The Sociology of Work

STRUCTURES AND INEQUALITIES

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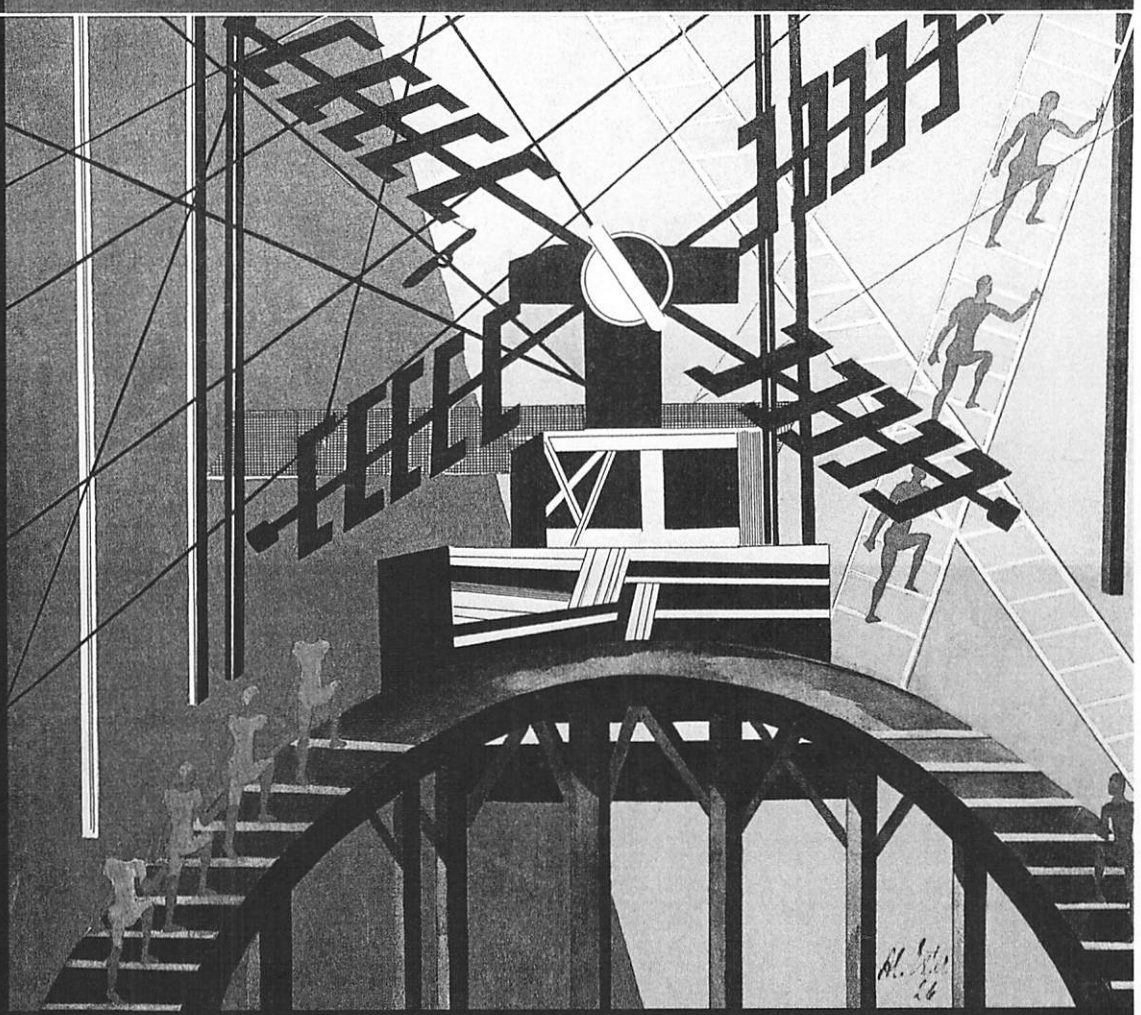

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Chapter 5

The Second Industrial Revolution: Mass Production and Labor Management

We live in a world in which we take for granted the mass production of goods, whether these are computers, cars, DVD players, or processed chickens. We also know that these products are made on assembly lines (although few of us have ever seen an assembly line, let alone worked on one). We can gain an appreciation of the distinctive characteristics of assembly-line production, and the demands it makes on workers, by considering the following description of the mass production of Dell computers at the company's factory in Austin, Texas:

