1. Workers' control of machine production in the nineteenth century*

"In an industrial establishment which employs say from 500 to 1,000 workmen, there will be found in many cases at least twenty to thirty different trades," wrote Frederick Winslow Taylor in his famous critique of the practices of industrial management which were then in vogue:

> The workmen in each of these trades have had their knowledge handed down to them by word of mouth . . . This mass of rule-of-thumb or traditional knowledge may be said to be the principle asset or possession of every tradesman . . . [The] foremen and superintendents [who comprise the management] know, better than anyone else, that their own knowledge and personal skill falls far short of the combined knowledge and dexterity of all the workmen under them . . . They recognize the task before them as that of inducing each workman to use his best endeavors, his hardest work, all his traditional knowledge, his skill, his ingenuity, and his goodwill – in a word, his "initiative," so as to yield the largest possible return to his employer.[1]

Big Bill Haywood put the same point somewhat more pungently, when he declared: "The manager's brains are under the workman's cap."[2]

Both Taylor and Haywood were describing the power which certain groups of workers exercised over the direction of production processes at the end of the nineteenth century, a power which the scientific management movement strove to abolish, and which the Industrial Workers of the World wished to enlarge and extend to all workers. It is important to note that both men found the basis of workers' power in the superiority of their knowledge over that of the factory owners. It is even more important to note that they were referring not to "preindustrial" work practices, but to the factory itself.

The richly impressive work of Herbert Gutman in this country, E. P. Thompson in England, and others[3] has already unveiled to us the profound changes forced by the advent of industrial capitalism upon people's values and expectation, work habits, and sense of time, as well as the persistence with which working people clung to their traditional,

spasmodic, task-oriented styles of work and to a social code which was less tightly disciplined, less individualistic, and less exploitative than that which industrialization was imposing upon them. These studies have directed our attention to the experiences of the first generation of industrial workers, or, in the case of Gutman's conception, to the persistence of that "first-generation" experience over more than a century of American life.

My concern here, however, is not with the encounter of industrial with "preindustrial" ways, but rather with the patterns of behavior which took shape in the second and third generations of industrial experience, largely among workers whose world had been fashioned from their youngest days by smoky mills, congested streets, recreation as a week-end affair and toil at the times and the pace dictated by the clock (except when a more or less lengthy layoff meant no work at all).[4] It was such workers, the veterans, if you will, of industrial life, with whom Taylor was preoccupied. They had internalized the industrial sense of time, they were highly disciplined in both individual and collective behavior, and they regarded both an extensive division of labor and machine production as their natural environments. However, they had often fashioned from these attributes neither the docile obedience of automatons, nor the individualism of the "upwardly mobile," but rather a form of control of productive processes which became increasingly collective, deliberate and aggressive, until American employers launched a partially successful counterattack under the banners of scientific management and the open-shop drive.

Workers' control of production, however, was not a condition or state of affairs which existed at any point in time, but a struggle, a chronic battle in industrial life which assumed a variety of forms. Those forms may be treated as successive stages in a pattern of historical evolution, though one must always remember that the stages overlapped each other chronologically in different industries, or even at different localities within the same industry, and that each successive stage incorporated the previous one, rather than replaced it. The three levels of development which appeared in the second half of the nineteenth century were those characterized by (1) the functional autonomy of the craftsman, (2) the union work rule, and (3) mutual support of diverse trades in rule enforcement and sympathetic strikes. Each of these levels will be examined here in turn, then in conclusion some observations will be made on the impact of scientific management and the open-shop drive on the patterns of behavior which they represented.

The autonomous craftsman

The functional autonomy of craftsmen rested on both their superior knowledge, which made them self-directing at their tasks, and the supervision which they gave to one or more helpers. Iron molders, glass blowers, coopers, paper machine tenders, locomotive engineers, mule spinners, boiler makers, pipe fitters, typographers, jiggermen in potteries, coal miners, iron rollers, puddlers and heaters, the operators of McKay or Goodyear stitching machines in shoe factories, and, in many instances, journeymen machinists and fitters in metal works exercised broad discretion in the direction of their own work and that of their helpers. They often hired and fired their own helpers and paid the latter some fixed portion of their own earnings.

James J. Davis, who was to end up as Warren Harding's Secretary of Labor, learned the trade of puddling iron by working as his father's helper in Sharon, Pennsylvania. "None of us ever went to school and learned the chemistry of it from books," he recalled. "We learned the trick by doing it, standing with our faces in the scorching heat while our hands puddled the metal in its glaring bath."[5] His first job, in fact, had come at the age of twelve, when an aged puddler devised a scheme to enable himself to continue the physically arduous exertion of the trade by taking on a boy (twelve-year-old Davis) to relieve the helper of mundane tasks like stoking the furnace, so that the helper in turn could assume a larger share of the taxing work of stirring the iron as it "came to nature." By the time Davis felt he had learned enough to master his own furnace, he had to leave Sharon, because furnaces passed from father to son, and Davis's father was not yet ready to step down. As late as 1900, when Davis was living at home while attending business college after having been elected to public office, he took over his father's furnace every afternoon, through an arrangement the two had worked out between themselves.[6]

The iron rollers of the Columbus Iron Works, in Ohio, have left us a clear record of how they managed their trade in the minute books of their local union from 1873 to 1876. The three twelve-man rolling teams, which constituted the union, negotiated a single tonnage rate with the company for each specific rolling job the company undertook. The workers then decided collectively, among themselves, what portion of that rate should go to each of them (and the shares were far from equal, ranging from 19 1/4 cents, out of the negotiated $1.13 a ton, for the roller, to 5 cents for the runout hooker); how work should be allocated among

them; how many rounds on the rolls should be undertaken per day; what special arrangements should be made for the fiercely hot labors of the hookers during the summer; and how members should be hired and progress through the various ranks of the gang.[7] To put it another way, all the boss did was to buy the equipment and raw materials and sell the finished product.

