV, no.5 (May 1909), 302-4.

⁸ Canada, Royal Commission on the Relations of Capital and Labour, *Report: Evidence — Ontario* (Ottawa 1889), 826. See also Sir Alexander Bertram, "Development of the Machine Tool Industry," *CM*, XXVI, no.26 (29 December 1921), 153, for similar comments on the skills of his late father, John Bertram, an artisanal entrepreneur in nearby Dundas.

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the late eighteenth and early nineteenth centuries when a millwright, as he was then known, was a highly valued mechanic whose manual skills and ingenuity in the construction of machinery made possible the mechanical innovations of the Industrial Revolution in Britain. By mid-century, however, the typical British machine-builder was less in the Collins mould and more often a skilled operator of metalworking machinery. The introduction of steam-powered devices, especially lathes and planers, had brought the old craft into a new, technically more sophisticated phase,⁹ where an engineer or machinist would use a mechanized cutting tool to shape metal objects — anything from machinery parts to gun barrels — usually in manufacturing firms or railway shops. The tools of the trade might be any number of simple lathes, drills, planers, shapers, or slotters, as well as various devices for careful measurement of the cut.

Although William Collins might regret that mechanization had been “detrimental to the interest of the employé, inasmuch as the introduction of machinery reduced the labour required,”¹⁰ individual manual skill did not disappear since most machine shop work still required the careful, trained hands of the craftsman. Machine tools simply facilitated precision.¹¹ Another Hamilton machinist, Joseph James Whiteley, emphasized before the same royal commission that running his planer demanded expertise: “There is no man who can run a machine properly after three years apprenticeship. I served my time seven years at Whitworth’s, of Manchester, the finest shop in the world, and I found I had something else to learn.”¹² Craft pride, in fact, was nurtured by the confidence that “the industrial world depended for its success largely on the skill and technical knowledge of the machinist.”¹³

The indispensable skills of these craftsmen in the metal trades gave them a functional autonomy on the shop floor that curbed employer interference with their established work routines. But their craft unions were the effective bastions protecting their workplace traditions. Both the moulders and the machinists constructed elaborate trade-union constitutions that stipulated all rules and procedures covering recruitment into the craft through apprenticeship, wage or piece rates, hours of work, and daily work load. The moulders’ “set,” for example, was a regulation of output, established by the local union, as an attempt to prevent reductions in piece rates and to maintain a humane pace of work. “Under unrestricted output,” one study noted, “they had seen the vigor-

⁹ L.T.C. Rolt, *Tools for the Job: A Short History of Machine Tools* (London 1965), 122-91; James B. Jefferys, *The Story of the Engineers, 1800-1945* (London 1945), 9-14. These craftsmen were known as engineers in Britain and machinists in North America.

¹⁰ Royal Commission on Capital and Labour, 827-28.

¹¹ Raphael Samuel, “Workshop of the World: Steam Power and Hand Technology in Mid-Victorian Britain,” *History Workshop Journal*, 3 (1977), 6-72.

¹² Royal Commission on Capital and Labour, 881.

¹³ *Herald*, 23 March 1912.



The Brown-Boggs Machine Shop in 1913. McMaster University Labour Studies Collection.

ous molder, in the full enjoyment of health and strength, set a pace on certain work, which other molders of less bodily strength or of advanced years were expected to follow. When unable to do so they were subject to constant nagging by the foreman, and the output of the strongest and most active was continually held up to them as an example."¹⁴ Similarly the machinists set collective restraints on the labour process. A 1903 article in the *Canadian Engineer* gives a glimpse of the ways in which these men modulated the rhythms of machine shop work:

... if a certain piece of work was to be done, a drawing showing the essential dimensions accompanied the stock which went to the machinist, who followed his own way in (a) setting the work; (b) selecting the cutting tool and grinding it as he knew best; (c) choosing the running speed; (d) determining the cut; (e) and adjusting the feed. The completion of the work was, (1) limited by his intelligence; (2) restricted by his experience; (3) governed by his inclination; (4) and was subject to the limiting conditions laid down by that despot, the walking delegate. Result: Four hours taken to do what could be accomplished in less than one, and with a greater degree of accuracy.¹⁵

¹⁴ John P. Frey and John R. Commons, "Conciliation in the Stove Industry," United States, Bureau of Labor, *Bulletin*, XII, no.1 (January 1906), 177. On the moulders' workplace customs see Kealey, "The Honest Workingman," 40-43.

¹⁵ Robert T. Lozier, "Variable Motor Speeds and their Relation to New Shop Methods," *Canadian Engineer* (hereafter *CE*), X, no.7 (July 1903), 189.

The much maligned "walking delegates" who enforced the customary practices of the craft were in the service of one of the craft unions which were taking a new lease on life with the return of prosperity in the late 1890s. In the arms of the more centralized unions affiliated with the American Federation of Labor, with its growing army of full-time organizers, craft unionists were setting about to consolidate their workplace prerogatives into powerful continental organizations.¹⁶ Hamilton's moulders had first organized to defend their workplace customs in 1860 and had affiliated with the Iron Molders' Union the following year.¹⁷ By the turn of the century IMU Local 26 was recognized as one of the strongest labour organizations in the city. Hamilton moulders enjoyed a rich associational life of parades, "smokers," and outings and were one of only two groups of craftsmen in the city with their own hall. The machinists in Hamilton had two unions: the British-based Amalgamated Society of Engineers, dating back to 1851, and the International Association of Machinists, successor to a number of earlier North American unionizing experiments, which organized Hamilton Lodge 414 in 1900.¹⁸ These artisans of the machine shop, however, had a much spottier record of organizational success; the IAM Lodge, in fact, had to be re-organized in 1902.¹⁹ As we shall see, their craft was more vulnerable to further subdivision, mechanization, and invasion by less skilled non-unionists.

These then were the two main groups of artisans comprising Hamilton's skilled metal workers. In the last half of the nineteenth century, the moulders and machinists were quite often employees of different firms, but by the turn of the century they more frequently worked in separate departments of larger corporations, where artisanal customs soon came into sharp conflict with the new imperatives of modern industry.

III

THE 1890S MARKED a turning point in the work world of moulders and machinists. Over the next 30 years a transformation within metal-working factories swept away the artisanal culture of these workers which had flourished in the preceding decades. Technological and managerial innovations undermined and ultimately destroyed a work environment in which skilled craftsmen with indispensable expertise had presided over the pace and organization of the labour process.

The driving force behind this process of change sprang from the new shape

¹⁶ Robert H. Babcock, *Gompers in Canada: A Study in American Continentalism Before the First World War* (Toronto 1974), 38-54.

¹⁷ Storey, "Industrialization in Canada," 123; Frank T. Stockton, *International Molders' Union of North America* (Baltimore 1921), 20. The union's name was changed to the International Molders' Union in 1907.

¹⁸ *Labour Gazette* (hereafter *LG*), II, no.4 (October 1901), 250; Mark Perlman, *The Machinists: A New Study in American Trade Unionism* (Cambridge, Mass. 1961), 7; Palmer, "Most Uncommon Common Men," 435-36.

¹⁹ *Machinists' Monthly Journal* (hereafter *MMJ*), XIV, no.11 (November 1902), 739.

of economic life in Canada. By the 1890s Hamilton's industrial life was being integrated into national and international markets which involved stiffer competition for the city's firms and the rise of increasingly large corporate enterprises. Hamilton not only participated in the Canadian merger movement in the pre-war decade, with the creation of such firms as the Steel Company of Canada and the Canadian Iron Corporation; it also opened its floodgates to branch plants of American giants like International Harvester and Canadian Westinghouse. These developments certainly increased both the scale of the average workplace in the city and the economic clout of employers and, perhaps more important, generated a sharpened concern about protecting profits against more powerful competition. Some of the city's oldest metal shops, especially the stove foundries, were particularly hard pressed in this new environment.

With their eyes fixed on profit margins, corporate managers in Hamilton attacked labour costs on two fronts. The first, aggressive anti-unionism, was ultimately the prerequisite for the second, the restructuring of the work process. The shop-floor power of craftsmen that was consolidated in their unions was a constant threat to corporate planning of production. Before 1900 individual employers, and occasionally groups of them, challenged unions in the city with varying degrees of success, but after the turn of the century anti-unionism became a cornerstone of labour relations for the largest Hamilton firms. The city's two largest employers of skilled metalworkers, in particular, had well-established reputations as union-busters before their arrival in Hamilton. International Harvester's predecessor companies had such an anti-labour record, dating from the 1880s, that the Hamilton labour movement mounted a vigorous and ultimately successful campaign to prevent the city fathers from granting the Deering company a bonus to locate in Hamilton.²⁰ Similarly in 1903 George Westinghouse, president of both the Canadian and American companies, engaged in a much publicized exchange with the American Federation of Labor President Samuel Gompers over the question of unionizing his staff; he made it quite clear that this was one corporation which would tolerate no workers' organizations in its plants.²¹ The Westinghouse management in Hamilton never departed from that position.

The strikes in Hamilton's metalworking plants over the three decades from the 1890s to the 1920s fell into a pattern of union resurgence and employers' counterattack, in three periods of peak prosperity: 1899 to 1906, 1911 to 1913, and 1916 to 1919; and in most cases employers sought to use a strike as an occasion to drive out the union. Hamilton industrialists also participated in schemes to weaken the negotiating power of unions, like legislative restraints

²⁰ Hamilton Public Library, Hamilton Collection, International Harvester Scrapbook, 1.

²¹ *Pittsburgh Dispatch*, 3 May 1903 (clipping in Westinghouse Canada Archives, P.J. Myler Scrapbook).

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and promotion of immigration;²² but probably more energy was directed to weakening the appeal of trade unionism through company-sponsored welfare programmes, which not only weaned workers away from reliance on the benefit schemes of the unions but also promoted loyalty to the corporation. Profit-sharing, benefit and pension schemes, and recreation programmes were introduced at the Steel Company of Canada, International Harvester, Canadian Westinghouse, Sawyer-Massey, and other large firms in the city before World War I and with new enthusiasm immediately after the war. In 1912 International Harvester and Canadian Westinghouse even undertook to pre-empt the social functions of trade unions and to promote craft pride within the confines of the company by inaugurating banquets of their most skilled machinists, the toolmakers. Seven years later International Harvester went so far as to launch an industrial council as an alternative form of "industrial democracy" to trade unionism. These corporations evidently saw themselves locked in a battle for the allegiance of their workers.²³

Only the stove foundries provided a significant exception to this pattern of anti-unionism in Hamilton's metalworking industries. By the 1890s two distinct branches within the foundry industry had emerged, each with its own distinct set of economic imperatives and pattern of labour relations. Moulders were employed either by one of several stove foundries or by one of the machinery or jobbing foundries and as a result did not share a single unifying experience.²⁴ By the early twentieth century stove manufacturers in southern Ontario and Maritime cities were struggling to get a toe-hold in the western Canadian market, where thousands of new farm homes would require stoves. The competition increased noticeably after 1900 when American manufacturers began to penetrate the same territory.²⁵

The similarity of the production process in each shop encouraged the stove founders to standardize their employment policies through a common front in

²² See Craig Heron and Bryan D. Palmer, "Through the Prism of the Strike: Industrial Conflict in Southern Ontario, 1901-14," *Canadian Historical Review*, 58 (1977), 446-56.

²³ Public Archives of Ontario, RG 7, XV-4, v.3; *LG*, IX, no.4 (October 1908), 378; no.7 (January 1909), 744-45; XIV, no.2 (August 1913), 117; *Herald*, 30 January, 22 November 1912, 10 February 1913; *Canadian Machinery* (hereafter *CM*), IX, no.7 (6 March 1913), 239; XI, no.5 (29 January 1914), 76.

²⁴ Given their penchant for "tramping" about in search of work or broader experience moulders undoubtedly accumulated experience in both branches of the industry as well as in small-town foundries where they might work alone. See "Passing of the Small Foundry," *CM*, XXI, no.1 (January 1925), 102; and the autobiographical articles of a Port Arthur foundryman, John Woodside, in *CF*, VIII, no.11 (November 1917), 195-96; X, no.12 (December 1919), 360; XI, no.1 (January 1920), 15; XIII, no.7 (July 1922), 36-37. And Stockton, *International Molders' Union*, 94. See also obituaries of Hamilton moulders in *IMA*, XLIV, no.7 (July 1908), 508; XLV, no.5 (May 1909), 331-32; no.7 (July 1909), 516; no.11 (November 1909), 779; L, no.12 (December 1914), 914.