> Inside Dell, the world's largest computer maker, executives study the assembly process with the intensity of Alfred Kinsey and his researchers. They wheel in video equipment to examine a work team's every movement, looking for any extraneous bends or wasted twists. Designers give one another high-fives for eliminating a single screw from a product, because that represents a savings of roughly four seconds per machine built—the time they've calculated it takes an employee, on average, to use the pneumatic screwdriver dangling above his or head.
>
> Computer software clocks the assembly-line performance of workers, whether they're putting together PC's or the servers and storage equipment that Dell sells to large companies. The most able are declared "master builders," and then videotaped so that others may watch and learn. The weak are told that it takes a special set of talents to cut it on the Dell factory floor—and shown the door. (Rivlin 2004:)

The features of assembly-line production that this article describes—the focus on saving seconds and eliminating unnecessary motions, the monitoring of workers, and the dismissal of those who cannot maintain the required pace—have scarcely changed in the nearly 100 years since Henry Ford's workers began assembling cars on a moving conveyer belt. The big change has been in workers' acceptance of assembly-line routine. At the beginning of the twentieth century this form of work and this way of working were radically different from all other forms of industrial production. Even for those workers accustomed to the routines of factory production, the assembly line signaled a qualitative shift in their daily activities because it now required them to work at a pace dictated by a moving belt.

In this chapter we consider two main questions that build on the previous discussion of

the Industrial Revolution. First, how did mass production—most prominently represented by the assembly line—come about in the United States? In other words, how and why was the assembly line invented? Second, how did workers get used to working on the line, given that its work rhythms were so different from other kinds of factory work? In other words, how did employers persuade workers to tolerate working at a pace that was not of their own choosing and over which they had no control?

In answering the first question, we will emphasize the impact of Frederick Winslow Taylor, the founder of scientific management, and of Henry Ford, the pioneer of the automobile assembly line. Taylor showed how the work of skilled craftsmen could be transformed into unskilled and semi-skilled jobs. Ford demonstrated that goods made up of complicated parts and machinery could be mass produced on an assembly line. In answering the second question, we will show that workers did not accept assembly-line jobs easily or willingly. Workers in the mass-production industries fought to improve their conditions of work and of employment for more than two decades following the introduction of the assembly line. In particular, they sought to organize themselves into labor unions to represent their interests. Employers, in turn, experimented with new philosophies of personnel management, including welfare capitalism and the human relations approach, in an attempt to gain the cooperation of their workers. It was not until employers agreed to recognize their employees' labor unions—a topic that we turn to in Chapter 10—that the two sides reached a kind of truce that enabled them to settle their differences through negotiation and bargaining rather than battling it out in the factories and on the streets. What we see, then, is that the rise of mass production in the United States was a deeply conflicted and often coercive process to which workers did not readily consent.

The Rise of Mass Production

The Craftsmen's Reign

Before factories were introduced in the United States at the end of the eighteenth century, people made most of the commodities they needed to consume at home. For specialized or hard-to-make products, they turned to skilled craftsmen in their workshops. The earliest factories were the textile mills established in New England in the 1790s. Over the course of the next seventy years, the factory system was extended to the manufacture of a variety of products, including steel, shoes, firearms, sewing machines, carriages and wagons, watches, and agricultural tools. Many of these early factories represented a kind of compromise between the old methods of craft production in workshops and the new system of factory production. Foremen were given responsibility for production decisions, but their authority was limited by their need to gain the cooperation of skilled craftsmen, who followed their own well-established work rules and practices (Jacoby 1985).

Skilled craftsmen in the nineteenth century generally enjoyed considerable power and autonomy in the workplace. The reason for this was their knowledge of the product and the manufacturing process; without their cooperation there was no production. Craftsmen demonstrated their independence through a self-enforced code of conduct—a "moral code," as Montgomery (1979) described it. One part of the code specified that every craftsman should keep his output

within a fixed limit or quota so as to avoid competition among themselves or any expectation from employers of higher productivity. Another aspect of the moral code was the understanding that a worker should not work when a boss or foreman was watching; to do so was considered unmanly.

In the period after the Civil War, the craftsmen's power and their moral code proved increasingly unacceptable to a new generation of American industrialists. Owners of steel mills, followed by their counterparts in the automobile, electrical, and chemical industries, were eager to introduce new technologies, even if these meant replacing skilled craftsmen. In the emerging steel industry, men such as Andrew Carnegie, the founder of Carnegie Steel, and William Sellers, the head of Midvale Steel, were quick to adopt the new Bessemer process—a production technique invented by an Englishman, Sir Henry Bessemer—in order to mass produce steel. Their goal was to satisfy the enormous demand for steel from the railroads and other steel users. They had little patience with craftsmen who chose to restrict output or who refused to work when being watched. If necessary, they were willing to use force to end the hold of skilled craftsmen over production.