One cannot help being impressed by the fact that the Columbus iron rollers were conducting the operations of the firm in precisely the way J. T. Murphy and the Sheffield Workers' Council demanded that shop stewards should operate British industries in 1918, the union contracting with the employer to do the whole job, then performing that job without interference from employers.[8] But to make that analogy is to run too fast. The iron rollers of Columbus were not raising revolutionary demands, but pursuing commonplace practices. On the other hand, the practices themselves were both historically quite new (a "preindustrial" iron roller is a contradiction in terms), subject to incessant attacks by employers, and defended by the craftsmen's own disciplined ethical code.

Three aspects of the moral code, in which the craftsmen's autonomy was protectively enmeshed, deserve close attention. First, on most jobs there was a stint, an output quota fixed by the workers themselves. As the laments of scientific management's apostles about workers "soldiering" and the remarkable 1904 survey by the commissioner of labor, *Regulation and Restriction of Output*, made clear, stints flourished as widely without unions as with them.[9] Abram Hewitt testified in 1867 that his puddlers in New Jersey, who were not unionized, worked eleven turns per week (five and a half days), made three heats per turn, and put 450 pounds of iron in each charge, all by arrangement among themselves. Thirty-five years later a stint still governed the trade, though a dramatic improvement in puddling furnaces was reflected in union rules which specified eleven turns with five heats per turn and 550 pounds per charge (a 104 percent improvement in productivity), while some nonunion mill workers followed the same routine but boiled bigger charges.[10]

Stints were always under pressure from the employers, and were often stretched over the course of time by the combined force of competition among employers and improving technology. In this instance, productivity under union rules expanded more than three percent annually over three and a half decades. But workers clung doggedly to the practice, and used their superior knowledge both to determine how much they should do and to outwit employers' efforts to wring more production out of them. In a farm equipment factory studied in 1902, for example, the

machine shop, polishing department, fitting department and blacksmith shop all had fixed stints, which made each group of workers average very similar earnings despite the fact that all departments were on piecework. In the blacksmith shop, which unlike the others had no union rule fining those who earned too much, workers held down the pace by refusing to replace each part they removed from the heaters with a cold one. They emptied the heaters entirely, before refilling them and then waited for the new parts to heat up.[11] Similarly, Taylor's colleague Carl Barth discovered a planer operator who avoided exceeding the stint while always looking busy, by simply removing the cutting tool from his machine from time to time, while letting it run merrily on.[12]

"There is in every workroom a fashion, a habit of work," wrote efficiency consultant Henry Gantt, "and the new worker follows that fashion, for it isn't respectable not to."[13] A quiver full of epithets awaited the deviant: "hog," "hogger-in," "leader," "rooter," "chaser," "rusher," "runner," "swift," "boss's pet"[14] to mention some politer versions. And when a whole factory gained a reputation for feverish work, disdainful craftsmen would describe its occupants, as one did of the Gisholt turret lathe works, as comprised half "of farmers, and the other half, with few exceptions, of horse thieves."[15] On the other hand, those who held fast to the carefully measured stint, despite the curses of their employers and the lure of higher earnings, depicted themselves as sober and trustworthy masters of their trades. Unlimited output led to slashed piece rates, irregular employment, drink and debauchery, they argued. Rationally restricted output, however, reflected "unselfish brotherhood," personal dignity, and "cultivation of the mind."[16]

Second, as this language vividly suggests, the craftsmen's ethical code demanded a "manly" bearing toward the boss. Few words enjoyed more popularity in the nineteenth century than this honorific, with all its connotations of dignity, respectability, defiant egalitarianism, and patriarchal male supremacy. The worker who merited it refused to cower before the foreman's glares – in fact, often would not work at all when a boss was watching. When confronted with indignities, he was expected to respond like the machinist in Lowell, who found regulations posted in his shop in 1867 requiring all employees to be at their posts in their work clothes when the first bell rang, to remain there until the last bell, and to be prevented from leaving the works between those times by locked doors:

> Not having been brought up under such a system of slavery, [he recalled,] I took my things and went out, followed in a few hours by the rest of the men. Thinking

perhaps that it might be of some benefit to the rest, I remained with them on the strike. They went back to work with the understanding that the new rules should not apply except in regard to the doors being locked. A few days after I went for my pay and it was politely handed me without the trouble of asking for it.[17]

Finally, "manliness" toward one's fellow workers was as important as it was toward the owners. "Undermining or conniving" at a brother's job was a form of hoggish behavior as objectional as running more than one machine, or otherwise doing the work that belonged to two men. Union rules commanded the expulsion of members who performed such "dirty work" in order to secure employment or advancement for themselves. When the members of the Iron Heaters and Rollers Union at a Philadelphia mill learned in 1875 that one of their brothers had been fired "for dissatisfaction in regard to his management of the mill," and that another member had "undermined" the first with the superintendent and been promised his rolls, the delinquent was expelled from the lodge, along with a lodge member who defended him, and everyone went on strike to demand the immediate discharge of both excommunicates by the firm.[18]

In short, a simple technological explanation for the control exercised by nineteenth-century craftsmen will not suffice. Technical knowledge acquired on the job was embedded in a mutualistic ethical code, also acquired on the job, and together these attributes provided skilled workers with considerable autonomy at their work and powers of resistance to the wishes of their employers. On the other hand, it was technologically possible for the worker's autonomy to be used in individualistic ways, which might promote his own mobility and identify his interests with those of the owner. The ubiquitous practice of subcontracting encouraged this tendency. In the needle trades, the long established custom of a tailor's taking work home to his family was transformed by his employment of other pieceworkers into the iniquitous "sweat shop" system.[19] Among iron molders, the "berkshire" system expanded rapidly after 1850, as individual molders hired whole teams of helpers to assist them in producing a multitude of castings. Carpenters and bricklayers were lured into piecework systems of petty exploitation. Other forms of subcontracting flourished in stone quarrying, iron mining, anthracite mining, and even in railroad locomotive works, where entire units of an engine's construction were let out to the machinist who filed the lowest bid, and who then hired a crew to assist him in making and fitting the parts.[20]