²⁵ Like so many other Canadian businessmen faced with such a situation, Hamilton's stove foundrymen turned to the monopolistic alternative: between 1899 and 1901, and

their relations with their workers. After a long history of collective aggression against any combination of workers that threatened the manufacturers' right to control production,²⁶ the Hamilton foundrymen began at the turn of the century to accept joint negotiations with the International Molders' Union to produce common labour practices and wage rates in all shops. Between 1902 and 1908 the union introduced a system of centralized bargaining with a large number of the province's foundrymen, who in the latter year formally organized themselves into the Dominion Iron Founders' Defense Association, with Hamilton's John Tilden as its first president.²⁷ The economic slump of 1907-09, however, encouraged the founders to turn back to the older, antagonistic strategy, in order to force down wages in the face of even stiffer American competition. The *Industrial Banner*, Ontario's province-wide labour newspaper, later denounced this turn as "a manifest attempt to use the business depression as a lever to smash the labor organizations and put them out of business."²⁸

In February 1909 the Hamilton founders wiped out ten years of wage increases for the moulders by instituting a 20 per cent wage cut and declaring an "open" shop. By 1 March 170 moulders from the city's four stove shops had walked out. The strike dragged on for over two years, with the union moulders refusing to return at the new wage rates. The *Hamilton Herald* described it as "one of the most stubborn fights that was ever put up by a union in this city, as rather than give in, union moulders left homes

again in 1910, they undertook unsuccessful initiatives to consolidate all the major stove foundries in the province, along with a number south of the border. Their failure meant that the Canadian stove-founding industry was to remain an array of relatively small plants competing in a national market. *CE*, VIII, no.7 (July 1900), 62; *IMJ*, XXXVI, no.8 (August 1900), 534; *Iron Age*, 3 May 1900, 27; 23 August 1900, 16; 10 January 1901, 22; *Herald*, 6 July 1910. On the Canadian business community's "flight from competition" in this period, see Michael Bliss, *A Living Profit: Studies in the Social History of Canadian Business, 1883-1911* (Toronto 1974), 33-54.

²⁶ Palmer, "Most Uncommon Common Men," 252-57, 267-71; Kealey, "Honest Workingman," 42-47; Storey, "Industrialization in Canada," 130; House of Commons, Journals XXII (1888), App.3, 8-9, 391-97, 699-705; *Iron Age*, 23 August 1900, 16.

²⁷ The model for this centralized bargaining was the Stove Founders' Defense Association in the United States, which had originally been a militantly anti-union organization but which began annual national conferences with the IMU in 1893. Frey and Commons, "Conciliation in the Stove Industry;" Stockton, *International Molders Union*, 120-25; F.W. Hilbert, "Trade Union Agreements in the Iron Molders' Union," in Jacob H. Hollander and George E. Barnett, eds., *Studies in American Trade Unionism* (New York 1907), 229-32. On the Canadian experience, see *IMJ*, XXXVI, no.3 (March 1900), 143; no.8 (August 1900), 534; XXXVIII, no.6 (June 1902), 385; XLII, no.3 (March 1906), 148; XLIV, no.5 (May 1908), 351; *Spectator*, 16 February 1909; *CF*, I, no.5 (October 1910), 18.

²⁸ *IMJ*, XLIV, no.6 (June 1908), 437; *LG*, VIII, no.9 (March 1908), 1059; no.10 (April), 1201. *Industrial Banner* (hereafter *IB*.), April 1909.

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and families and went to work in other places. Some even removed their families from the city."²⁹

The continuing need for skilled moulders, however, weakened such an antagonistic approach to the stove founders' labour problems. With a general scarcity of labour and renewed consumer spending during World War I, the union seems to have reasserted itself in the stove shops. A new working arrangement with the stove foundrymen's association appears to have evolved by 1919, and, despite some conflict over a wage reduction in the early 1920s, negotiations on the old province-wide basis continued. This branch of moulding, however, was obsolescent, as sheet metal increasingly replaced cast iron in household stoves. Slowly this pocket of strength for the unionized craftsman in the foundry trade dwindled into insignificance.³⁰

The stove foundrymen's fluctuating labour policies, which made room for accommodation with the union, conformed to a pattern evident among a variety of domestic consumer-goods industries at the turn of the century. In the Hamilton boot and shoe and tobacco plants, for example, local industrialists had similar collective bargaining arrangements with their employees' unions. Generally, however, this approach to management was declining, and, outside of the stove shops, employers in the city's metalworking factories made eradication of craft unionism among their workers the bulwark of their management strategies.

IV

EMPLOYERS WERE not simply attempting to eliminate unions in order to push their workers harder; they were equally concerned about having the flexibility to re-organize the work process in order to rid themselves of their reliance on testy, independent-minded craftsmen whose union regulations kept the supply of new men and the pace of work strictly under control. After 1900 Hamilton employers' strategies fit into an emerging consensus about factory management in Canada. During the decade before World War I Canadian companies succumbed to the North American mania for more "system" in industrial organization.³¹ At first the emphasis was on precise cost accounting as a means of

²⁹ The negotiations and the ensuing strike can be traced in *PAC*, RG 27, v.296, f.1909-3124; *LG*, IX, no.9 (March 1909), 936-37; no.10 (April 1909), 1146; and in the daily press early in 1909, especially *Spectator*, 15, 16, 18, 19, 23-26 February, 1, 3, 24, 27 March; and *Herald*, 24, 26 February, 15, 23 March. On the length of the strike see *ibid.*, 5 May, 5 August, 20 December 1910; *LG*, no.12 (June 1910), 1372.

³⁰ *IMJ*, LV, no.2 (February 1919), 140; LVI, no.2 (February 1920), 130; LVII, no.2 (February 1921), 99, no.3 (March 1921), 157; LIX, no.2 (February 1923), 96; *LN*, 30 January 1923; *New Democracy* (hereafter *ND*), 5 April 1923; Frey and Commons, "Conciliation in the Stove Industry," 125.

³¹ On the growing interest in "systematic" business management in the late nineteenth century, see Joseph A. Litterer, "Systematic Management: The Search for Order and

determining the actual production cost of an item and of isolating areas in the entire manufacturing operation where costs needed to be reduced. "Broadly speaking," wrote accountant H.L.C. Hall in *Industrial Canada*, organ of the Canadian Manufacturers' Association, "factory economy means the production of your output for less money. . . ." He suggested a two-fold purpose for a costing system: "First to induce economy by elimination of waste and second to induce economy by intensifying production." The manager could expect the "system" to tell him "the efficiency of every man and every machine per labour hour and machine hour," as well as informing him of "all delays and the reasons for the failure to arrive at the maximum." Often tied to these new cost-accounting plans were special wage-incentive schemes which encouraged each worker to attempt to increase his output in return for a bonus or premium in addition to his regular wages.³²

The fascination with "systematic" management began to reach full flower in Canada after 1911, when American writers, notably Frederick W. Taylor and his school of "scientific management," were catching great public attention. These new management specialists advocated complex procedures for establishing "scientific" norms for the speed of work based on stop-watch measurement, along with incentive wage payment systems that both rewarded the fast worker and punished the laggard. A key tenet of the Taylor system was the centralization of all control over the production process in the hands of the managers through planning, routing, scheduling, and standardization.³³ The

Integration," *Business History Review*, 35 (1961), 461-76; Daniel Nelson, *Managers and Workers: Origins of the New Factory System in the United States 1880-1920* (Madison, Wisc. 1975), 48-54. Canadian business journals directed their readers' attention to various management theories and experiments in North America. In 1905 the *Canadian Engineer* began a two-year series of articles by one A.J. Lavoie on system in business operation. The outpouring from other publications included: G.C. Keith, "The General Scheme of Cost Keeping," *CM*, I, no.4 (April 1905), 131-32; "Systematic Works Management," *ibid.*, I, no.10 (October 1905), 403; G.C. Keith, "Is Piecework a Necessity?" *ibid.*, III, no.4 (April 1907), 122-23; D.B. Swinton, "Day Work vs. Piecework," *ibid.*, II, no.12 (December 1906), 453; "The Art of Handling Men," *ibid.*, III, no.9 (September 1907), 27-29; "Machine Shop Time and Cost System," *ibid.*, 32-34; etc. Also H.C.L. Hall, "Economy in Manufacturing," *Industrial Canada* (hereafter *IC*), VI, no.7 (February 1906), 430-31; no.11 (June 1906), 732-35; VII, no.2 (September 1906), 103-5; "The Model Factory," *ibid.*, VII, no.7 (February 1907), 586-88; no.9 (April 1907), 723-25; C.R. Stevenson, "System Applied to Factories," *ibid.*, no.5 (December 1907), 420; L.E. Bowerman, "What a Cost System Will Accomplish," *ibid.*, VIII, no.10 (May 1908), 774-75; Kenneth Falconer, "Cost Finding in the Factory," *ibid.*, VIII, no.8 (March 1908), 639-40.

³² Hall, "Economy in Manufacturing," 420, 430, 732-33. The increasing use of time-clocks in Canadian factories facilitated the computation of precise labour-time. See my "Punching the Clock," *Canadian Dimension*, 14 (December 1979), 26-29.

³³ Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century* (New York 1974), 85-138; Bryan Palmer, "Class, Conception and

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Canadian business press generally applauded these new plans. *Canadian Machinery*, metal-trades journal of the Maclean publishing empire, declared that "The principles are general in their application and where applied, valuable results will be obtained," and *Industrial Canada* concluded in 1914: "The experience of manufacturers seems to be that scientific management decreases a staff while it increases its efficiency. . . . Reports from firms on this continent show that scientific management has become practical."³⁴ Clearly new ideas were in the air about how to run a factory.

Managers in Hamilton's metalworking industries used three related tactics to pursue their goals of tightening their grip on the labour process, speeding up production, and reducing labour costs. Wherever possible the chief elements in a re-organization of production in the city's foundries and machine shops became narrowing the work of the skilled, upgrading labourers to become "handymen" who specialized in only one fragment of the process, and introducing new machinery. "If skilled labor is necessary," argued one foundry expert, "means must be used to apply the skill only to those operations in which it is needed, subdivision of labor and the use of mechanical appliances and power being applied wherever this can be profitably done."³⁵ As the subdivision of labour and co-ordination of production progressed, primitive notions of assembly-line production began to appear. A Hamilton *Herald* reporter spotted this trend on a tour through the new Westinghouse plant in 1905:

The thing that strikes the notice of the observer before all else is the manner in which everything is planned out so that everything that is being made makes a direct progression through the works. Economy is seen everywhere. The raw materials are delivered to the spot where they will be used. . . . And the machines are situated so that each piece passes right down the line to where the parts are assembled and put together ready for testing and shipping. Nothing is handled twice. . . . Everything works like clock-work, and all are truly "parts of one stupendous whole."³⁶

Innovation in Canadian factories tended to be slower than in the United States, since with a much smaller market the work tended to be less specialized. In 1905 *Canadian Machinery* lamented that "the demand for a large class of machinery is still quite limited or orders for such machinery are often a year

Conflict: The Thrust for Efficiency, Managerial Views of Labor and the Working Class Rebellion, 1903-22," *Review of Radical Political Economics*, 7 (1975), 31-49; Nelson, *Managers and Workers*, 55-78; Samuel Haber, *Efficiency and Uplift: Scientific Management in the Progressive Era, 1890-1920* (Chicago 1964), 52-55; Heron and Palmer, "Through the Prism of the Strike," 430-34; Graham S. Lowe, "The Rise of Modern Management in Canada" *Canadian Dimension*, 14 (December 1979), 32-38.

³⁴ *CM*, VII, no.2 (February 1911), 58; *IC*, XIV, no.4 (November 1913), 423.

³⁵ Arthur Smith, "Methods of Solving the Problem of Foundry Help," *CF*, V, no.5 (May 1914), 85.