In 1878, the industrialists gained an invaluable ally in their struggle with the craftsmen for control of steel production when a young apprentice machinist, Frederick Winslow Taylor, took a job as a day laborer at Midvale. Taylor was no ordinary worker. Born into a wealthy Philadelphia family, he had turned down the opportunity for a Harvard education to acquire a very different kind of schooling on the shop floor. Ambitious, energetic, and better educated than his co-workers, Taylor quickly rose up the ranks at Midvale. Within a half-dozen years, he had been promoted from journeyman machinist to gang boss, and then to foreman of the machine shop, master mechanic, and, finally, chief engineer. He eventually became one of the most influential figures in the history of American management.

Taylor's impressive career trajectory was not his enduring legacy, however. Few would have anticipated it, but his tenure at Midvale would transform blue-collar work throughout the industrial world. The impending revolution began with small steps. As Taylor gained authority, he was frustrated by the unwillingness of the workers under his supervision to work as hard as he thought they were capable of. Although they were paid by the piece, which in theory meant that the more they produced the more they would earn, the workers showed no interest in maximizing their output. As he later wrote, he estimated that the average worker was doing no more than one third of a good day's work (1911: 49). He thus began a campaign, which included cutting the wages of some workers and firing others, to get them to raise their productivity. Taylor acknowledged that this campaign quickly turned into a war, which became increasingly bitter; some workers resisted Taylor's efforts to speed up their work by sabotaging their machines. He responded, in turn, by fining workers whose machines broke down.

After three years of conflict, Taylor could claim some successes. He had been promoted, he had earned the confidence of the company's president, William Sellers, and productivity had risen. These successes came at a price, however, for as he later remarked when recounting this campaign, "life which is one continuous struggle with other men is hardly worth living" (1911: 52).

Taylor had also come to the conclusion that the real barrier to raising productivity was that workers knew far more about production processes than did their supervisors—himself included. He said that the knowledge and skill of the workers under his supervision was at least ten times greater than his own. For the next quarter of a century he set about redressing this imbalance of knowledge and skill through what he called the scientific study of work. The result was "scientific management," or Taylorism, which was a radical new way of thinking about work.

Frederick Winslow Taylor and Scientific Management

In explaining the principles of scientific management, Taylor asked his readers to imagine a traditional industrial establishment of 500 to 1,000 workers. These workers, representing twenty to thirty different trades, had acquired their knowledge from their predecessors and perfected their skills on the job before passing on what they had learned to the next generation of workers. Two features of this arrangement were significant, Taylor argued. First, transmission of knowledge was through word of mouth; little or nothing was written down or codified. Second, this mass of traditional knowledge was not in the possession of management, including those foremen and superintendents, such as Taylor, who had come up through the ranks. Since workers had this knowledge and management did not, managers had to persuade workers to use their skills and efforts on behalf of the enterprise. Persuasion could mean shorter hours, higher wages, better working conditions, or a promotion. Taylor described this practice of rewarding workers to gain their goodwill and cooperation as "initiative and incentive" management (1911: 35). He saw it as an obstacle to greater productivity, and he proposed to replace it with scientific management.

Taylor's "science of management" was based on four principles. First, management should plan and direct all work activities by substituting scientific understanding of production processes for workers' traditional knowledge. Second, jobs and tasks should be broken down into their simplest parts to determine the most efficient and productive way of doing each task. Third, managers should evaluate workers before assigning them to specific jobs and then should carefully train and closely monitor their work. Fourth, a worker who performed his duties exactly as specified should receive a premium over and above his regular wage.

The first two principles were crucial to the development of American manufacturing in the late nineteenth and early twentieth centuries. The idea was that managers and engineers would carefully observe workers, recording every action or step and timing how long it took. This was the famous, or infamous—depending on your perspective—time-and-motion study. Having broken down the job into a series of discrete and identifiable tasks, the manager or engineer would then analyze where time and effort were being wasted and how the job could be reorganized with all superfluous time and effort eliminated. No job, according to Taylor, was so simple that it could not be made more efficient through a time-and-motion study.