Subcontracting practices readily undermined both stints and the mu-

tualistic ethic (though contractors were known to fix stints for their own protection in both garment and locomotive works), and they tended to flood many trades with trained, or semi-trained, workers who undercut wages and work standards. Their spread encouraged many craftsmen to move beyond reliance on their functional autonomy to the next higher level of craft control, the enactment and enforcement of union work rules. In one respect, union rules simply codified the autonomy I have already described. In fact, because they were often written down and enforced by joint action, union rules have a visibility to historians, which has made me resort to them already for evidence in the discussion of autonomy per se. But this intimate historical relationship between customary workers' autonomy and the union rule should not blind us to the fact that the latter represents a significant new stage of development.[21]

Union work rules

The work rules of unions were referred to by their members as "legislation."[22] The phrase denotes a shift from spontaneous to deliberate collective action, from a group ethical code to formal rules and sanctions, and from resistance to employers' pretentions to control over them. In some unions the rules were rather simple. The International Association of Machinists, for example, like its predecessors the Machinists and Blacksmiths' International Union and the many machinists' local assemblies of the Knights of Labor, simply specified a fixed term of apprenticeship for any prospective journeyman, established a standard wage for the trade, prohibited helpers or handymen from performing journeymen's work, and forbade any member from running more than one machine at a time or accepting any form of piecework payment.[23]

Other unions had much more detailed and complex rules. There were, for example, sixty-six "Rules for Working" in the bylaws of the window-glass workers' Local Assembly 300 of the Knights of Labor. They specified that full crews had to be present "at each pot setting"; that skimming could be done only at the beginning of blowing and at meal time; that blowers and gatherers should not "work faster than at the rate of nine rollers per hour"; and that the "standard size of single strength rollers" should "be 40 × 58 to cut 38 × 56." No work was to be performed on Thanksgiving Day, Christmas, Decoration Day or Washington's Birthday, and no blower, gatherer or cutter could work between June 15 and September 15. In other words, during the summer months the union ruled that the fires were to be out.[24] In 1884 the local assembly waged a

long and successful strike to preserve its limit of forty-eight boxes of glass a week, a rule which its members considered the key to the dignity and welfare of the trade.[25]

Nineteenth-century work rules were not ordinarily negotiated with employers or embodied in a contract. From the 1860s onward it became increasingly common for standard *wages* to be negotiated with employers or their associations, rather than fixed unilaterally as unions had tried earlier, but working rules changed more slowly. They were usually adopted unilaterally by local unions, or by the delegates to a national convention, and enforced by the refusal of the individual member to obey any command from an employer which violated them. Hopefully, the worker's refusal would be supported by the joint action of his shop mates, but if it was not, he was honor bound to pack his tool box and walk out alone, rather than break the union's laws. As Fred Reid put the point well in his description of nineteenth-century Scottish miners' unionism: "The strength of organised labour was held to depend upon the manliness of the individual workman."[26]

On the other hand, the autonomy of craftsmen which was codified in union rules was clearly not individualistic. Craftsmen were unmistakably and consciously group-made men, who sought to pull themselves upward by their collective boot straps. As unions waxed stronger after 1886, the number of strikes to enforce union rules grew steadily. It was, however, in union legislation against subcontracting that both the practical and ideological aspects of the conflict between group solidarity and upwardly mobile individualism became most evident, for these rules sought to regulate in the first instance not the employers' behavior, but that of the workers themselves. Thus the Iron Molders Union attacked the "berkshire" system by rules forbidding any of its members to employ a helper for any other purpose than "to skim, shake out and to cut sand," or to pay a helper out of his own earnings. In 1867, when 8,615 out of some 10,400 known molders in the country were union members, the national union legislated further that no member was allowed to go to work earlier than seven o'clock in the morning.[27] During the 1880s the Brick Layers' Union checked subcontracting by banning its members from working for any contractor who could not raise enough capital to buy his own bricks. All building trades unions instructed their members not to permit contractors to work with tools alongside with them. The United Mine Workers limited the number of helpers a bituminous miner could engage, usually to one, though the employment of several laborers by one miner remained widespread in anthracite mines through the First World War.

The Carpenters and the Machinists outlawed piecework altogether, for the same purpose. The Amalgamated Iron and Steel Workers required the companies to pay helpers directly, rather than through the craftsmen, and fixed the share of tonnage rates to which helpers were entitled.[28] All such regulations secured the group welfare of the workers involved by sharply rejecting society's enticements to become petty entrepreneurs, clarifying and intensifying the division of labor at the work place, and sharpening the line between employer and employee.

Where the trade was well unionized, a committee in each shop supervised the enforcement in that plant of the rules and standard wage which the union had adopted for the trade as a whole. The craft union and the craft local assembly of the Knights of Labor were forms of organization well adapted to such regulatory activities. The members were legislating, on matters on which they were unchallenged experts, rules which only their courage and solidarity could enforce. On one hand, the craft form of organization linked their personal interests to those of the trade, rather than those of the company in which they worked, while, on the other hand, their efforts to enforce the same rules on all of their employers, where they were successful, created at least a few islands of order in the nineteenth-century's economic ocean of anarchic competition.

Labor organizations of the late nineteenth century struggled persistently to transform workers' struggles to manage their own work from spontaneous to deliberate actions, just as they tried to subject wage strikes and efforts to shorten the working day to their conscious regulation. "The trade union movement is one of reason, one of deliberation, depending entirely upon the voluntary and sovereign actions of its member," declared the Executive Council of the AFL.[29] Only through "thorough organization," to use a favorite phrase of the day, was it possible to enforce a trade's work rules throughout a factory, mine, or construction site. Despite the growing number of strikes over union rules and union recognition in the late 1880s, the enforcement of workers' standards of control spread more often through the daily self-assertion of craftsmen on the job than through large and dramatic strikes.