³⁶ *Herald*, 14 October 1905 (clipping in Westinghouse Canada Archives, P.J. Myler Scrapbook).

or more apart. . . .³⁷ But Hamilton's large American-owned operations with specialty lines were able to introduce the latest technology and management and were frequently cited as models of technical and organizational sophistication.³⁸ Even smaller, Canadian-owned firms in Hamilton, like the London Machine Tool Company and the Ford-Smith Machine Company, were cited by business journals as innovative leaders in their field.³⁹

Since the restructuring of the labour process moved at different paces in the foundries and the machine shops, we will consider each in turn. Foundrymen were well aware that skilled moulders could not be completely eliminated from the foundry. The machinery and jobbing shops in particular still needed the well-rounded craftsman who could prepare enormous castings for hydro-electric generators or any number of other diverse products. Wherever possible, especially in the stove foundries, the moulders' tasks were specialized. By the 1890s nine-tenths of North America's stove-plate moulders were reputedly engaged on piecework, a system where "few molders make the castings for an entire stove and range," and "where it becomes necessary to make it quickly if you desire to make fair wages and keep your end up."⁴⁰ A moulder's work could also be rigidly confined to the specific tasks requiring his expertise, while other repetitive or purely physical labour could be divided up amongst less skilled, lower-paid workers. Foundry work had always involved sundry unskilled labourers and moulders' helpers, at one time known as "bucks" or "berkshires," as well as a small stock of men whose experience was in small, non-union shops and who never served a proper union apprenticeship. All of these men would develop some familiarity with foundry practice without ever attaining full craftsmanship. One writer in the trade press explained how to draw on this pool of unskilled men to create handymen:

There are in nearly every foundry, certain laborers who, either through lack of opportunity or neglect have not in their boyhood days acquired a trade. They have now passed their early youth and look grimly into a sordid future at laborer's wages. This class of men respond readily to the foundryman who is endeavoring to develop molders by rapid stages.⁴¹

International Harvester's Hamilton operation made full use of such unskilled help, especially new European immigrants, by organizing them into

³⁷ *CM*, I, no. 7 (July 1905), 273.

³⁸ On International Harvester see *Iron Age*, 1 September 1904, 1-9; 8 September 1904, 7-12. On Weatinghouse see *CE*, XI, no. 6 (June 1904), 154-55; *Herald*, 14 October 1905; *CM*, I, no. 10 (October 1905), 383-88. On the Berlin Machine works see *ibid.*, IV, no. 12 (December 1908), 29-32.

³⁹ See, for example, *CM*, II, no. 7 (July 1906), 249-51; XXXIII, no. 3 (15 January 1925), 17-25.

⁴⁰ Frey and Commons, "Conciliation in the Stove Industry," 126; "Squire," "Stove Plate: Hints on an Important Branch of the Molding Industry," *IMA*, XXXII, no. 2 (February 1896), 63. See also *ibid.*, XXXVII, no. 4 (April 1901), 225.

⁴¹ Arthur Smith, "Methods of Solving the Problem of Foundry Help," *CF*, V, no. 5 (May 1914), 85.

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"gangs," each of which would perform one step in the moulding process. "The usual system," explained the *Canadian Foundryman*, "is to divide the help in the foundry into ramming, finishing and coring gangs." The gangs could also be organized side by side to stimulate increased production through competition. "Each man made part of a machine," reported the local union president, James W. Ripley, in 1910, "and they had to work like Trojans to keep up. No ordinary mechanic could work that way, because he could not stand the pace. . . . The foreigners were rugged men, but even they did not last long." The company also hired women to work as coremakers. A reporter who visited their workroom in 1907 was struck by the accelerated pace of production: "the girls were working apparently for dear life."⁴² Both immigrants and female labourers came to their jobs without any well-established customs of what constituted a "fair day's work" in the foundry, and both groups tended to leave the workforce quickly.



Machinists working in the Ford-Smith Plant in 1921. From Canadian Machinery.

This kind of subdivision of the moulder's tasks, however, was really only made possible by increased mechanization of foundry work. In particular, it required the introduction of the moulding machine. A 1908 article in *Canadian Machinery* described the advantages of this new device over the foibles of human producers:

The molding machine is purely and simply a mechanical molder and differing from its

⁴² *Spectator*, 20 April 1904; 16, 20 April 1907; Arthur Smith, "Moulding Machine Foundry Practice," *CF*, V, no.8 (August 1914), 143; *Herald*, 8 October 1910.

human competitor can work the whole twenty-four hours without stopping, knows no distinctions between Sundays, holidays and any ordinary day, requires as its only lubricant a little oil, being in fact abstinent in all other matters, has no near relatives dying at awkward moments, has no athletic propensities, belongs to no labor organization, knows nothing about limitation of output, never thinks of wasting its owner's time in conversation with its fellow machines. Wars, rumors of war and baseball scores, have no interest for it and its only ambition in life is to do the best possible work in the greatest possible quantity.⁴³

Actually, there was no one single machine, but rather a range of machinery with different applications. The earliest were hand-operated devices: the "squeezer," which pressed or "rammed" the sand into the mould by the use of a lever, and the stripping plate, which was used to draw the pattern out of the mould. Experiments began in the late 1880s to apply power to these processes and to combine the ramming and pattern-drawing; a further refinement was known as "jolt ramming" whereby the mould was dropped sharply by pneumatic pressure to pack the sand. Each year the American Foundrymen's Association convention featured more and more complex equipment on display. As well as specific devices for preparing the mould, North American foundrymen were soon fitting up their shops with a host of new labour-saving equipment: mechanical sand-mixers, conveyors to move the sand around the shop, tumbling barrels and pneumatic hammers and chippers for cleaning the castings, pneumatic ramming devices, and electric travelling cranes which could carry the iron to the mould or move moulds or castings easily.⁴⁴ The impact of all these additional devices was to lighten some of the burdensome work in the foundry and to reduce the time necessary for many of the ancillary tasks to the main arena of moulding.

Mechanization might have meant lighter work, but it also resulted in more castings per day. An Ontario factory inspector found that the men who operated the new machines had "to go lively, as the machines are generally speeded up to the limit." Margaret Loomis Stecker, a contemporary American student of moulding machinery whose sympathies lay with mechanization, noted that

molding machines, instead of being labor-saving devices in the sense that they made easier the work of the molder, often necessitated a material increase in effort by the man who operated them. Though time was actually saved in making any mold, the fact that more molds were produced meant that there was more sand to shovel, more molds to lift, more molds to pour, more castings to shake out.

She concluded that "the molding-machine operator became himself a mere

⁴³ "Moulding Machines: Principles Involved in Their Operation," *CM*, IV, no.4 (April 1908), 53.

⁴⁴ Victor S. Clark, *History of Manufactures in the United States: III, 1893-1928* (New York 1929), 85.

machine, with none of the variety to his work which characterized the skilled handworker."⁴⁵

Moulding machines were introduced into Canada relatively slowly. Canadian trade journals were passionate promoters of the new equipment and criticized Canadian foundrymen for their backwardness. The editor of the *Canadian Engineer* argued in 1906 that

the moulding machine is destined to revolutionize the foundry business, for when . . . a simple power machine, operated by one laborer, another shovelling sand, and one to carry out the flask, can turn out one mould per minute; or on a union rule of seven hours moulding, pouring 140 moulds per man; being twice as much as a union moulder can do by hand, then no enlightened owner of a foundry will submit to the primitive hand moulding methods of making duplicate castings, which we find in so many foundries in Canada today.⁴⁶

In April 1908 *Canadian Machinery* was able to announce that "During the last one or two years Canadian foundrymen have been realizing the value of moulding machines and several installations have been made, which are doing good work;" and in June it published a detailed analysis of moulding machine practice in an unidentified Canadian machinery foundry, where the installation of the machines and the use of handymen had cut production costs considerably. The same month, at the American Foundrymen's Association's first convention in Toronto, the new machinery was exhibited and discussed extensively. Canadian membership in the association immediately leaped from 17 to 57.⁴⁷

Hamilton's foundries were not slow to adapt. The two biggest, International Harvester and Canadian Westinghouse, were, in fact, pioneers in the field. Henry Pridmore, a leading manufacturer of moulding machines, had begun his experiments in 1886 in the McCormick Harvester works in Chicago where the company introduced the new machinery in a successful attempt to drive out the local moulders' union. A company executive later boasted: "Their great foundries and their novel molding machinery were the admiration of the iron world." Not surprisingly then, a visitor to the new Hamilton Harvester

⁴⁵ Ontario, Factory Inspectors, *Report, 1908* (Toronto 1909), 22; Stecker, "Founders, Molders, and Molding Machines," 438. See also Thomas F. Kennedy, "Banishing Skill from the Foundry," *International Socialist Review*, XI, no. 8 (February 1911), 469-73; and "A Molderless Foundry," *ibid.*, no. 10 (April 1911), 610-12.

⁴⁶ "The Coming of the Molding Machine," *CE*, XIII, no. 7 (July 1906), 265. The journal urged foundrymen to attend the annual convention of the American Foundrymen's Association to learn more about the new machinery. Among the few Canadians who did attend were Hamiltonians David Reid of Canadian Westinghouse and A.H. Tallman of Tallman Brass. *CM*, III, no. 6 (June 1907), 36-37.

⁴⁷ "Molding Machines: Principles Involved in Their Operation," *CM*, IV, no. 4 (April 1908), 53-56; "Molding Machine Practice in a Canadian Machine Foundry," *ibid.*, IV, no. 6 (June 1908), 65-66; no. 7 (July 1908), 46-48, 52; *IC*, VIII, (July 1908), 1108. *Canadian Machinery* carried numerous descriptive articles and advertisements for the machinery, as did the *Canadian Foundrymen* when it was launched in 1910.

plant's foundry in 1904 discovered moulding machinery in each moulder's stall.⁴⁸ The Canadian Westinghouse plant was similarly in the vanguard of managerial innovation. The superintendent of its foundry was David Reid, "one of the most prominent foundrymen of America." His extensive American experience had included managing a foundry where he had been responsible for some major restructuring of the work process: "By introducing modern methods here, such as molding machines, and dividing labor, whereby the molder practised the art of molding and nothing else, the melt was increased for 12 or 15 tons daily to between 50 and 60 tons."⁴⁹ Reid's influence, however, was not restricted to the Westinghouse foundry; in 1905 he became the president of the Associated Foundry Foremen of America, a scion of the American Foundrymen's Association, and launched a Hamilton branch. The purpose of the organization was "education" for better foremanship, and its meetings were devoted to discussions of more efficient foundry practice.⁵⁰

Mechanization in other machinery foundries in Hamilton seems to have proceeded quickly. Gartshore-Thompson and the Berlin Machine works had them as early as 1908, Bowes-Jamieson by 1911, and Brown-Boggs, Dominion Steel Castings, and the Hamilton Malleable Iron Company by 1913.⁵¹ The stove foundries showed some interest in the new machinery as well. Although this was not an arena where the moulding machine had been expected to make much impact,⁵² the committee of the American Stove Founders' Defense Association which investigated the new technology in 1908 concluded that "All stove patterns can be molded with some form of machine or device now in

⁴⁸ "Stripping Plate Machine: Inception and Development," *CF*, IX, no.6 (June 1913), 123; Robert Ozanne, *A Century of Labor-Management Relations at McCormick and International Harvester* (Madison 1967), 20-28; Cyrus McCormick, *The Century of the Reaper: An Account of Cyrus Hall McCormick, the Inventor of the Reaper: of the McCormick Harvesting Machine Company, the Business He Created; and of the International Harvester Company, his Heir and Chief Memorial* (Boston 1931), 131-250; *Iron Age*, 1 September 1904, 3. This must have been one of the first installations of moulding equipment in Canada.

⁴⁹ *CM*, II, no.4 (April 1906), 145-46.

⁵⁰ *Ibid.*, 145-46; *LG*, V, no.9 (April 1905), 1047; *CE*, XIII, no.8 (August 1906), 303. The foundry foremen's association became the subject of considerable controversy in 1906, since the moulders' journal was convinced the new organization was yet another union-crushing apparatus of the foundrymen. David Reid vigorously denied the charge, but in some North American cities it did conform to the union's expectations. See National Founders' Association, *Review*, February 1906, 17-18; *IMJ*, XL, no.8 (August 1904), 608-9; XLII, no.2 (February 1906), 98; no.3 (March 1906), 181-84; no.5 (May 1906), 358-60; no.7 (July 1906), 505-6; no.9 (September 1906), 670.

⁵¹ *CM*, IV, no.2 (February 1908), 58; no.12 (December 1908), 32; IX, no.1 (2 January 1913), 23, 52, 59; X, no.2 (10 July 1913), 41; *CF*, II, no.9 (September 1911), 18.