Taylor himself conducted thousands of such studies. The best known, because it featured so prominently in his subsequent discussion of scientific management, was conducted at the Bethlehem Steel Company in 1899. Taylor had been hired as a consultant to improve productivity. One of the jobs on which he focused was the

loading of 92-pound "pigs" (or slabs) of iron into railcars. Each worker picked up a pig, walked up an inclined plank, and dropped it in the car. The 75 men doing the job averaged 12.5 tons per worker per day. After studying the job and the workers, Taylor came to the conclusion that a "first-class" pig-iron handler should be able to load between 47 and 48 tons a day—nearly four times the average being achieved. To achieve this rate, a worker had to load 1,156 pigs per day, i.e., he had to load a 92-pound pig every thirty seconds for ten hours. Taylor insisted that this rate was feasible. He selected one worker—called "Schmidt" in his book—who was told to follow his supervisor's instructions to the letter. At the end of his day of following orders, Schmidt had loaded 47.5 tons, which Taylor regarded as proof of the validity of scientific management. Taylor later wrote that Schmidt practically never failed to achieve a pace or task that Taylor assigned him during his three years at Bethlehem. In return for this extraordinary output, Schmidt was paid $1.85 a day, 60 percent higher than his pre-Taylor earnings, which were never more than $1.15 a day.

Most of Taylor's examples of how to implement scientific management were drawn from simple laboring jobs such as carrying pigs of iron, shoveling iron ore, and bricklaying, Taylor believed that the workers doing these jobs were incapable of figuring out the most scientific way of working. As he put it, "the man suited to handling pig iron is too stupid properly to train himself" (1911: 63). He even described Schmidt as "mentally sluggish," despite the fact that one of Taylor's reasons for choosing Schmidt for his experiments was that the latter was building a house with his own hands in his spare time. As far as Taylor was concerned, pig-iron handlers and other laborers were beasts of burden. He wrote: "Now one of the very first requirements for a man who is fit to handle pig iron as a regular occupation is that he shall be so stupid and so phlegmatic that he more nearly resembles in his mental make-up the ox than any other type" (1911: 59). He intended his science of management to encourage managers to select, train, instruct, and supervise workers who would be willing to work like oxen.

Taylor picked unskilled, traditional jobs to illustrate scientific management because he wanted to demonstrate that even the simplest jobs should not be entrusted to workers' discretion and judgment. The ultimate expression of Taylor's ideas, however, was to be found in the organization of work on Henry Ford's automobile assembly lines—the most modern factories of the early twentieth century. Although Ford never acknowledged any debt to Taylor, it is difficult to imagine that he was unaware of the scientific management philosophy or movement. The hallmark of assembly-line production—the unrelenting search for greater efficiency by trimming seconds from tasks and by eliminating the smallest of unnecessary motions—is entirely consistent with Taylorism. Henry Ford may have come up with the most productive and cheapest way of making cars, but it was Frederick Taylor who paved the way for him.

Henry Ford and the Assembly Line

On June 16, 1903, Henry Ford and eleven other stockholders formed the Ford Motor Company. It was an event that neither received nor warranted any publicity at the time. The 39-year-old Ford had been unsuccessful in his previous ventures in automobile production, he was entering an already crowded field (88 other automobile

firms had entered the business in 1903 alone), and it was uncertain whether consumers even wanted a gasoline-powered automobile. Over the next decade Ford irreversibly changed how work was done, how workers were rewarded, and how Americans lived. His innovations—the Model T Ford, the assembly line, and the Five Dollar Day—came to define industrial capitalist society of the twentieth century and led to a new term for his methods of organizing work and workers: *Fordism*. The adoption of these innovations by other companies consolidated U.S. status as the greatest manufacturing power in the world (the U.S. share of world production of manufactured goods increased from 25 percent in 1900 to over 40 percent in 1929) and created the first modern mass-consumer society.

The early Ford automobiles gave little indication of an imminent revolution in production. They were expensive cars made by skilled craft workers. For example, the Model B Ford introduced in September 1904 was priced at $2,000—a huge sum at that time. Despite Ford's success in selling large, expensive cars, he believed that the future of the automobile lay in increasing its affordability—in selling lighter and cheaper models that were within the price range of the average American consumer. In 1906 Ford and his engineers began work on what would become the company's most famous product: the Model T Ford. Between 1908 and 1927, more than 15 million Model Ts—Ford's "motor car for the great multitude"—were made and sold (Brinkley 2003).

The Model T was a remarkable car. It was light (1,200 pounds), cheap ($850, although this price did not include the top, the headlights, or the windshield!), sturdy, agile, reliable, easy to drive, and economical to maintain. Ford's biggest problem, in fact, was to keep up with consumer demand for the new car. In 1910 Ford opened a new factory in Highland Park, Michigan, to produce Model Ts and Model T parts that were then shipped to other Ford assembly plants. It was at the Highland Park factory that Ford developed a famous new technology for producing automobiles—the assembly line. This was the technology that announced the arrival of the era of mass production.