Conversely, strikes over wage reductions at times involved thinly disguised attacks by employers on craftsmen's job controls. Fall River's textile manufacturers in 1870 and the Hocking Valley coal operators in 1884, to cite only two examples, deliberately foisted severe wage reductions on their highly unionized workers in order to provoke strikes. The owners' hope was that in time hunger would force their employees to abandon

union membership, and thus free the companies' hands to change production methods.[30] As the treasurer of one Fall River mill testified in 1870: "I think the question with the spinners was not wages, but whether they or the manufacturers should rule. For the last six or eight years they have ruled Fall River."[31] Defeat in a strike temporarily broke the union's control, which had grown through steady recruiting and rule enforcement during years which were largely free of work stoppages.

Mutual support

The third level of control struggles emerged when different trades lent each other support in their battles to enforce union rules and recognition. An examination of the strike statistics gathered by the U.S. Commissioner of Labor for the period 1881–1905 reveals the basic patterns of this development.[32] Although there had been a steady increase in both the number and size of strikes between 1881 and 1886, the following twelve years saw a reversal of that growth, as stoppages became both smaller and increasingly confined to skilled crafts (except in 1894). With that change came three important and interrelated trends. First, the proportion of strikes called by unions rose sharply in comparison to spontaneous strikes. Nearly half of all strikes between 1881 and 1886 had occurred without union sanction or aid. In the seven years beginning with 1887 more than two-thirds of each year's strikes were deliberately called by a union, and in 1891 almost 75 percent of the strikes were official.

Secondly, as strikes became more deliberate and unionized, the proportion of strikes which dealt mainly with wages fell abruptly. Strikes to enforce union rules, enforce recognition of the union, and protect its members grew from 10 percent of the total or less before 1885 to the level of 19 to 20 percent between 1891 and 1893. Spontaneous strikes and strikes of laborers and factory operatives had almost invariably been aimed at increasing wages or preventing wage reductions, with the partial exception of 1886 when 20 percent of all strikes had been over hours. The more highly craftsmen became organized, however, the more often they struck and were locked out over work rules.

Third, unionization of workers grew on the whole faster than strike participation. The ratio of strike participants to membership in labor organizations fell almost smoothly from 109 in 1881 to 24 in 1888, rose abruptly in 1890 and 1891 (to 71 and 86 respectively), then resumed its downward trend to 36 in 1898, interrupted, of course, by a leap to 182

in 1894.[33] In a word, calculation and organization were the dominant tendencies in strike activity, just as they were in the evolution of work rules during the nineteenth century. But the assertion of deliberate control through formal organization was sustained not only by high levels of militancy (a persistently high propensity to strike), but also by remarkably aggressive mutual support, which sometimes took the form of the unionization of all grades of workers within a single industry, but more often appeared in the form of sympathetic strikes involving members of different trade unions.

Joint organization of all grades of workers seemed most likely to flourish where no single craft clearly dominated the life of the workplace, in the way iron molders, bricklayers, or iron puddlers did where they worked. It was also most likely to appear at the crest of the waves of strike activity among unskilled workers and operatives, as is hardly surprising, and to offer evidence of the organizational impulse in their ranks. In Philadelphia's shoe industry between 1884 and 1887, for example, the Knights of Labor successfully organized eleven local assemblies, ranging in size from 55 to 1,000 members, each of which represented a different craft or cluster of related occupations, and formulated wage demands and work rules for its own members. Each assembly sent three delegates to District Assembly 70, the highest governing body of the Knights for the industry, which in turn selected seven representatives to meet in a city-wide arbitration committee with an equal number of employers' representatives. Within each factory a "shop union" elected by the workers in that plant handled grievances and enforced the rules of the local assemblies, aided by one male and one female "statistician," who kept track of the complex piecerates.[34]

There is no evidence that local assemblies of unskilled workers or of semiskilled operatives ever attempted to regulate production processes themselves in the way assemblies of glass blowers and other craftsmen did. They did try to restrict hiring to members of the Knights and sometimes regulated layoffs by seniority clauses. For the most part, however, assemblies of operatives and laborers confined their attention to wages and to protection of their members against arbitrary treatment by supervisors.[35] On the other hand, the mere fact that such workers had been organized made it difficult for employers to grant concessions to their craftsmen at the expense of helpers and laborers. Consequently, the owners were faced simultaneously with higher wage bills and a reduction of their control in a domain where they had been accustomed to exercise unlimited authority.

Table 1. *Strike trends, 1881–1905*

Year	No. of strikes (1)	Workers involved (000) (2)	% wage strikes (3)	% ordered by unions (4)	% sympathy strikes (5)	No. sympathy strikes (6)
1881	471	101	79.8	47.3	0.8	2
1882	454	121	75.4	48.5	0.9	3
1883	478	122	77.2	56.7	0.6	2
1884	443	117	74.1	54.2	2.0	6
1885	645	159	72.9	55.3	3.1	20
1886	1432	407	63.0	53.3	2.9	37
1887	1436	273	54.8	66.3	4.7	71
1888	906	103	55.2	68.1	3.8	34
1889	1075	205	59.0	67.3	6.1	67
1890	1833	286	50.9	71.3	9.9	188
1891	1717	245	48.9	74.8	11.5	204
1892	1298	164	50.4	70.7	8.9	117
1893	1305	195	58.8	69.4	4.5	62
1894	1349	505	63.7	62.8	8.8	120
1895	1215	286	69.6	54.2	0.6	7
1896	1026	184	57.6	64.6	0.6	7
1897	1078	333	66.2	55.3	0.7	9
1898	1056	182	63.0	60.4	0.8	9
1899	1797	308	59.4	62.0	1.5	29
1900	1779	400	59.0	65.4	1.5	29
1901	2924	396	46.6	75.9	2.4	71
1902	3162	553	51.2	78.2	2.6	87
1903	3494	532	51.5	78.8	2.4	88
1904	2307	376	42.2	82.1	3.7	93
1905	2077	176	44.5	74.7	2.7	61