⁵² Abraham C. Mott, "Molding Machines for Stove Plates," *IMJ*, XXXV, no.9 (September 1899), 456-58; Frey and Commons, "Conciliation in the Stove Industry," 129-30.

use.”⁵³ These discussions coincided with the assault of the Dominion Iron Founders’ Defense Association on the moulders’ union in Ontario and the foundrymen’s desire to root out all obstacles to increased production at lower costs. As the Hamilton dispute reached the boiling point, the *Spectator* reported that stove manufacturers wanted to determine the value of the moulding machines and that “if they cannot secure the co-operation of the molders in trying them out, they will have to use other labor.” Within a few weeks the strike-bound Gurney-Tilden Company introduced its first mechanical devices — a compressed air moulding machine and several squeezers — along with Italian labourers, and by May precipitated a strike of their scab moulders, who promptly joined the union.⁵⁴



The smaller shops like Tallman's brass foundry, photographed during World War I, were slowest to modernize. Public Archives of Canada PA 24663.

Mechanization did not sweep relentlessly over the whole industry; in 1916, for example, the NFA's committee on foundry methods found that not more than 25 per cent of its North American membership had taken advantage of the available mechanical appliances. But it was in the larger foundries, such as

⁵³ "Foundry Machinery - Molding Machines, Flasks, Mills, Etc.," *CM*, V, no.1 (January 1909), 63-64; no.2 (February 1909), 59-60. The cities which the committee visited in its investigations included Toronto.

⁵⁴ *Spectator*, 23 February 1909; PAC, RG 27, v.296, f. 3148.

those that dominated the industrial landscape in Hamilton, that innovation was most advanced. By the 1920s most of the city's foundries had introduced a full range of mechanical devices. The machinery at the Hamilton Stove and Heater Company so impressed a foundry trade journalist in 1920 that he burred, "Verily, the molding machine only requires to be taught to talk, when it will be perfect." By 1928 the *Canadian Foundryman* could gloat over the sweeping changes since the pre-war years:

Twenty years ago an unskilled man in the foundry would not have been permitted to handle even a slick, being only allowed to assist in the ramming of big jobs perhaps, lifting or similar work. Now unskilled labor can step into an up-to-date foundry and within a few days perform a task equal to that of the skilled molder, due to present day equipment.⁵⁵

There was, nonetheless, a continuing need for the manual skill of expert moulders. A 1925 study of management practices in 54 Canadian foundries, undertaken by the Policyholders' Service Bureau of the Metropolitan Life Insurance Company, noted that "A foundry's proportional expenditure for labor in respect of total output is much higher than the average manufacturing plant." And an article on the Otis-Fensom Elevator Company's Hamilton plant pointed out that "with in most cases only a few pieces being required at one time from one pattern, good mechanics and the old system of hand moulding seems [sic] preferable." As the depression began to lift in the mid-1920s foundrymen undertook extensive discussions about where to find the skilled help they required now that the apprenticeship system was in disarray. It seems, however, that skilled moulders were needed in relatively small numbers. Between 1900 and 1913 in the United States, the percentage of skilled moulders in NFA foundries declined from 75.7 to 51.8, a trend which no doubt continued in the next decade. Canadian foundry experience probably paralleled this pattern. In 1911 census-takers found 1,015 moulders in Hamilton, but only 645 in 1921 and 695 in 1931.⁵⁶

By the 1920s, therefore, the role of the artisan in the foundry had been reduced to only those few tasks which could not be turned over to machines and handymen. Skilled workers had certainly not been banished from the industry, and their union survived down to the end of World War I on the basis of their continuing importance in the production process, however much that may have been eroded and confined. But they no longer wielded their artisanal control mechanisms for setting the pace of production as they had 30 years before. As early as 1909, Josiah Beare, a young union moulder in Hamilton, told a workmate: "Jim, I have worked too hard in my time; the pace is set too fast for the

⁵⁵ Stecker, "Founders, Molders, and Molding Machine," 435; *cf.* X, no.3 (March 1919), 58-59; XI, no.4 (April 1920), 115, XIV, no.10 (October 1923), 30; XVIII, no.5 (May 1927), 6-9; no.7 (July 1927), 6; no.10 (October 1927), 8-10; XIX, no.5 (May 1928), 17-18, 39.

⁵⁶ *Ibid.*, XVI, no.8 (August 1925), 9; XVII, no.7 (July 1927), 6; XIV, no.5 (May 1923), 33-37, 40; no.7 (July 1923), 17; Stecker, "Founders, Molders, and Molding Machine," 455; *Canada, Census, 1911*, VI, 310; 1921, IV, 402; 1931, VII, 184.

average man to keep up, and I am a nervous wreck;" he died six weeks later of "heart trouble." Half a century later Joe Davidson, future leader of Canada's postal workers, arrived in Hamilton as an experienced Scottish moulder and discovered "the more intense style of working" at Canada Iron Foundries; in nearby Dundas, he found, "The motto was 'produce or else' and every day was a mad race, the men working like beasts."⁵⁷

The technology and management of machine shops went through a similar, perhaps even more dramatic evolution. In the second half of the nineteenth century the arms and sewing machine industries had been in the forefront of technological experimentation in British and North American machine shop work. One of the most important developments had been the turret lathe, a machine mounted with a cluster of tools which could be applied to a piece of work in a sequence of operations without adjusting the material in the lathe (though until these processes were automated, the workman's manual skill was still required). The other great innovation was the milling machine, a device with a set of rotating cutting tools for planing, curving, or otherwise shaping the metal, which required less individual skill in the hands of the operator. From the 1890s onward, in response to the mass production demands of, first, bicycle manufacturers and, later, automobile makers, the tendency in mechanical innovation was for increasingly sophisticated, specialized tools with more automation in their operation. The introduction of electric motors also greatly increased flexibility in machine shop work, and, as in the foundry, mechanization came to include new cranes and overhead tracks to lighten and speed up handling. "In general," a historian of the industry has suggested, "the trend of machine tool development was toward reducing the amount of physical effort and skill required to control tools while at the same time making it possible to rapidly produce work of high quality."⁵⁸

In the closing years of the last century the industry was presented with an opportunity for yet another technological leap which would revolutionize machine shop practice. Throughout its history the machine tool industry had advanced by the experimentation of isolated individuals, often highly skilled artisans, scattered throughout the industry. In the last quarter of the nineteenth century, however, industrial innovation in the United States was increasingly taking place through a marriage with science, consummated in corporate research laboratories. One of these vanguards of the so-called "Second" Industrial Revolution was Pennsylvania's Midvale Steel Works, where in 1880 a

⁵⁷ *IMJ*, XLV, no.9 (September 1909), 647; Joe Davidson and John Deverell, *Joe Davidson* (Toronto, 1978), 39-40.

⁵⁸ Harless D. Wagoner, *The U.S. Machine Tool Industry from 1900 to 1950* (Cambridge, Mass. 1968), 18. See also Roderick Floud, *The British Machine Tool Industry, 1850-1914* (London 1976); Rolt, *Tools for the Job*; Nathan Rosenberg, "Technological Change in the Machine Tool Industry, 1840-1910," *Journal of Economic History*, 23 (1963), 414-43; *CE*, VII, (April 1900), 321; *CM*, I, no.2 (February 1905), 53; *Canadian Manufacturer*, XXX, no.1 (28 January 1910), 84.

young mechanical engineer, Frederick W. Taylor, began a 26-year scientific study to develop a new stronger form of steel for machine cutting tools. After moving to Bethlehem Steel, Taylor had the assistance of a metallurgist, Maunsel White, and in 1900 they unveiled the first fruits of their discoveries at the Paris Exhibition. Six years later Taylor took the annual meeting of the American Society of Mechanical Engineers by storm with his paper, "On the Art of Cutting Metals" (reprinted the next month in *Canadian Machinery*).⁵⁹ The use of this so-called "high-speed steel" allowed cutting speeds to be increased enormously, resulting in higher rates of production ranging from 50 to 400 per cent.⁶⁰ As a Canadian business journalist explained in 1910, "All the radical changes in machine tool practice in the past few years have been the result of the introduction of high speed steel."⁶¹

The widespread adoption of the new cutting steel followed from the insistent demand for greater output per machine. It is not surprising, therefore, that at the same time the machine shop should have been a leading industrial laboratory for new managerial experiments to rationalize and intensify the work process. It was no accident that Taylor should have been responsible for both the new technology of high-speed steel and the new school of scientific management; both aimed at increasing the output of labour at a lower cost per product. "The modern machine tool, coupled with good management, is a great factor in present-day competition," said a Canadian journal in 1910, "and the shop that is up-to-date is the one that produces at a minimum cost."⁶²

The use of unskilled labour was possible on machine tools which incorporated automatic features, but these mechanisms were installed only gradually. In 1905, for example, the *Hamilton Herald* found that in Canadian Westinghouse's modern machine shop automatics were not generally used.⁶³ A more common practice for reducing labour costs became subdivision of labour, using handymen as specialists on one simple machine that performed part of the work on a product. A 1913 survey of the industry in Canada indicated how far the process had advanced:

Modern methods of manufacturing are responsible for limiting the employment of men to specific operations only, and pursuit of the plan is making it hard to secure all-round machinists. Young men come into the factory and soon acquire the necessary skill to

⁵⁹ Rolt, *Tools for the Job*, 197-201; *CM*, III, no.1 (January 1907), 18-21; no.2 (February 1907), 50-51; E.R. Norris, "Machine Shop Equipment, Methods and Processes," *ibid.*, XVI, no.15 (12 October 1916), 393-95.

⁶⁰ *Canadian Manufacturer*, XXX, no.1 (28 January 1910), 84.

⁶¹ *Ibid.* See also G.S. Keith, "Five Years' Development of Machine Tools in Canada," *CM*, VI, no.1 (January 1910), 27-32.

⁶² *Ibid.*, VI, no.3 (March 1910), 51.

⁶³ *Herald*, 14 October 1905. The novelty of automatics was also evident in an amusing short story published in *Canadian Machinery* in 1908, in which a machine-shop apprentice had a nightmare about having to operate one of "them new-fangled autermatic marchines." See "Onlooker," "Tommy Fairfield's Experience With an Automatic Machine," *CM*, no.3 (March 1908), 42-43.

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become proficient drill press operators or milling machine operators. They are able to earn fairly good wages in a shorter space of time than if they served the necessary term of apprenticeship to become competent all-round machinists.

The trend was clear in Hamilton from the turn of the century. Information on 1901 wage rates in the city's machine shops reveals a range of specialized work for toolmakers, lathe hands, planer and shaper hands, vise hands and fitters, and drill hands, each with a different scale of wages. By 1908 specialization was so widespread that, surveying the sad state of unionism among the city's machinists, the union's Canadian vice-president concluded that the local lodge would "have to turn its attention soon to organizing the specialists' class before undertaking any important move in the machine trade."⁶⁴

World War I accelerated this trend. Almost every metalworking plant in the city re-opened and converted all or part of its production to filling large munitions contracts with Allied governments, mostly for shells. Many thus came to be engaged for the first time in the mass production of identical products. In the face of a severe labour shortage, these firms began to subdivide labour more extensively, using workers with no machining experience to operate simple "single-purpose" equipment which made only one of the series of cuts required on the shell. By the end of the war nine-tenths of the country's shell plants were using this specialized machinery.⁶⁵ These simplified procedures facilitated the introduction of unskilled women workers into the shell shops, which the Imperial Munitions Board's Labour Department began to encourage toward the end of 1916. A special employment bureau for women was opened in Hamilton in January 1917 in order to funnel more labour into the factories.⁶⁶ The advantage of such a new workforce over the artisanal sensibilities of the machinist was soon evident; it was found that "men of this description could be relied upon to do more than mechanics who had been accustomed to perform their work in the variety form; the repetition style of single operation to these latter being too monotonous for effective accomplishment."⁶⁷ While it was argued that the majority of shell workers were "illiterate help whose visible signs of intelli-

⁶⁴ "Developments in Machine Shop Practice During a Decade," *CM*, IX, no.10 (20 March 1913), 282; *LG*, I, no.9 (March 1901), 356-57; *MMJ*, XX, no.4 (April 1908), 319.

⁶⁵ "A Post-War Problem of Labor," *ibid.*, XVII, no.15 (12 April 1917), 381; Rodgers, "Evolution and Revolution," 677-82; "Tendency in Machine Tool Development," *ibid.*, XVIII, no.23 (6 December 1917), 630; J.H. Rodgers, "There Should Be No Post-War Slump in Machine Tools," *ibid.*, XX, no.7 (22 August 1918), 240-41; Rodgers, "More Efficient Methods Follow War Work," *ibid.*, no.26 (26 December 1918), 750-53. Throughout the war *Canadian Machinery* provided extensive reports and commentary on developments in munitions plants. Censorship regulations, however, prevented the journal from identifying the location of companies under discussion.