Prior to the assembly line, building an automobile was a stationary process requiring the knowledge and experience of skilled assemblers. In the early days of automobile production, one assembler would build an entire car by himself. Photographs of automobile factories from this era show workers seated alongside wooden sawhorses on which are resting the chasses they are putting together. These workers performed a variety of tasks. A skilled assembler, for example, would add wheels, springs, motor, transmission, and generator to a chassis—tasks that might take him an entire day to finish. If a part didn't fit, he would be expected to file it down until it did.

The opening of the Highland Park factory, however, marked a new chapter in the history of the automobile, one in which Ford engineers shifted their focus from the product itself to how it was made. Their efforts to increase productivity by changing production methods were to culminate in the assembly line and mass production. Ford's initial innovations focused on ensuring that parts were interchangeable and that individual workers performed fewer tasks. Interchangeable parts meant that the company could avoid the delays that occurred when parts had to be filed in order to get them to fit. Fewer tasks meant that the company could hire more unskilled workers, especially if the tasks were fairly simple. It was a

foreshadowing of the extreme division of labor and work simplification that was to characterize the assembly line.

It is not absolutely certain where the idea for the automobile assembly line originated, although historians agree that the most likely source was the Swift meatpacking plant in Chicago where Ford employees had observed pig and cow carcasses being disassembled. Whatever its roots, we do know that the first assembly line at Highland Park was introduced in the spring of 1913 and was used to produce magneto flywheels. It was quickly followed by assembly lines to produce motors and then transmissions. By the summer of 1913, the engineers had developed a conveyer belt for the final and most important step in the manufacture of the automobile, the assembly of the chassis. In January 1914, Ford completed his revolution by introducing the automated conveyer belt, which allowed management to control the pace of the lines and, therefore, the pace at which the assemblers worked (Halberstam 1986; Donkin 2001).

The moving assembly line was based on three basic principles. First, workers were stationary, while their jobs came to them. Second, the tasks that had been previously performed by a single skilled worker were now subdivided among different assemblers, each of whom performed a tiny number of standardized and repetitive operations. Third, the speed of the assembly line dictated the pace at which these workers carried out their tasks.

The results of the moving assembly line were astonishing. Stationary assembly of one car took about 13 hours; on the assembly line it took a little over 90 minutes. The task cycle of the average worker—the length of time it took before he repeated an operation—dropped from 514 minutes to 79 seconds (Womack, Jones, and Roos 1990). As production went up, prices went down, from $850 for a Model T in 1908 to $360 in 1914. During the same period, Ford's share of the U.S. automobile market increased from 9 to 48 percent, as hundreds of thousands of cars poured off his assembly lines each year. Ford Motor Company, once a modest Detroit auto manufacturer making 100 cars a month, had within a decade raised its production to 1,000 cars a day and had become the greatest industrial enterprise in the world (Brinkley 2003). Further, the company had established a method of making goods that transformed manufacturing processes around the world, which, as the example of Dell Computers shows, remains the key to industrial productivity today.

What has changed in the nearly 100 years since Ford introduced the assembly line are the conditions under which the assemblers on these lines work. Although the inherent monotony of assembly-line work has persisted, the emergence of powerful labor unions in automobile manufacturing and other mass-production industries between 1935 and 1945 limited the ability of employers in these industries to increase the speed of the assembly line to get more production out of workers. Union contracts have also provided other benefits, such as good wages, pensions, and health insurance and protection from harsh or arbitrary treatment by supervisors. A union contract, for example, typically requires a supervisor to provide a performance-related justification for firing a worker, which has to be preceded by oral and written warnings. Before the rise of unions, "speed-ups" of the assembly line were common and workers had no rights in the workplace.

The story of mass production is, therefore, really two stories. One is about the invention and

implementation of a new system of production. The other is about the fight of the workers who experienced this system to retain their dignity in a difficult and sometimes degrading work environment. In the remainder of this chapter, we discuss why life on the early assembly line was so unpleasant and how workers expressed their displeasure. We also show how employers invented personnel management in an effort to reduce worker dissatisfaction.

How Workers Responded to Mass Production

Absenteeism and Quitting

Workers reacted to the assembly line immediately and unfavorably. They expressed their dissatisfaction by being absent from their jobs and by quitting them altogether. It was at Ford, the symbol of mass production, where these responses were at their most extreme. In the first decade of the twentieth century, many manufacturing companies experienced turnover rates of 10 percent a month and more. Few companies, however, matched the Ford Motor Company's staggering 370 percent annual quit rate that followed its introduction of the assembly line in 1913. By the end of the year, turnover was approaching an annual rate of 1,000 percent. In the same year, an average of one out of every ten Ford workers was absent from his job at some point during the week. So pronounced were the problems of turnover and absenteeism that labor expert John R. Commons suggested that by staying away from the job in such numbers, workers were in effect "conducting a continuous, unorganized strike" (Meyer 1981: 85).