Sources: The number of strikes and the number of workers involved (1 and 2) are taken from U.S. Commissioner of Labor, *Twenty-First Annual Report* (1906), 15. Wage strikes as a percent of all strikes (3) is from J. H. Griffin, *Strikes* (1939), 76. The percentage of strikes ordered by unions, the percent of all strikes represented by sympathetic strikes, and the number of sympathetic strikes (4, 5, and 6) are from Florence Peterson, *Strikes in the United States, 1880–1936* (1937), 32–3.

Moreover, workers who directed important production processes were themselves at times reluctant to see their own underlings organized, and frequently sought to dominate the larger organization to which their helpers belonged. A case in point was offered by the experience of the Knights of Labor in the garment industry, where contractors were organized into local assemblies of their own, supposedly to cooperate with those of cutters, pressers, tailors, and sewing-machine operators. Contractors were often charged with disrupting the unionization of their own

employees, in order to promote their personal competitive advantages. Above all, they tried to discourage women from joining the operators' assemblies. As the secretary of a St. Louis tailors' local assembly revealed, contractors who were his fellow Knights were telling the parents of operators that "no dissent girl [sic] belong to an assembly."[36]

On the other hand, the experience of the Knights in both the shoe and garment industries suggests that effective unionization of women operatives was likely to have a remarkably radicalizing impact on the organization. It closed the door decisively both on employers who wished to compensate for higher wages paid to craftsmen by exacting more from the unskilled, and on craftsmen who were tempted to advance themselves by sweating others. In Philadelphia, Toronto, Cincinnati, Beverly, and Lynn both the resistance of the manufacturers to unionism and the level of mutuality exhibited by the workers leapt upward noticeably when the women shoe workers organized along with the men. Furthermore, the sense of total organization made all shoe workers more exacting in their demands and less patient with the protracted arbitration procedures employed by the Knights. "Quickie" strikes became increasingly frequent as more and more shoe workers enrolled in the order. Conversely, the shoe manufacturers banded tightly together to destroy the Knights of Labor.[37]

In short, the organization of all grades of workers in any industry propelled craftsmen's collective rule making into a more aggressive relationship with the employers, even where it left existing styles of work substantially unchanged. The other form of joint action, sympathetic strikes, most often involved the unionized skilled crafts themselves, and consequently was more directly related to questions of control of production processes. When Fred S. Hall wrote in 1898 that sympathetic strikes had "come so much in vogue during the last few years,"[38] he was looking back on a period during which organized workers had shown a greater tendency to walk out in support of the struggles of other groups of workers than was the case in any other period in the history of recorded strike data. Only the years between 1901 and 1904 and those between 1917 and 1921 were to see the absolute number of sympathetic strikes approach even *half* the levels of 1890 and 1891.

There were, in fact, two distinct crests in the groundswell of sympathetic strikes. The first came between 1886 and 1888, when a relatively small number of disputes, which spread by sympathetic action to include vast numbers of workers, caught public attention in a dramatic way. The Southwest railways strike of 1886, the New York freight handlers' dispute

of 1887, and the Lehigh coal and railroad stoppages of 1888 exemplified this trend. None of them, however, primarily involved control questions, in the sense they have been described here.

The second crest, that of 1890–2, was quite different. It was dominated by relatively small stoppages of organized craftsmen. In New York state, where the Bureau of Labor Statistics collected detailed information on such stoppages until 1892 (and included in its count strikes which were omitted from the U.S. Commissioner of Labor's data because they lasted less than a single day or included fewer than six workers), the number of establishments shut by sympathetic strikes rose from an average of 166 yearly between 1886 and 1889 to 732 in 1890, 639 in 1891, and 738 in 1892. Most of them involved the employees of a single company, like the fifteen machinists who struck in support of the claims of molders in their factory or the four marble cutters who walked out to assist paper hangers on the same site. A few were very large. When New York's cabinet makers struck to preserve their union in 1892, for example, 107 carpenters, 14 gilders, 75 marble cutters and helpers, 17 painters, 23 plasterers, 28 porters, 12 blue stone cutters, 14 tile layers and helpers, 32 upholsterers, 14 varnishers, 149 wood carvers, and others walked out of more than 100 firms to lend their support.[39]

Eugene V. Debs was to extoll this extreme manifestation of mutuality as the "Christ-like virtue of sympathy," and to depict his own Pullman boycott, the epoch's most massive sympathetic action, as an open confrontation between that working-class virtue and a social order which sanctified selfishness.[40] It is true that the mutualistic ethic which supported craftsmen's control was displayed in its highest form by sympathetic strikes. It is equally true, however, that the element of calculation, which was increasingly dominating all strike activity, was particularly evident here. As Fred S. Hall pointed out, sympathetic strikes of this epoch differed sharply from "contagious" strikes, which spread spontaneously like those of 1877, in two respects. First, the sympathetic strikes were called by the workers involved, through formal union procedures. Although figures comparing official with unofficial strikes are not available, two contrasting statistics illustrate Hall's point. The construction industry was always the leading center of sympathetic strikes. In New York more than 70 percent of the establishments shut by sympathetic action between 1890 and 1892 were involved in building construction. On the other hand, over the entire period of federal data (1881–1904) no less than 98.03 percent of the strikes in that industry were called by unions.[41]

Second, as Hall observed, the tendency toward sympathetic strikes

was "least in those cases where the dispute concerns conditions of employment such as wages and hours, and [was] greatest in regard to disputes which involve questions of unionism – the employment of only union men, the recognition of the union, etc."[42] The rise of sympathetic strikes, like the rise of strikes over rules and recognition, was part of the struggle for craftsmen's control – its most aggressive and far-reaching manifestation.