⁶⁶ Mark H. Irish, "'Dilution' of Labor in Canadian Munition Plants," *CM*, XVI, no.26 (28 December 1916), 717-19; *LN*, 12, 19 January, 23, 26 February 1917; *LG*, XVII, no.2 (February 1917), 97; *Herald*, 30 November 1916.

⁶⁷ Rodgers, "Evolution and Revolution," 680.

gence are limited to the turning of a hand wheel in one direction till it stops, and then in the opposite direction," there was some sentiment that "the training that the army of shell workers are receiving at the present time will fit large numbers for positions in the ranks of the 'skilled' mechanics, when the country settles down to peaceful pursuits," at least in those branches of the industry where high volume would be required.⁶⁸

Automation and subdivision of labour, of course, did not sweep aside all skill requirements. Much work, especially of the less specialized kind, continued to be done on machinery that required the touch of the craftsman. And, as one writer stressed, "the use of automatically controlled machines increases the need of skilful supervision and of skilled men for their construction and repair." This latter group included the emerging elite of the machinists' trade, the toolmakers, who prepared the jigs and dies for use on machines handled by the less skilled. During the war a *Canadian Machinery* editorial claimed, with well-mixed metaphor, that "the keystone of the whole fabric has been the craft, skill, perseverance and painstaking effort of that tiny group of workers known as toolmakers."⁶⁹

If some skill was still required, managers wanted to apply it as intensively as possible. One of the earliest tactics was doubling the workload by requiring a machinist to run two machines at once, a course which International Harvester followed in 1904. But the issue of operating two machines seems to have declined in importance for the machine-shop managers once high-speed steel had made its impact.⁷⁰

Moreover, across North America the two-machine issue was being eclipsed by the ever more common wage-payment schemes based on piecework, which machine-shop owners and managers were installing from the 1890s onward.⁷¹ Since the speed of work in the shop still depended largely on the speed of the individual machine operator, industrialists turned to payment by the piece as an incentive for each worker to produce more each day in the hopes of higher wages and as a goad to competitiveness between shopmates.

It is difficult to document specifically how extensively Hamilton industrialists adopted these new managerial practices, but in the years before World War I the city's machinists were certainly denouncing such plans. In February 1913 workers in the meter assembly department at Canadian Westinghouse objected to "a change in the method of giving out work and the consequent

⁶⁸ "Developing Present Help," *CM*, XVI, no. 14 (5 October 1916), 372; *R.I.N.*, "Machines and the New Mechanic," *ibid.*, no. 19 (9 November 1916), 496; *XX*, no. 26 (26 December 1918), 751.

⁶⁹ L.D. Burlingame, "Lathe and Screw Machine Automatic Control," *ibid.*, XV, no. 8 (24 February 1916), 171-75; "The Pre-eminence of the Toolmaker's Craft," *ibid.*, XVIII, no. 15 (11 October 1917), 422.

⁷⁰ "Multi-Machine Operation," *CM*, XIX, no. 2 (10 January 1918), 64.

⁷¹ The *IAM* president claimed in 1895 that "it has become an established system in nearly every section under the jurisdiction of our order. . . ." *IAM, Proc.* (1895).

adjustment in the piece work prices," and simultaneously workers in the punch department denounced time-clocks installed to keep closer track of their work. The spontaneous strikes which resulted in both cases quickly petered out.⁷² In his first report as the machinists' business agent in 1913 Richard Riley noted: "Mr. Taylor's system of scientific shop management is in use in some shops here. In one case, two cuts in piecework have taken place recently. A great many of the men don't know what they are getting until they get their pay envelope."⁷³ While it seems unlikely that pure and simple Taylorism was introduced in the city, at least some parts of the new management ideas were finding their way into the plants.

Opportunities quickly opened up during the war, under the pressure of munitions orders and labour shortages, for more managerial experimentation to speed up and rationalize production. A Hamilton employer of over 1,000 munitions workers claimed in 1916 that "There is no industrial system which brings out individual value so well as the piece system;" and Richard Riley reported that almost all shell work used the system.⁷⁴ In fall 1915 *Canadian Machinery* revealed how one shrapnel shell factory had increased its daily output from 800 to 2,700, largely as a result of "the efforts and ability of the company's executives in providing labor saving devices, improved machining methods, rebuilding machines, developing chute systems and otherwise keeping up every detail of the work to the last notch of efficiency." The following summer the same journal reported how another factory had adapted to the labour shortage and production demands: machines were re-arranged to allow one man to handle more machines; and machinists were discouraged from moving around the shop by using boys and labourers to perform all purely physical operations, to make rough cuts, to sweep up, and to bring tools and lubricants to the worker at his machines, and by installing several new drinking fountains and toilets ("this saved the time it took to walk 250 feet several times a day"). "The shortage of men," the journal happily concluded, "thus started what proved to be an efficiency campaign." Still another firm was cited in 1917 for having raised its daily capacity from 700 or 800 shells to 5,000, without expanding their floorspace appreciably.⁷⁵ Speed-up was under way in the machine shops as never before.

New technology and new schemes of management, therefore, set off what contemporaries called a "revolution" in the machine shop, and by the 1920s the machinists' craft had been fundamentally altered. G. L. Sprague, principal of the Hamilton Technical School, noted in 1921 what few opportunites

⁷² *Herald*, 19-20 February 1913; PAC, RG 27, v.301, f.13(11); f.13(15).

⁷³ *MMJ*, XXV, no.6 (June 1913), 588.

⁷⁴ *MMJ*, XXVII, no.9 (September 1915), 840; *Spectator*, 4 May 1916.

⁷⁵ *CM*, XIV, no.17 (21 October 1915), 384; D.A. Hampson, "Machine Shop Adaptation to Labor Shortage," *ibid.*, XVI, no.9 (31 August 1916), 225-26; J.H. Rodgers, "Evolution and Revolution in Machine Shop Practice," *ibid.*, XVII, no.26 (28 June 1917), 679.

remained for the highly skilled man:

Modern manufacturing methods have broken down standards in the machinist trades. Only in the tool room and repair departments are found men who could classify as all-round machinists. The rank and file of men operating machines in what is known as the metal trades are merely machine tenders, operators, and specialists, according to the mastery they possess in producing on some particular machine.⁷⁶

Outside of the toolrooms, repair departments, foremen's offices, and the small railway shops in the city, the day of the artisan in the machine shop was gone.

V

THE PROFOUND CHANGES of these years did not proceed smoothly or without resistance from the craftsmen who were being displaced. Through their craft organizations they voiced an eloquent critique of the major industrial trends of the age. In fact their all-round knowledge of the work process made them the most informed critics of the period. The editor of the *Iron Molders' Journal* had pointed out as early as 1897 how the benefits of the new metal-working machinery so often did not extend to the workers:

In a properly constituted society these innovations and improvements would be hailed with pleasure, as according to mankind further immunity from arduous toil in supplying his wants, but under present conditions the worker has learned too well that progress in this direction means further degradation and poverty for him.⁷⁷

The machinists' union was just as unhappy with the new techniques of workshop management; its constitution denounced the "pernicious" piecework system, which it saw as responsible for "cultivating man's selfish nature to the extent of losing sight of the rights of his brother workman." Similarly the IAM's Canadian Vice-President, James Somerville, argued:

When we say piece-work and task-work has [sic] the tendency to destroy the finer sensibilities in men, we know what we are talking about, and the world will yet give us credit for loftier motives than restriction of output. Touch the mainstring of the human heart and show an enlightened conscience where this accursed competitive system is leading to, and it is beyond you or I to conceive what the result will be.⁷⁸

There was a general fear, here as in other trades, that increased output would result in cuts in piece rates, and widespread concern about speed-up. In 1903 the union made a last desperate attempt to halt the spread of the system by forbidding machinists to work "by the piece, premiums, task, merit or contract

⁷⁶ G.L. Sprague, "Interest in Your Work an Absolute Necessity," *CM*, XXV, no.2 (13 January 1921), 39. See also T. Daley, "Machinists Should Be Given a Variety of Work," *CM*, XXIV, no.19 (4 November 1920), 427. Daley was works engineer at International Harvester.

⁷⁷ *IMJ*, XXXIII, no.5 (May 1897), 222.

⁷⁸ *MMJ*, IX, no.3 (March 1897), 218; XX, no.9 (September 1908), 808. The Winnipeg machinists' *Bulletin* lamented that "Overtime and piece work are twin devices by which individual greed is used to degrade the mass." IV, no.2 (February 1915), 1.

systems," under the penalty of expulsion, but much of the membership failed to conform. The union nonetheless continued to resist these innovations, and in 1909 the IAM president reported that at least 50 per cent of the strikes fought during the preceding year grew out of the employers' attempts to introduce piecework; "yet we can not credit ourselves with preventing the growth of this system, because, in my opinion, it is largely on the increase."⁷⁹ During a machinists' organizing drive, a front-page article in the *Hamilton Labor News* conveyed the local workers' indignation at how far these new managerial initiatives had gone: "The 'one man two machines,' the 'Taylor,' 'Scientific,' 'Premium,' 'piecework' and other systems introduced in the metal shops, are making of men what men are supposed to make of metals: machines."⁸⁰

Perhaps the craftsmen's most strident critiques of modern industry percolated through their persistent campaign for shorter hours of work. Not only did skilled metal workers raise this issue in virtually every confrontation with their employers, culminating in the post-war demand for an eight-hour day; the question of shorter hours was also one of the few workplace issues injected into politics. Hamilton's Independent Labor Party stalwart in the Ontario legislature, Allan Studholme, repeatedly introduced bills to establish a legal eight-hour day, and the buoyant Ontario ILP which emerged in 1917 entrenched a shorter-hours plank in its platform.⁸¹ In fact, the eight-hour day had become the leading concern of the entire Canadian labour movement by the time of the convening of the National Industrial Conference in Ottawa in September 1919.⁸² In an age when employers were straining their imagination for new ways to increase the workload required each hour, in order to speed up production and cheapen labour costs, skilled workers in Hamilton, as elsewhere in Canada, fought to control how long they would have to labour at the new pace. As a union moulder asserted in 1921, "A working man appreciates life just as much as anyone else does and he should not be expected to slave so that others could have comfort."⁸³

As an alternative to the rationalizing tendencies of corporate capitalism, these craftsmen asserted the less authoritarian, more decentralized, craft-dominated routines of the immediate past, which company managers were seeking to root out. Their strategy of opposition, therefore, was to attempt to re-establish the control mechanisms of the crafts over the metal-working factories, by compelling employers to adopt their "schedules" setting out the conditions of employment. They clung tenaciously to their craft unionism and made no substantial efforts to broaden their membership base and draw in their less skilled workmates.

⁷⁹ Perlman, *Machinists*, 29; *MMJ*, XXI, no. 9 (September 1909), 928.

⁸⁰ *LN*, 1 March 1912.

⁸¹ *Herald*, 18 March 1910; Canada, Department of Labour, *Labour Organization in Canada, 1919* (Ottawa, 1920), 57.

⁸² See Canada, National Industrial Conference . . . , *Official Report of Proceedings and Discussions* . . . (Ottawa 1919).

⁸³ *CF*, XII, no. 3 (March 1921), 41.