There were many reasons why workers went absent or quit their jobs. Partly it was the work itself—jobs in the mass-production industries were dirty, hard, dangerous, repetitive, and fast-paced. A 1914 report estimated that 35,000 workers had been killed and 700,000 injured in industrial accidents the previous year (Brinkley 2003). Partly it was the way in which the workers were supervised—it was foremen who decided who would be hired, who would be fired, how much workers would be paid, and how hard they would have to work. In many instances, foremen engaged in what today would be considered outrageously unfair or discriminatory hiring practices, such as relying on ethnic stereotypes to determine what jobs workers were capable of doing. Polish workers, for example, were often chosen for jobs involving heavy physical labor. Jewish workers were regarded as dexterous. In many instances, foremen demanded a bribe—whisky, cigars, or cash—in return for the job (Jacoby 1985). Once hired, workers became part of what has been called the "foreman's empire" (Nelson 1975). Foremen used what was known as the "drive system" to get as much effort as they could out of workers. Their supervisory methods included intimidation and the threat of dismissal to compel workers to produce as much as possible.

Finally, workers went absent or quit because they were so unfamiliar with the rhythms and routines of industrial employment. It is estimated that in 1900 about half of all the unskilled workers in manufacturing were immigrants—the majority from rural or at least preindustrial backgrounds in southern and eastern Europe (Jacoby 1985). Seventy-one percent of Ford's workers in 1914 were foreign-born, with one third of them coming from Poland or Russia (Brinkley 2003). The giant factories echoing to the roar of strange new machines were an alien environment; the

relentless pressure to maintain high levels of production made it a hostile one as well.

Craft Unionism

A more threatening expression of worker dissatisfaction with mass production, as far as employers were concerned, was their newfound willingness to join labor unions and to strike. American labor unions had traditionally been associations of skilled craftsmen. There were unions of carpenters, butchers, machinists, cigar makers, bricklayers, stonemasons, coal miners, iron molders, and windowglass makers. The craft unions had three primary goals. One was to restrict performance of the tasks and duties that the union defined as belonging to its members to those who had been licensed or certified by the union. The second was to establish work rules specifying how union members should perform these tasks. The third was to negotiate higher wages for their members. For example, in 1884 a windowglass workers' union included, among its numerous "rules for working," the stipulation that work crews should produce no more than 48 boxes of glass a week and that no work was to be done on Thanksgiving, Christmas, or Washington's birthday. In 1867 the Iron Molders Union, which at that time represented over 80 percent of the iron molders in the country, forbade its members from going to work earlier than 7 A.M. The United Mine Workers had a rule specifying that a bituminous miner could hire only one unskilled helper (Montgomery 1979).

Union activity among skilled craftsmen, including strikes, had been steadily increasing since the late 1890s, as the new managers and efficiency experts eager to modernize their companies' operations began to challenge these longstanding work rules and restrictions. Union membership rose from 447,000 in 1897 to over 2 million in 1904 (Brody 1980). Between 1896 and 1903 the number of strikes in the United States tripled. But these efforts by skilled craftsmen to preserve their control over production were mostly unsuccessful. Once they no longer needed skilled workers to operate their machines, employers simply replaced them with cheaper unskilled workers.

Craft unions before 1900 seldom included unskilled workers. In fact, one of the purposes of the craft unions was to prevent unskilled workers from doing what they considered to be skilled work. Many of the work rules that the unions were defending were explicitly designed to prevent unskilled workers from encroaching on what union members considered their legitimate prerogatives and privileges. Craft-union exclusiveness had been formally recognized with the formation of the American Federation of Labor (AFL) in 1886. (The AFL had been set up as an umbrella organization to enable individual unions to come together and to speak with a single voice on a variety of issues.) The delegates to the founding convention had decided that only workers who belonged to unions would be permitted to join the new federation. Since unions were organizations of skilled craftsmen, unskilled workers were effectively shut out of the AFL.