It is for this reason that the practice of sympathetic strikes was ardently defended by the AFL in the 1890s. Building trades contracts explicitly provided for sympathetic stoppages. Furthermore, at the federation's 1895 convention a resolution carried, directing the executive council to "convey to the unions, in such way as it thinks proper, not to tie themselves up with contracts so that they cannot help each other when able." The council itself denied in a report to the same convention that it opposed sympathetic strikes. "On the contrary," it declared, "we were banded together to help one another. The words union, federation, implied it. An organization which held aloof when assistance could be given to a sister organization, was deserving of censure." even though each union had the right to decide its own course of action.[43]

On the other hand, not all unions supported this policy by any means. Under the right conditions it was just as possible for work processes to be regulated by the rules of a craft union which stood aloof from all appeals to class solidarity, as it was for an individual craftsman to identify his functional autonomy with his employer's interests through subcontracting. Precisely such a solitary course was proudly pursued by the locomotive engineers and firemen. In general, where a union was strong enough to defy its employers alone and where no major technological innovations threatened its members' work practices, it tended to reach an accommodation with the employers on the basis of the latter's more or less willing recognition of the union's work rules.

Two examples will suffice. One appeared in stove molding, where eight years of protracted strikes and lockouts followed the National Stove Founders' Defense Association's 1882 denunciation of the "one-sided cast-iron rules" of the Molders' Union, from which it envisaged "no appeal except through a bitter struggle for supremacy." But the molders' indispensable mastery of the art of casting satiny smooth stove parts, their thorough organization, and their readiness to strike again and again enabled the Molders Union to prevail with little help from other unions. In 1890 the employers' Defense Association signed a national trade agreement, which provided for arbitration of all disputes and tacitly accepted the union's authority to establish work rules.[44] In sharp contrast to ma-

chinery molders, who often joined machinists, boilermakers, and other metal tradesmen in strikes, participation by stove molders in sympathetic strikes was practically unheard of.

Similarly, bricklayers and stonemasons proved eminently capable of defending themselves, seldom found their rules seriously challenged, and consequently felt little need for joint action with other trades, except during campaigns for shorter hours. The forceful but conservative form of craft control which they represented is evident not only in the refusal of the Bricklayers' and Masons' International Union to send representatives to New York City's Board of Walking Delegates or to affiliate with the AFL, but also in the reluctance of its members to engage in sympathetic strikes. Between 1890 and 1892 only four New York firms were shut by bricklayers and four by stonemasons in sympathetic actions. By way of contrast, during the same three years sympathetic strikes by carpenters in that state closed 171 firms and similar stoppages by cloakmakers another 152.[45]

Furthermore, employers in many industries banded together in the early 1890s to resist sympathetic strikes, union rules and union recognition with increasing vigor and effectiveness. Sympathetic lockouts were mounted by employers' organizations to deny striking workers alternative sources of employment or financial support. Legal prosecutions for conspiracy in restraint of trade, including use of the Sherman Anti-Trust Act against the Workingmen's Amalgamated Council of New Orleans for the city-wide sympathetic strike of 1892, and court-ordered injunctions provided supplementary weapons. In this setting, unionized craftsmen suffered a growing number of defeats. Whereas fewer than 40 percent of the strikes of 1889 and 1890 had been lost by the workers, 54.5 percent of the strikes of 1891 and 53.9 percent of those of 1892 were unsuccessful. This level of defeats was by far the highest for the late nineteenth century, and would not be approached again until 1904.[46] The losses are all the more remarkable when one recalls that these were record years for union-called strikes (as opposed to spontaneous strikes) and that throughout the 1881 to 1905 period strikes called by unions tended to succeed in better than 70 percent of the cases, while spontaneous strikes were lost in almost the same proportion. The explanation for the high level of defeats in calculated strikes of 1891 and 1892 lies in the audacity of the workers' demands. Official strikes over wages remained eminently successful. The fiercest battles and the bitterest losses pivoted around union rules and recognition and around sympathetic action itself.

Consequently trade unionists began to shy away from sympathetic strikes in practice, despite their verbal defenses, even before 1894. The statistical appearance of a crescendo of sympathetic strikes in 1894 followed by an abrupt collapse is misleading. Hall suggests that crafts other than the building trades were becoming hesitant to come out in sympathy with other groups, especially with workers from other plants, from 1892 onward. Although the New York data ends that year, it seems to bear him out in an interesting way. The total number of sympathetic strikes in New York was as great in 1892 as it had been in 1890. On the other hand, 67 percent of those strikes had been in the building trades in 1890, as compared to 69 percent in 1891 and 84 percent in 1892. One wishes the figures had continued, to reveal whether the small numbers of such strikes after 1895 were confined to construction. In any event, even in 1892 more than 100 of the 120 establishments outside of the building trades which were hit by sympathetic strikes were involved in a single conflict, that of the cabinet makers. And the workers ultimately abandoned that battle in total defeat. In this context the resurgence of such strikes in 1894 appears as an aberration. Indeed, the Pullman boycott and the bituminous coal strike together accounted for 94 percent of the establishments shut by sympathy actions in the first six months of that year.[47]

In short, historians have, on the whole, been seriously misled by Norman J. Ware's characterization of the period after the Haymarket Affair as one of "Sauve qui peut!"[48] As craftsmen unionized, they not only made their struggles for control increasingly collective and deliberate, but also manifested a *growing* consciousness of the dependence of their efforts on those of workers in other crafts. They drew strength in this struggle from their functional autonomy, which was derived from their superior knowledge, exercised through self-direction and their direction of others at work. This autonomy both nurtured and in turn was nurtured by a mutualistic ethic, which repudiated important elements of acquisitive individualism. As time passed functional autonomy was increasingly often codified in union rules, which were collectively "legislated" and upheld through the commitment of the individual craftsmen and through a swelling number of strikes to enforce them. Organized efforts reached the most aggressive and inclusive level of all in joint action among the various crafts for mutual support. When such actions enlisted all workers in an industry (as happened when women unionized in shoe manufacturing), and when they produced a strong propensity of unionized craftsmen to strike in support of each other's claims, they sharply separated the ag-

gressive from the conservative consequences of craftsmen's autonomy and simultaneously provoked an intense, concerted response from the business community.