The moulders, of all the metal trades workers, probably had most to lose, since their union and its traditions were so well entrenched in Hamilton at the turn of the century. In the fifteen years after 1905, the stove moulders fought one major strike, which has already been described, and the machinery and jobbing moulders five more. There were three periods of renewed strength for this latter group; 1905-07, 1911-13, and 1917-19. In each instance, their value to employers in the booming local economy won for them verbal agreements for wage increases and tacit acceptance of the craftsmen's shop practices; but in each period employers promptly fought back against these union incursions. In all three periods it was a downturn in the economy which brought defeat for the moulders. By 1913 the union had signed up members in eleven large firms, established the nine-hour day, and won wage increases in eight of the largest companies.⁸⁴ Three others, however, refused to concede the union control of production. A Westinghouse official explained what was at stake: "In reality, it was an effort to make this Foundry a strict Union Shop with union committees and other union regulation of its operation." The ensuing strike severely disrupted production, costing the Westinghouse plant alone some \$100,000, but it collapsed in the depression that began in the second half of the year.⁸⁵

The general stimulus of the war economy eventually brought back full employment and renewed union activity in the machinery and jobbing foundries.⁸⁶ Early in 1918 the union's bold demand for an increase from \$4.50 to \$6 a day raised the hackles of the foundrymen, and a month-long strike of 250-300 men from eight shops was only ended through the intervention of Mark Irish of the Imperial Munitions Board.⁸⁷ In May 1919, with unemployment in the foundries mounting steadily, the foundrymen, in Hamilton and other Canadian cities, dug in their heels to resist the union's new demand for an eight-hour day and another wage hike. The Hamilton Employers' Association, formed in 1916, joined hands with Toronto employers to fight the metal trades unions. Once again their refusal to budge kept their shops "open" until depression, which settled in again in 1920, eroded the moulders' bargaining strength.⁸⁸

⁸⁴ *LG*, XI, no.11 (May 1911), 1355; XII, no.12 (June 1912), 1175-76; *Herald*, 18 April, 9 May 1912; *LN*, 10 May 1912; *IMJ*, XLVIII, no.6 (June 1912), 45; *PAC*, RG 27, vo.299, f.3492.

⁸⁵ *IMJ*, XLIX, no.4 (April 1913), 315; *LG*, XIII, no.10 (April 1913), 1060, 1139; XIV, no.1 (July 1913), 87, 91; no.3 (September 1913), 355; Hamilton Trades and Labor Council, Minutes, 18 April 1913, 257, 261; 2 May 1913, 263, 267; 16 May 1913, 274-75; 6 June 1913, 280; *PAC*, RG 27, v.301, f.13(27); *Herald*, 31 January, 17 February, 26 March, 11, 21, 22-26 April, 5 June 1913.

⁸⁶ *IMJ*, LII, no.4 (April 1916), 343; no.6 (June 1916), 466; *LN*, 8 September, 8, 29 December 1916; 12 January, 18 May 1917.

⁸⁷ *LG*, XVIII, no.12 (June 1918), 408; *PAC*, RG 27, v. 303, f. 18 (80); *LN*, 3, 10 May 1918; *Herald*, 3, 6 May; 1 June 1918; *IMJ*, LIV, no.6 (June 1918), 448; no.7 (July 1918), 542.

⁸⁸ *PAC*, RG 27, v. 312, f. 19 (104); *LN*, 9, 16 May; 20 June; 8 August; 12 September; 7 November; 25 December 1919; 13 February; 7 May; 5 June 1920; 29 July 1921; *ND*, 14

This time, however, the defeat seems to have been permanent; only two of the machinery firms gave in early in 1920, and one of these, the Hamilton Foundry Company, drove out the union in 1925.⁸⁹ Moreover, in 1920 the employers consolidated their strength in a large new open-shop organization, the Canadian Founders' Association (renamed the Canadian Founders' and Metal Trades' Association a few months later), whose commissioner, C.W. Burgess, kept up a belligerent anti-union campaign well into the 1920s.⁹⁰ A *Canadian Foundryman* editorial caught the tone of the employers' attempts to roll back the advances workers had made during the war: "What is more important . . . than the readjustment of wage rates is that the workmen agree to remove the restrictions upon output which have been a crying evil in the period now drawing to a close."⁹¹

Before World War I the machinists' organizations in Hamilton had considerably less success than the moulders in stemming the tide of change in their working lives. Their only major strike before the war was an unsuccessful confrontation with *International Harvester* in 1904 over the two-machine question.⁹² Efforts to rally Hamilton's machinists again before the war had no lasting impact. In 1910 the union's Canadian vice-president scoffed that "the machinists of Hamilton are ignorant of the principles of unionism . . ." and that "they appear to have some hobby or other that seems to occupy their valuable time that should be devoted to improving their conditions." A year later he told the Hamilton lodge that "the wages paid in Hamilton would not do credit to the men who swept the city streets." In 1917 Hamilton Business Agent Richard Riley had to admit that "for the past fifteen years in the majority of shops in this city the machinists have not dared to admit they belonged to the IA of M, and employers did as they pleased with them."⁹³

This record of failure was not always the result of inertia. A province-wide organizing campaign begun early in 1912 generated a spurt of local activity, including weekly mass meetings and home visitations. A new schedule was drafted to be presented to the city's employers, demanding a nine-hour day,

January 1920; *CF*, XI, no.1 (January 1920), 28; *Herald*, 29-30 April; 1-3, 6-8, 12 May 1919; 17-18 February 1920; *Spectator*, 28 May 1919; *PAC*, MG 28, I, 230, v. 17, f. 1918-19, 11 April 1919.

⁸⁹ *PAC*, RG 27, v.334, f.25(10).

⁹⁰ Canada, Department of Labour, *Report on Organization in Industry, Commerce, and the Professions in Canada* (Ottawa 1923). For Burgess' attacks see, for example, *CF*, XIV, no.6 (June 1923), 32-34; *MMJ*, XXXVII, no.1 (January 1925), 25; *Canadian Congress Journal*, III, no.12 (December 1924), 37.

⁹¹ *CF*, XII, no.1 (January 1921), 37.

⁹² *MMJ*, XVI, no.3 (March 1904), 226; no.7 (July 1904), 603-4; *Spectator*, 27, 30 May, 3, 10, 14 June, 3, 12, 15 August 1904; *LG*, IV, no.12 (June 1904), 1209; V, no.1 (July 1904), 84; no.3 (September 1904), 240, 294.

⁹³ *MMJ*, XXII, no.3 (March 1910), 244; no.5 (May 1910), 441; XXIII, no.3 (March 1911), 230; XXIX, no.2 (February 1917), 158; *ib.*, April 1911.

higher wages, and a re-establishment of craft controls. The men who undertook this initiative were not prepared to accept the undermining of their craft that had occurred during the previous two decades. In the first article of their new schedule they explicitly stated that "Helpers or handy men shall not be allowed to perform any work designated as machinists' work," and that a four-year apprenticeship system should be re-introduced, with no more than one apprentice for every five machinists employed in any one shop.⁹⁴ The impact of this organizing effort was quite limited, not least because some companies granted voluntary wage increases to head off unionization. By summer 1913, as some of Hamilton's largest firms began laying off staff in the first wave of the mass unemployment that was to ensue, Riley indicated how little headway the campaign had made:

The average machinist who works ten hours per day, which is the rule in this district, and who during that ten hours has a speeder standing over him, or the man who has to work all day at top speed to make \$3.25, has not energy enough left to drag his weary limbs to an open meeting or to discuss trades unionism if you call upon them [sic].⁹⁵

The efforts of the machine-shop craftsmen to re-establish their craft hegemony in the industry had evidently failed.

The wartime boom in Hamilton's machine shops, however, shifted the advantage once again to the machinists. By April 1915 Riley could report that all IAM members in the city were back at work, and indeed before long a severe shortage of qualified machinists was attracting more craftsmen to the city.⁹⁶ The machinists' value to the industrial life of the city, and of the country, reached new heights. So too, however, did their discontent with their working conditions. For the craftsmen working in these munitions plants the wartime labour process was clearly an intensification of pre-war patterns. Initially they found that the new burst of productive activity had made little difference to the longstanding policy of low wages and long hours. "Some of the firms are taking advantage of the unorganized state of the machinists," Riley reported in 1915, "by paying them starvation wages and working them overtime and on Sundays for straight time," and justifying their actions with appeals to patriotism. One Hamilton machinist railed against this situation:

The workers are by no means less loyal than the manufacturers, and if the capitalist were to contribute his industry and raw material absolutely free or at cost, the worker would be the first to follow, but since they are making fat profits out of the dire needs of

⁹⁴ *Ibid.*, *MMJ*, XXIV, no.2 (February 1912), 140, 150; no.3 (March 1912), 225, 247; no.4 (April 1912), 324, 256; no.5 (May 1912), 442, 449; no.6 (June 1912), 518; no.7 (July 1912), 634; no.8 (August 1912), 730; no.12 (December 1912), 1125; XXV, no.3 (March 1913), 254; *LN*, 2, 9 February, 8 March, 19 April 1912; *Herald*, 23 March 1912.

⁹⁵ *MMJ*, XXV, no.6 (June 1913), 588; no.9 (September 1913), 910. By September 1914 well over half of Hamilton's machinists were out of work. *LN*, 4 September 1914.

⁹⁶ *CM*, XIII, no.13 (18 March 1915), 227; *Hamilton Times*, 18 March, 28 June 1915; *MMJ*, XXVII, no.5 (May 1915), 448; no.11 (November 1915), 1021.

the government, we workers should at least receive our share, a living wage.⁹⁷

As more unskilled machine-tenders were hired, the wage question took on a new twist for the skilled machinist and toolmaker. Thanks to long hours at piecework and the accelerated rate of production, many of these new workers were soon taking home enormous pay packets.⁹⁸ Many of the skilled men, often working at straight hourly rates, resented the erosion of the wage differential that had always symbolized their value to industry. When asked why he was dissatisfied with his working conditions, one Hamilton machinist told a royal commission in Spring 1916: "Because, sir, there are other men on single operations who make a lot more than I do." Another complained: "Many men are running machines now who were farm laborers some time ago . . . and they make as much money as I do." The editor of *Canadian Machinery* reported that these newcomers to the machine shop "after a few days of preliminary training were receiving three, four and even five times what they earned before, while the mechanics and toolmakers about the shop who told these men what to do and set the machines in order that they could serve, were forced to work at less than half the wage." As tensions mounted in spring 1916, a Hamilton ASE official recalled bitterly that "the skilled workers in the factories greatly assisted their employers, and consequently their country, by instructing the unskilled . . . in the best ways of increasing their efficiency." The works engineer of International Harvester, T. Daly, also recognized how "This influx of unskilled labor in the mechanical field makes the machinist imagine his services to be underrated."⁹⁹

The local IAM lodge and ASE branch lost no time in organizing regular mass meetings to sign up hundreds of disgruntled machinists,¹⁰⁰ and on 1 April 1916 the IAM circulated to all the city's metal shops a new schedule of wages, hours, and working conditions for machinists. This new document, like its 1912 predecessor, was a blueprint for re-imposing rigid union policing of working procedures and re-asserting the hegemony of the craftsman over the city's machine shops. An appeal to artisanal pride had been a keynote of the union's organizing campaign; in a speech to Hamilton machinists Organizer McCallum said

⁹⁷ *MMJ*, XXVII, no.5 (May 1915), 448; no.9 (September 1915), 840; *LN*, 26 March 1915.

⁹⁸ *MMJ*, XXVII, no.9 (September 1915), 840.

⁹⁹ *Herald*, 3, 4 May 1916; Rodgers, "Evolution and Revolution," 680; see also "Man-Power Demands and the Supply," *CM*, XIX, no.17 (25 April 1918), 436. *Spectator*, 22 May 1916; *CM*, XXIV, no.19 (4 November 1920), 427.

¹⁰⁰ Nationally the machinists' leaders worked with the Executive of the Trades and Labor Congress of Canada to pressure the Borden government into guaranteeing a fair wage clause in munitions contracts. See D.J. Bercuson, "Organized Labour and the Imperial Munitions Board," *Relations industrielles*, 28 (1973), 602-16; Peter Edward Rider, "The Imperial Munitions Board and its Relationship to Government, Business, and Labour," Ph.D. thesis, University of Toronto, 1974, Chapter 9; Myer Siemiartycki, "Munitions and Labour Militancy: The 1916 Hamilton Machinists' Strike," *Labour/Le Travailleur*, 3 (1978), 134-37.

it was not to the credit of skilled machinists who had to spend years of apprenticeship and large sums of money for proper tools, to be working almost for laborers' wages and long hours. He declared that if printers, masons and bricklayers, and other building trades worked but eight hours a day, machinists at least should work no more.¹⁰¹

Hamilton's metal trades employers were soon alarmed at this resurrection of craft unionism in their midst. Individual skirmishes with union organizers gave way to a united front after the local branch of the Canadian Manufacturers' Association struck a special committee to co-ordinate a response.¹⁰² As employer hostility stiffened and a showdown seemed imminent, the federal government intervened promptly by appointing a three-man royal commission to investigate munitions workers' grievances in Hamilton and Toronto. The commission's hearings held in early May gave the machinists the public forum they wanted to carry on their arguments with their bosses. Riley ushered in a parade of worker witnesses and was allowed to cross-examine company officials.¹⁰³ The sessions often turned into extended debates over the nature of work in the city's machine shops, including conflicting views on a worker's productivity in a nine-hour day. All the resentment against the previous decades' changes in their workplace experience bubbled up in the munitions workers' testimony.