The Industrial Workers of the World

The exclusion of unskilled workers from union activities changed in 1905 with the founding of the Industrial Workers of the World (the Wobblies), which was one of the most colorful and defiant of all American labor organizations. Unlike the AFL unions, the Wobblies were a general union—their ultimate goal was

to organize all workers, regardless of skill and regardless of the industry or occupation in which they worked, into a single union. Another difference from the AFL was that IWW leaders had a radical set of political goals that included the overthrow of capitalism. Finally, their tactics differed from those of the more cautious AFL. One of their cardinal principles—enshrined in their famous slogan "an injury to one is an injury to all"—was that all workers had an obligation to assist any other group of workers who were engaged in a conflict with their employer.

The Wobblies' brand of aggressive, confrontational unionism led to their involvement in some of the most famous labor conflicts of the World War I era. The IWW organized a strike of the workers in the wool mills of Lawrence, Massachusetts, in 1913 that was successful in preventing mill employers from lowering wages and that triggered a series of strikes among the textile workers of New York and New Jersey. (The Lawrence strike, in which many immigrant women workers in the textile industry demanded both higher wages and better treatment, found its signature slogan when a journalist asked one striker what she wanted above all. She replied "Bread—and Roses!") The IWW also led strikes at Firestone Rubber and Studebaker in 1913, and it attempted to organize workers at Goodyear and Ford in the same year.

More often than not, however, the IWW's efforts to organize workers were unsuccessful because of employer reluctance to negotiate with it. On occasion the setbacks were deadly. One of the most famous and most bloody of the union's defeats was the coal miners' strike against the Colorado Fuel and Iron Company in Ludlow, Colorado, in 1914. The strikers and their families had been evicted from their company houses and were living in tents. While the men were at a meeting one night, agents of the company set fire to the tents and even used Gatling guns against the strikers as they fled. A total of 18 men, women, and children died in the Ludlow massacre.

Despite its often violent defeats, the IWW developed a loyal following, particularly among the coal miners, lumberjacks, seamen, and migrant farm workers of the American West. The union also produced some of the most famous labor leaders of the day, such as "Big" Bill Haywood, as well as the song that was to become the anthem of the U.S. labor movement, "Solidarity Forever." It was written in January 1915 by Ralph Chaplin, an IWW organizer, who was participating in a strike of West Virginia coal miners in the Kanawha Valley. The lyrics of "Solidarity Forever"—sung to the tune of the "Battle Hymn of the Republic"—convey the sentiment and philosophy of the Wobblies (see Box 5.1).

The IWW's ability to inspire workers was not translated into long-term success, however. It was unable to maintain its foothold among unskilled workers when an employers' backlash against its radical tactics and philosophy developed following the entrance of the United States into World War I. Federal, state, and local authorities harassed, arrested, and jailed IWW organizers, leading to the union's rapid decline.

Even with the virtual elimination of the IWW, the American labor movement appeared to have made significant strides between 1910 and 1920. One of its basic demands, for an eight-hour day or a 48-hour week, had been achieved by nearly half of all workers by 1919. Labor union membership more than doubled between 1910 and 1920, from 2 to 5 million workers. These gains proved short-lived, however. Over the next

BOX 5.1 *Solidarity Forever* by Ralph Chaplin

When the union's inspiration through the workers' blood shall run,
There can be no power greater anywhere beneath the sun;
Yet what force on earth is weaker than the feeble strength of one,
But the union makes us strong.

Chorus:
Solidarity forever,
Solidarity forever,
Solidarity forever,
For the union makes us strong,

Is there aught we hold in common with the greedy parasite
Who would lash us into serfdom and would crush us with his might?
Is there anything left to us but to organize and fight?
For the union makes us strong.

It is we who plowed the prairies; built the cities where they trade;
Dug the mines and built the workshops, endless miles of railroad laid;
Now we stand outcast and starving 'midst the wonders we have made;
But the union makes us strong.

All the world that's owned by idle drones is ours and ours alone.
We have laid the wide foundations; built it skyward stone by stone.
It is ours, not to slave in, but to master and to own.
While the union makes us strong.

They have taken untold millions that they never toiled to earn,
But without our brain and muscle not a single wheel can turn.
We can break their haughty power, gain our freedom when we learn
That the union makes us strong.

In our hands is placed a power greater than their hoarded gold,
Greater than the might of armies, magnified a thousand-fold.
We can bring to birth a new world from the ashes of the old.
For the union makes us strong.

SOURCE: Industrial Workers of the World 1973: 4–5

decade the union movement steadily lost ground, and union membership in the manufacturing industries in particular declined sharply. Union membership as a whole dropped from 5 to 3.4 million between 1920 and 1929 (Jacoby 1985). The movement simply was not strong enough to overcome an economic depression in the early 1920s and an antiunion employer counteroffensive based on personnel management. Union decline was not reversed until the late 1930s, when a new movement emerged following the passage of pro-labor legislation during the New Deal administration of President Franklin Roosevelt (see Chapter 10).