In an important sense, the last years of the depression represented only a lull in the battle. With the return of prosperity in 1898, both strikes and union organizing quickly resumed their upward spiral, work rules again seized the center of the stage, and sympathetic strikes became increasingly numerous and bitterly fought. Manufacturers' organizations leapt into the fray with the open-shop drive, while their spokesmen cited new government surveys to support their denunications of workers' "restriction of output."[49]

On the other hand, important new developments distinguished the first decade of the twentieth century from what had gone before. Trade union officials, who increasingly served long terms in full-time salaried positions, sought to negotiate the terms of work with employers, rather than letting their members "legislate" them. The anxiety of AFL leaders to secure trade agreements and to ally with "friendly employers," like those affiliated with the National Civic Federation, against the open-shop drive, prompted them to repudiate the use of sympathetic strikes. The many such strikes which took place were increasingly lacking in union sanction and in any event never reached the level of the early 1890s.[50]

Most important of all, new methods of industrial management undermined the very foundation of craftsmen's functional autonomy. Job analysis through time and motion study allowed management to learn, then to systematize the way the work itself was done. Coupled with systematic supervision and new forms of incentive payment it permitted what Frederick Winslow Taylor called "*enforced* standardization of methods, *enforced* adoption of the best implements and working conditions, and *enforced* cooperation of all the employees under management' detailed direction."[51] Scientific management, in fact, fundamentally disrupted the craftsmen's styles of work, their union rules and standard rates, and their mutualistic ethic, as it transformed American industrial practice between 1900 and 1930. Its basic effect, as Roethlisberger and Dickson discovered in their experiments at Western Electric's Hawthorne Works, was to place the worker "at the bottom level of a highly stratified organization," leaving his "established routines of work, his cultural traditions of craftsmanship, [and] his personal interrelations" all "at the mercy of technical specialists."[52]

Two important attributes of the scientific management movement become evident only against the background of the struggles of the nineteenth-century craftsmen to direct their own work in their own collective

way. First, the appeal of the new managerial techniques to manufacturers involved more than simply a response to new technology and a new scale of business organization. It also implied a conscious endeavor to uproot those work practices which had been the taproot of whatever strength organized labor enjoyed in the late nineteenth century. A purely technological explanation of the spread of Taylorism is every bit as inadequate as a purely technological explanation of craftsmen's autonomy.[53] Second, the apostles of scientific management needed not only to abolish older industrial work practices, but also to discredit them in the public eye. Thus Taylor roundly denied that even "the high class mechanic" could "ever thoroughly understand the science of doing his work," and pasted the contemptuous label of "soldiering" over all craft rules, formal and informal alike.[54] Progressive intellectuals seconded his arguments. Louis Brandeis hailed scientific management for "reliev[ing] labor of responsibilities not its own."[55] And John R. Commons considered it "immoral to hold up to this miscellaneous labor, as a class, the hope that it can ever manage industry." If some workers do "shoulder responsibility," he explained, "it is because certain *individuals* succeed, and then those individuals immediately close the doors, and labor, as a class remains where it was."[56]

It was in this setting that the phrase "workers' control" first entered the vocabulary of the American labor movement. It appeared to express a radical, if often amorphous, set of demands which welled up around the end of World War I among workers in the metal trades, railroading, coal mining, and garment industries.[57] Although those demands represented very new styles of struggle in a unique industrial and political environment, many of the workers who expressed them could remember the recent day when in fact, the manager's brains had been under the workman's cap.

Notes

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2 William D. Haywood and Frank Bohn, *Industrial Socialism* (Chicago, n.d.), 25.

3 Herbert G. Gutman, "Work, Culture, and Society in Industrializing America, 1815–1919," *American Historical Review*, 78 (June 1973), 531–88; E. P. Thompson, "Time, Work-Discipline, and Industrial Capitalism," *Past and Present*, 38 (Dec. 1967), 56–97; E. J. Hobsbawm, "Custom, Wages and Workload in Nineteenth-Century Industry," in Hobsbawm, *Labouring Men* (Lon-

don, 1964), 344–70; Gregory Kealey, "Artisans Respond to Industrialism: Shoemakers, Shoe Factories and the Knights of St. Crispin in Toronto," Canadian Historical Association, *Historical Papers* (June 1973), 137–57; Paul G. Faler, "Workingmen, Mechanics and Social Change: Lynn, Massachusetts, 1800–1860" (unpublished Ph.D. dissertation, University of Wisconsin, 1971); Bruce G. Laurie, "The Working People of Philadelphia, 1827–1853" (unpublished Ph.D. dissertation, University of Pittsburgh, 1971); David Montgomery, "The Shuttle and the Cross: Weavers and Artisans in the Kensington Riots of 1844," *Journal of Social History*, 5 (Spring 1972), 411–46.