It quickly became clear that, while most workers wanted higher wages to meet the rising cost of living, the union demand for a nine-hour day focussed on the crux of their discontent. A *Herald* report on the hearings highlighted this concern:

The evidence of the employees was to the effect that the men are dissatisfied mainly because the hours of work are ten to the day; that the machines are run at a higher speed than they were in times of peace, and that the consequent strain on their constitutions was too great to permit them to work ten hours a day. Although the average machinist receives about 37½ cents per hour, a considerable advance compared with some years ago, still the men contend that owing to the strain of production with machines speeded up to the limit, a man's life as a machinist or munition worker contains few attractions aside from the weekly or monthly pay envelope.¹⁰⁴

The employers nonetheless continued their resistance to a shorter working day, correctly fearing a precedent for post-war industry, and rejected the commission's final recommendation in favour of the nine-hour principle.¹⁰⁵ Early in June, 38 of the city's leading firms gave birth to the Employers' Association of Hamilton, which announced in a series of strident newspaper advertisements that its purpose was "to see that there shall be no improper restriction of output, and that no conditions shall arise to prevent any workman from earning a wage proportionate to his productive capacity." After several weeks of frantic

¹⁰¹ *LN*, 7 April 1916; 28 January 1916.

¹⁰² *PAC*, MG 28, I, 230, v.17, f.1915-16, 5 April 1916.

¹⁰³ *Spectator*, 2, 4-5 May 1916; *Herald*, 3-5 May 1916.

¹⁰⁴ *Ibid.*, 5 May 1916.

¹⁰⁵ *PAC*, MG 30, A, 1b, v.2, f.11 (Department of Labour, 1916). The report was printed in *LG*, XVI, no.12 (June 1916), 1295-97.

lobbying by federal and municipal officials to head off the inevitable confrontation, some 1,500 machinists and unskilled munitions workers walked out on 12 June, demanding implementation of the royal commission's recommendations. According to the *Spectator* the strike was "a contest of the open shop against the one operated under union regulations . . . [;] each is fighting for what it regards as principle."¹⁰⁶ The strike, however, had floundered by the end of the summer, in the face of government censorship and renewed rivalry between the IAM and ASE.¹⁰⁷

Summer 1916 was thus a historic moment in the evolution of the machinists' craft in Hamilton. War conditions had given both the pressing need and the collective strength to protest changes in their working lives which, while more intense under war production, were simply the culmination of two decades of industrial practice. As ASE representative Fred Flatman argued during the strike, "Matters only started to reach a head some eight weeks ago, but we have been fighting for this thing for years', have been fighting to get a nine-hour working day, fighting long before munitions were introduced in our factories."¹⁰⁸ These artisans of the machine shop were attempting to re-assert their old craft control over the work process in which they were involved and in so doing met the combined resistance of Hamilton's manufacturers, who could not countenance such a rupture in the new work routines they had been developing. Never again were the Hamilton machinists able to mount such a challenge. While several firms in the city eventually did concede the shorter working day before the end of the war, it was in each case a gesture meant to pacify their workers without conceding any power to the craftsmen's union.¹⁰⁹ And when industrial unrest in Canada was reaching a peak in spring 1919, Hamilton's machinists were in no position to join the general strikes of metal trades workers in several other centres.¹¹⁰

The depression of the early 1920s left little chance for a quick recovery of union strength. But for the first time since the 1890s the return of prosperity in the late 1920s saw no revival of unionism in the machine shops in Hamilton, as elsewhere in Canada. Only in the railway shops was the IAM able to hold on to

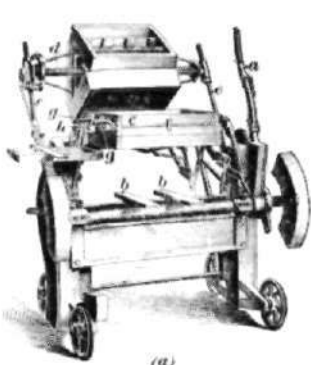
¹⁰⁶ *Times*, 10 June 1916; *Spectator*, 9, 12 June 1916.

¹⁰⁷ For a thorough discussion of the evolution of the strike and its demise see Siemiatycki, "Munitions and Labour Militancy," 137-51. A similar, though less dramatic strike was waged that spring against the Toronto, Hamilton, and Buffalo Railway by the machinists, boilermakers, blacksmiths, and carmen in a short-lived system federation. It was equally unsuccessful and destroyed the federation. See PAC, RG 27, v. 557, f. 1916-49B.

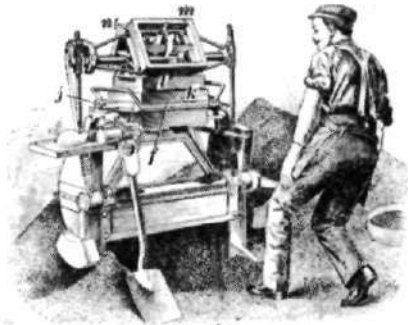
¹⁰⁸ *Times*, 12 June 1916.

¹⁰⁹ *LN*, 11 May 1917; 27 March 1918; *MMJ*, XXIX, no.4 (April 1917), 438.

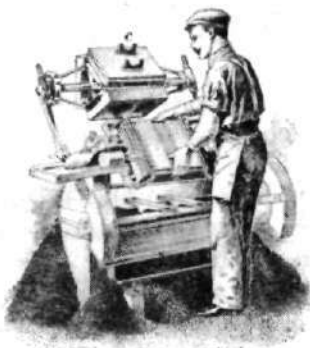
¹¹⁰ *Herald*, 30 April 1919; *LN*, 23 May 1919; Canada, Royal Commission on Industrial Relations, "Evidence" (typescript at Department of Labour Library), III, 2267. A new schedule from the local machinists' union submitted to Hamilton employers in the spring of 1919 was completely ignored. *Ibid.*, 2265.



(a)



(b)



(c)



(d)



(e)



(f)

Operating a moulding machine, c. 1900. International Correspondence School. Machine Molding . . . Metropolitan Toronto Library Board.

any significant membership. In 1927 IAM Canadian Vice-President James Somerville indicated that organizing efforts had not yet “developed anything to create excitement or to write home about, . . .” and a year later he declaimed: “The average wage paid machinists in Canada off the railways is a dis-

grace. . . ."¹¹¹ The failure of the machinists to rise phoenix-like from the depression did not simply indicate inertia or apathy. The craft had now been so thoroughly altered that there was no longer a basis on which to build a viable craft union movement in Hamilton's metalworking factories.

While the rhythm of change was quite different in the foundry and the machine shop, the cumulative effect was similar. What is remarkable is how little inclination the moulders and machinists showed to re-orient their defensive strategies by uniting with other skilled metal workers or with their less skilled workmates. Within the ranks of the moulders, the men in the stove shops and those in the machinery and jobbing shops went their separate ways, with no hint of a sympathetic strike. In 1913 Hamilton's moulders made their first and only attempt to organize machine-tenders in the foundry and to set a fixed rate for their work — in effect, to extend the union's extensive work regulations to cover moulding-machinery work. At this point Canadian Westinghouse's concern about the contamination of its handymen by the unionized skilled workers became one of the factors in its decision to build its new foundry, designed for moulding machinery work, in the opposite end of the city from its existing plant. But the 1913 strike ended in defeat for the moulders, and they undertook no further efforts to organize the less skilled.¹¹²

Similarly the wartime experience of skill dilution did little to alter the traditional craft pride of Hamilton's machinists. By the 1916 strike the union had begun to include specialists in its membership but not the less skilled shell workers. The local business agent heaved a sigh of relief when the munitions industry shut down: "We say good-bye with great pleasure to the shell operators and hope they will never have another opportunity or excuse for being caught in a machine shop." In 1919 the only union members in International Harvester's huge staff were the cream of the craft, the toolmakers. And rather than turning to a new organizing strategy with a wider membership base, the union took up the cause of a new category of craftsmen outside the factories, the auto mechanics.¹¹³

There were some halting attempts towards metal trades solidarity, usually spearheaded by the machinists (whose international union after 1912 was committed, at least rhetorically, to socialism and to some form of craft amalgamation as a step toward industrial unionism¹¹⁴); but in Hamilton none of these

¹¹¹ *MMJ*, XXXIX, no.3 (March 1927), 169; XL, no.5 (May 1928), 301.

¹¹² PAC, RG 27, v.301, f.13(27). This dispute involved only 38 machine tenders out of 276 strikers. The union was attempting to establish a minimum wage of \$2.50 per day for these workers, compared with \$3.25 for skilled moulders. Westinghouse Canada Archives, F.A. Merrick, "Report on Plant and Operation Year 1912" (typescript), 9-10.

¹¹³ Royal Commission on Industrial Relations, "Evidence," 2278; *MMJ*, XXXI, no.1 (January 1919), 58; no. 12 (December 1919), 1127.

¹¹⁴ Perlman, *Machinists*, 39-56; John H.M. Laslett, *Labor and the Left: A Study of Socialist and Radical Influences in the American Labor Movement, 1881-1924* (New York 1970), 144-79.

efforts ever effectively broke the bounds of craft exclusiveness. A Metal Trades Council formed in 1910 perished in the pre-war depression, only to be revived again for a year in 1919-20. In each period of its existence the council seems to have been little more than a forum for the exchange of information and the clarification of jurisdictions, although in 1920 a joint organizing drive was undertaken under the council's sponsorship.¹¹⁵ In 1913 the moulders' representatives in the AFL Metal Trades Department squelched an effort to use these local councils as general strike committees against one or more employers.¹¹⁶ *The International Molders' Journal* thundered in 1915:

Are the molders, who have maintained their union for fifty-six years, and who have made it one of the most effective trade-unions in the world, willing to surrender their organization and afterwards allow men of the other trades to determine what the laws shall be which will govern molders?¹¹⁷

True to form, the moulders' union in Hamilton refused to join the revived council in 1919.¹¹⁸ A more overt effort at collective action among the city's metalworkers began in spring 1918 when the IAM and ASE formed an Amalgamation Committee. The committee's leading propagandist, Fred Flatman, campaigned vigorously among the other metal-working crafts to generate interest in the fusion idea, winning at least a lukewarm reception, but this initiative collapsed when Flatman and several other militants opted for the short-lived Metal Workers' Unit of the One Big Union.¹¹⁹ In spring 1919 *Labor News* editor Walter Rollo reminded his readers that there were "thousands of handy men, specialists, grinders, helpers and laborers working in the big East End plants with no organization at all. . . ." ¹²⁰ Perhaps the only significant departure from narrow craft lines was the insistent demand for shorter hours, which arguably would benefit all workers in an industry.

This reluctance of the craftsmen to embrace the unskilled was fed from two directions. The most evident was the nativist bias of the predominantly Anglo-Saxon skilled workers against the thousands of European immigrants who were swelling the ranks of the unskilled in Hamilton's factories in this period. In 1913, for example, a "foreigner" hired by Westinghouse to work in the coremaking department of this foundry was beaten up at quitting time by two

¹¹⁵ *Herald*, 16 April 1910; Canada, Department of Labour, *Labour Organization in Canada, 1911-14, 1919-20*; *ND*, 14, 28 January, 5 February 1920; *LN*, 22 January, 13 February, 5 March, 20 August 1920.

¹¹⁶ Albert Theodore Helbing, *The Departments of the American Federation of Labor* (Baltimore 1931), 48-51; Stockton, *International Molders' Union*, 112-13; Bruno Ramirez, "Collective Bargaining and the Politics of Industrial Relations, 1896-1916," Ph.D. thesis, University of Toronto, 1975, 197-99.

¹¹⁷ *IMJ*, LJ, no. 7 (July 1915), 517.

¹¹⁸ *LN*, 2 May 1919.

¹¹⁹ *Ibid.*, 1 March, 12, 19 April; 5 July 1918; *Labour Organizations in Canada, 1919*, 35. The amalgamation idea was revived under left-wing sponsorship again in 1923. *LN*, 28 August 1923.

¹²⁰ *Ibid.*, 23 May 1919.