4 The question of industrial generations has been treated in American history largely in terms of leaders. See David Montgomery, *Beyond Equality: Labor and the Radical Republicans, 1862–1872* (New York 1967), 197–229; Warren R. Van Tine, *The Making of the Labor Bureaucrat: Union Leadership in the United States, 1870–1920* (Amherst, 1973), 1–32. For more fundamental social analyses, see Leopold H. Haimson, "The Russian Workers' Movement on the Eve of the First World War," unpublished paper, presented at the American Historical Association convention, 1972; Michelle Perrot, *Les Ouvriers en grève: France 1871–1890*, 2 vols. (Paris, 1974), I, 312–95.

5 James J. Davis, *The Iron Puddler: My Life in the Rolling Mills and What Came of It* (Indianapolis, 1922), 91.

6 Ibid., 85, 92–3, 96, 114, 227. The issue of promotion of helpers to puddlers' furnaces provoked strikes by helpers against puddlers in the 1870s. See John H. Ashworth, *The Helper and American Trade Unions* (Baltimore, 1915), 83, 93–4.

7 Minute Books, Lodge No. 11, Rollers, Roughers, Catchers and Hookers Union (Columbus, Ohio), July 14, 1873– April 28, 1876 (William Martin Papers, University of Pittsburgh library).

8 Ernest Mandel, ed. *Contrôle ouvrier, conseils ouvriers, autogestion, anthologie* (Paris, 1970), 192–7. See also Carter Goodrich, *The Frontier of Control* (New York, 1921).

9 Frederick Winslow Taylor, "Shop Management," *Transactions of the American Society of Mechanical Engineers*, 24 (1903), 1337–456; U.S. Commissioner of Labor, *Eleventh Annual Report*, "Regulation and Restriction of Output" (Washington, D.C., 1904).

10 United Kingdom, Parliament, *Second Report of the Commissioners Appointed to Inquire into the Organization and Rules of Trades Unions and Other Associations* (Parliamentary Sessional Paper, 1867, xxxii c3893), 2; "Restriction of Output," 243.

11 "Restriction of Output," 198–9.

12 U.S. Commission on Industrial Relations, *Final Report and Testimony Submitted to Congress by the Commission on Industrial Relations* (64th Congress, 1st session, Washington, D.C., 1915), 893–4.

13 Henry L. Gantt, *Work, Wages, and Profits* (2nd, ed. rev., (New York, 1919), 186.

14 "Restriction of Output," 18.

15 P. A. Stein to *Machinists' Monthly Journal*, 15 (April 1903), 294.

16 See "What One Trade Has Done," *John Swinton's Paper*, March 23, 1884. Cf. Peter N. Stearns, "Adaptation to Industrialization: German Workers as a Test Case," *Central European History*, 3 (1970), 303–31.

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20 Ashworth, 67–72; Robert A. Christie, *Empire in Wood: A History of the Carpenters' Union* (Ithaca, N.Y., 1956), ch. 5; Paul Worthman, "Black Workers and Labor Unions in Birmingham, Alabama, 1897–1904," *Labor History*, 10 (Summer 1969), 374–407; Jacob H. Hollander and George E. Barnett, *Studies in American Trade Unionism* (New York, 1912), 147–8; *Iron Age*, 91 (January 30, 1913), 334; *Machinists' Monthly Journal*, 16 (April 1904), 321.

21 Cf. Benson Soffer, "A Theory of Trade Union Development: The Role of the 'Autonomous' Workman," *Labor History*, 1 (Spring 1960), 141–63.

22 The Typographers still call their rule book the Book of Laws. See Selig Perlman, *A Theory of the Labor Movement* (New York, 1928), 262–72; Seymour Martin Lipset, Martin A. Trow, and James S. Coleman, *Union Democracy* (Garden City, N.Y., 1972), 160–226.

23 "Restriction of Output," 101–8; Charles B. Going, "The Labour Question in England and America," *Engineering Magazine*, 19 (May 1900), 161–76; Hollander and Barnett, 109–52.

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25 "What One Trade Has Done," *John Swinton's Paper*, March 23, 1884.

26 Fred Reid, "Keir Hardie's Conversion to Socialism," in *Essays in Labour History, 1886–1923*, Asa Briggs and John Saville, eds. (London, 1971), 29. See also Montgomery, *Beyond Equality*, 142–53; David A. McCabe, *The Standard Rate in American Trade Unions* (Baltimore, 1912).

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28 See note 20.

29 Samuel Gompers, "The Strike and Its Lessons," in *A Momentous Question: The Respective Attitudes of Labor and Capital*, John Swinton, ed., (Philadelphia and Chicago, 1895), 311.

30 See Philip T. Silvia, Jr., "The Spindle City: Labor, Politics and Religion in Fall River, Massachusetts, 1870–1905" (unpublished Ph.D. dissertation, Fordham University, 1973), ch. 3; Jon Amsden and Stephen Brier, "Coal Miners on Strike: The Transformation of Strike Demands and the Formation of the National Union in the U.S. Coal Industry, 1881–1894," forthcoming in *The Journal of Interdisciplinary History*; Andrew Roy, *A History of the Coal Miners* (Columbus, Ohio, 1902), 220–42.

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34 Augusta E. Galster, *The Labor Movement in the Shoe Industry, with Special Reference to Philadelphia* (New York, 1924), 49–57.

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39 New York Bureau of Labor Statistics, *Report, 1890*, 936–49; *Report, 1891*, Part II, 732–45; *Report, 1892*, 124–39.

40 Eugene Debs, "Labor Strikes and Their Lessons," in Swinton, *Momentous Question*, 324–5.

41 U.S. Commissioner of Labor, *Twenty-First Annual Report* (Washington, D.C., 1906), 21–2, 33–4, 81–2. The calculation of the percentage of New York sympathetic strikes involving the building trades are my own, from the New York Bureau of Labor Statistics data.

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44 Hollander and Barnett, 226–31. The quotation is on p. 226. The trade agreement is reprinted on pp. 230–1.

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51 Taylor, *Principles of Scientific Management*, 83.
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56 John R. Commons et al., *Industrial Government* (New York, 1921), 267.
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