English-speaking coremakers, and, when the pair was fired for the assault, their fellow-workers marched out in sympathy.¹²¹ Ethnicity was certainly one of the most effective divisive factors in the Hamilton working class. The other source was a subtler strand in artisanal culture. Craftsmen placed a high value on the self-reliant, independent man of principle who stood by his craft organization. Appeals to non-unionists were usually exhortations to individual conscience and a sense of "manhood." In 1914 the local *Labour News* described "a sort of unwritten law in the Hamilton Trades and Labor Council not to waste much time in giving any aid to any class of wage earners who were persistent in refusing to aid themselves . . . who will not recognize the principle of self help and unite and maintain an organization."¹²² The artisans' moral criteria for the independent, self-disciplined character of a good worker apparently blinded them to the concrete difficulties faced by the unskilled in organizing on the job.

The limitations of craft culture, however, do not seem to have been the only obstacle to class solidarity among these skilled men. By the early twentieth century the unions' older notion of "brotherhood" in the workshop was competing with an increasingly potent alternative view of quick economic gain among the rank and file. Several factors intensified this more self-centred, instrumental approach to work. During these years great hordes of workers, especially young men, were setting out from Britain, the United States, or some Canadian town or city in search of work and high wages, always moving in a restless spirit of adventure. The machinists recognized a whole category of such craftsmen known as "boomers," who pursued new jobs and high pay across the continent. The 1916 royal commission heard several of these men; one from Buffalo hit the road from Hamilton "just for a change" and another arrived from Detroit "just to see Hamilton."¹²³ Many of them were keen union activists who carried their union principles through many shop doors. But many, especially those recently off the boat from Britain, were far more interested in the comparatively higher wages they could suddenly earn. Hamilton moulder James Roberts roasted these Old Country freebooters in 1912, and Richard Riley similarly denounced them a year later:

The majority of such men seem to think that they are dropping into a ready-made paradise of high wages and short hours, where such things as trade unions are unnecessary because of the great benevolence of the employers. They are intoxicated with the difference of the wages they now receive and what they used to get "at home".

Hamilton, he later claimed, was a "mecca for all the Old Country machinists coming to Canada."¹²⁴

¹²¹ PAC, RG 27, v.301, f.13(15); *Herald*, 26 February 1913. This question of ethnicity will be discussed further in my forthcoming thesis on Hamilton workers between 1895 and 1930.

¹²² *LN*, 25 September 1914. See also Crossick, "Labour Aristocracy," 317-18.

¹²³ *Herald*, 4 May 1916.

¹²⁴ *IMJ*, XLVIII, no.9 (September 1912), 733-34; *MMJ*, XXV, no.6 (June 1913), 588; *XXXII*, no.11 (November 1920), 1014. One writer in the business press compared the

Of course, none of this behaviour was entirely new in the early twentieth century; a great migration of workers around the North American continent was a familiar pattern in the nineteenth century. But two factors combined to make the pattern more compelling after 1900. Both the soaring cost of living and the boom-and-bust cycles of the Canadian economy in this period, with three severe depressions over 30 years, no doubt contributed to a mentality of making hay while the sun shone. Many metalworkers probably welcomed the opportunity to swell their pay packets through the new wage-incentive plans. With quiet consternation a contributor to the machinists' *Bulletin* in 1916 surveyed the boost that wartime production practices had given to this more materialistic view of work:

The lust for gain has defeated all reason, and with little or no obstruction in the path of the producer it develops into the survival of the fittest. To excuse the situation on the ground that the times are exceptional and everybody should do his utmost during the crisis may be acceptable, but the fact remains that the contract or piece work system has received an impetus that a hundred years of oration on its evils will not eliminate.

... [A]s long as it is possible for men to increase their daily earnings by the adoption of any system whatsoever that system is likely to remain.¹²⁵

Feeling the double pinch of inflation and uncertain employment, and offered the chance to earn more money, the proud artisan with workplace traditions to defend could all too easily become the hustler in search of a fast buck. There is, of course, no way to gauge how widespread such an attitude became, but craft unionists certainly recognized it as a crippling factor in defending their principles.

It seems unlikely, however, that this instrumental attitude would have been appreciably stronger in Hamilton than in other Canadian cities. How then can we explain the relatively limper response of Hamilton's craftsmen to the re-organization of their workplace? Why were Hamilton's machinists in such a weak position before 1916? Why, with the exception of the moulders' strike in May 1919, did the city avoid the great labour upsurge that hit metal shops in Winnipeg, Toronto, Montreal, Amherst, and other centres that spring? A full explanation would undoubtedly require a broader study of working-class life in Hamilton than is possible here, including in particular ideological currents. But three related aspects of the city's industrial structure and evolution might provide part of an explanation for Hamilton's apparently unique experience.

In the first place, Hamilton lacked the large railway shops that harboured scores of machinists in cities like Winnipeg, Toronto, and Montreal. Work in these shops demanded men of all-round abilities, unlike the more specialized requirements of Hamilton firms like International Harvester or Canadian Wes-

cost of living and wages in Hamilton and Birmingham, England, and concluded that Hamilton workers were much better off. W.A. Craik, "British and Canadian Workmen," *IC*, XII, no.9 (April 1912), 1054-55.

¹²⁵ (*IAM Bulletin*, V, no.1 (January 1916), 2.

tinghouse. Perhaps this gap in the city's industrial structure left the workforce with relatively more handymen-specialists than artisanal machinists.

Secondly, we can point to the remarkable hostility and strength of Hamilton industrialists. International Harvester and Canadian Westinghouse have already been described as two giant union-baiters in the city, but we should not overlook the importance of the local steel industry in helping to set the tone of corporate labour policies. Hamilton Steel and Iron Company and later the Steel Company of Canada shared the North American steel industry's intense opposition to craftsmen and their unions that David Brody has described in his study of American steelworkers.¹²⁶ In a tightly knit local business community the executive officers of that company, especially Vice-President and General Manager Robert Hobson, were often the spokesmen of the manufacturers, notably in the 1916 machinists' strike where federal officials recognized Hobson as the leader of the employers' counter-offensive. Hamilton's skilled metal workers may, therefore, have faced a much stiffer opposition than workers in other Canadian cities where steel was less prominent in the industrial structure.

Thirdly, we might turn to the unique pattern of industrial conflict which emerged in Hamilton, especially during World War I and principally as a result of employer hostility. The years between 1917 and 1919 saw industrial militancy in Canada increasingly mingled with a political radicalism that was forged in the heat of government insensitivity and repression. Hamilton's labour movement, however, was unlikely to evolve as fully in this direction after the thorough defeat of the machinists in 1916, well before the new, more radical political spirit had coalesced in the country. Elsewhere the machinists would be important leaven in the rise of post-war working-class dissent. In Hamilton that role fell to the more cautious craftsmen of the foundry, the moulders. A more militant posture and a wider solidarity seemed unlikely under such circumstances.

VI

Twenty years ago a molder was at home with his slick and trowel, but place the good mechanic of those years in the modern foundry and he would feel like a "fish out of water."¹²⁷

IN 1928 MOST OBSERVERS would have agreed with this Canadian business journalist that the heyday of the craft worker in Canada's metalworking industries had passed. A new, rationalized, more highly mechanized mode of work had emerged to confine the skilled metal worker to small, unspecialized shops on the periphery of modern industry or to a sharply limited role in the process of mass production. On the one hand, in the case of both the moulders and the machinists, the craftsmen found large areas of their traditional work

¹²⁶ David Brody, *Steelworkers in America: The Nonunion Era* (New York 1960).

¹²⁷ *CF*, XIX, no.5 (May 1928), 39.

mechanized and divided up among less skilled labourers. On the other, a few "well-rounded mechanics" survived inside large-scale industry, but these craftsmen found their work narrowed, circumscribed, and intensified. In this new role in production there was increased pressure on the skilled men to apply themselves strictly to work that required their technical know-how. The old artisanal sense of working a product through all or most of its stages of production to completion was lost. And the pace of work, formerly so carefully regulated by custom and entrenched in union regulations was now set by corporate administrators.¹²⁸ The skilled metal workers who hung on in the context of mass production became simply a part of a complex continuum of industrial workers under the detailed supervision of efficiency-conscious managers. The artisan of the 1890s gave way to the skilled production worker whose overall status in the workplace had undoubtedly declined.

If some craftsmen survived in the workplace, artisanal culture did not. The mode of work in the foundries and machine shops of the late nineteenth century had involved a commanding role for the artisans in determining the rhythms of the total production process. These men had nurtured an intense craft pride that fed on their indispensability to industry. Structurally the craftsmen's trade unions had been the repositories of both the mechanisms of job control and the ideology of craft superiority. Thirty years of conflict with employers who saw the manifestation of this culture in their factories as an obstacle to their larger corporate strategies, however, resulted in final defeat for the craft unions and all they represented by the early 1920s.

The pattern of defeat was slightly different in each of the two crafts discussed above. The mechanization of the moulder's craft came late and was still incomplete by the 1920s; the all-round craftsman was never as thoroughly eliminated from the foundry as elsewhere in the metalworking factory. On the other hand, from the mid-nineteenth century onward the machinist used power-driven tools, which by the early 1900s were becoming sophisticated enough to reduce much more completely the manual skill requirements of machine-shop work. The machinists' craft was also more fundamentally affected by World War I munitions production, which did not incorporate moulding work. On the whole, however, the predominant response of Hamilton's metal-working craftsmen to this prolonged crisis threatening their shop-floor power and prestige was craft exclusiveness, that is, a strategy of defending those parts of their trades with continuing high skill content and attempting to re-impose craft control over wider industrial territory in times of full

¹²⁸Of course, while formal trade union controls disappeared, we should not ignore informal techniques that workers used to regulate the pace of work in North American industry for years to come. See Stanley B. Mathewson, *Restriction of Output Among Unorganized Workers* (New York 1931); Donald Roy, "Quota Restriction and Gold-bricking in a Machine Shop," *American Journal of Sociology*, 57 (March 1952), 427-42; Bill Watson, "Counter-Planning on the Shop Floor," *Radical America*, 5 (May-June 1971), 77-85.

employment. There was no evidence of a transformation of their consciousness towards a broader solidarity with the less skilled.

Artisanal culture was thus highly ambivalent. It was often a reservoir of creative criticism of modernizing industrial practices, but its structure was still fundamentally a defence of craft privilege — “the clinging dross of exclusivism,” to use James Hinton’s apt phrase.¹²⁹ Yet, at the same time, it would be too easy to embrace a theory of an aristocracy of labour in the Hamilton working class. An examination of workplace behaviour alone would be insufficient to confirm such a theory; for as the most sensitive British studies have emphasized,¹³⁰ we would need a fuller portrait of artisanal culture that took into account social and political associations outside the workplace. It was many of these same men, for example, who were prominent in the leadership of the city’s working class political organization, the Independent Labor Party, which promoted class unity at the polls. The evidence presented here, in any case, should certainly raise doubts about any suggestion that these skilled workers were enjoying any special favours from capital; they were, in fact, being persistently harassed by belligerent employers.

Clearly specific responses of Canadian workers to the great industrial transformations of the age must be studied in local settings, in order to capture the unevenness and the variety of experience. But more detailed research into the history of skilled workers in other Canadian communities may well reveal that the ambivalence of artisanal culture in the workplace that characterized Hamilton’s metal workers was more common than historians of the Canadian working class have so far suggested. The failure to transcend that worldview probably meant that the sweeping changes in the work process that accompanied the rise of monopoly capitalism in Canada prompted a highly fragmented response from the working class.

I am grateful to Greg Kealey, Ian McKay, Bryan Palmer, and members of the Dalhousie History Department’s North American Seminar for useful criticism of earlier drafts of this article.

¹²⁹ Hinton, *First Shop Stewards’ Movement*, 337. The evidence presented in this paper, therefore, suggests that a wholesale application of David Montgomery’s influential conceptualization of American working class history in this period would be unwise, at least in the southern Ontario context. While his emphasis on struggles for control in the workplace is crucial for an understanding of craftsmen’s activity, his suggestion that the workplace struggles of the skilled and unskilled tended to fuse during and after World War I is not sustained by the behaviour of Hamilton workers during these years. See David Montgomery, “The ‘New Unionism’ and the Transformation of Workers’ Consciousness in America, 1902-22,” *Journal of Social History*, VII, (1973), 519-20.

¹³⁰ Gray, “Styles of Life”; Crossick, “Labour Aristocracy.” For a discussion of the usefulness of a labour-aristocracy theory in a Canadian context, see Ian McKay, “Capital and Labour in the Halifax Baking and Confectionery Industry.”