The Invention of Personnel Management

The Five Dollar Day

Confronted with employees who either quit their jobs or went out on strike, employers responded with a mixture of sticks and carrots. These measures were designed to punish workers who would not cooperate with employers

and to reward those who would. They represented the first real effort to bring what we now recognize to be modern methods of personnel management into the American workplace. The result was a significant change in the relationship of employer to employee and in the economic position of blue-collar workers in the society at large. Employers took on the responsibility of providing for the well-being of their employees, which meant paying wages and benefits to unskilled workers that would lift them out of poverty and enable them to afford the goods that they made. It was a philosophy of labor management that, in combination with the assembly line, became known as Fordism because once again the person and company that initiated the change was Henry Ford and the Ford Motor Company.

On January 5, 1914, Ford shocked the business world by announcing that he was cutting the working day for his employees from nine to eight hours and that he was raising their pay to a maximum of $5 a day. Overnight, Ford had effectively doubled the pay of the average autoworker. The company would now be paying its workers nearly three times the wage of the average steelworker. Ford's move was widely criticized by other industrialists, who complained that they would be unable to match it, and unleashed a flood of applicants on the Ford hiring office. Ten thousand job seekers presented themselves at Ford's Highland Park plant on the day after the announcement. On January 12, the day the $5 day officially took effect, the crowd of applicants became so unruly that the city's fire department turned hoses on them. Eager job seekers continued to pour in from all over the United States during the following weeks; many were African Americans from the South for whom a job at Ford's meant an escape from poverty and segregation.

The eight-hour workday and $5-per-day wage was an inspired response to Ford's high absenteeism and turnover rates and to the interest that the IWW was beginning to show in organizing automobile workers. The inspiration was Ford's realization that a single bold innovation could turn workers from opponents of the assembly line into its advocates. He believed that workers who became part of the new consumer society that his low-priced cars had helped to create would be less likely to quit. By giving workers the eight-hour day, Ford had adopted one of the labor movement's long-running demands, which he hoped would undermine the appeal of unions.

The radical premise underlying Fordism was that unskilled workers should be paid enough to buy the products of their labor. Previously, the economic benefits of capitalism had seldom reached further down the company hierarchy than skilled craftsmen; unskilled workers were paid low wages and treated badly. Companies had relied on the waves of immigrants entering the country to provide a constant flow of workers to their factories and to compensate for high turnover. But the steep decline in immigration during World War I, coupled with continued turnover and the enthusiastic response of these workers to labor unions, had caused employers like Ford to rethink their management of their workforces.

It is vital to understand that the Five Dollar Day was not automatically awarded to every Ford employee, however. Only half of the $5 was defined as a wage; the other $2.50 per day was framed in terms of a profit-sharing plan that workers could earn only by allowing the

company to regulate their behavior and activities while not at work. This meant submitting to a company investigation in which neighbors and family members were interviewed by Ford's "Sociological Department," which inspected and oversaw the workers' private lives. As the company decreed, "if a man wants to remain a profit sharer, his wife should remain at home and assume the obligations she undertook when she married" (Meyer 1981: 141). Married men had to be living with and taking good care of their families. Single men had to be over the age of 22 and had to have "thrifty habits." Men under the age of 22 had to be the sole breadwinner for their next of kin. Ford did not want workers who drank alcohol, smoked, or fraternized with union members. They were also expected to be regular churchgoers and to save part of their wages (Brinkley 2003). Thus the Five Dollar Day was in fact a deeply paternalistic system that "extended the frontiers of managerial control from the shop and factory in the homes and communities of Ford workers," allowing the company to establish "a wide-ranging and tightly-knit web of social controls over the workforce" (Meyer 1981: 96).

The results of this system were, from Ford's perspective, highly satisfactory. Following its introduction, the average daily absenteeism rate dropped from 10 percent to less than 0.5 percent. Turnover in 1915 was 10 percent. Factory productivity increased 15 to 20 percent (Brinkley 2003). As long as they conformed to Ford's system, workers received a wage that provided them a middle-class standard of living. They had become part of a society of consumers. A survey of 100 Ford families in 1929 found that 32 owned their homes, 47 owned cars, 36 owned radios, and 49 owned washing machines. On the average they spent slightly more than they earned during the year, financing the difference by buying on credit (Brody 1980). What had not changed for these workers, as we discuss in the next section, were the harsh conditions on the assembly lines.

Welfare Capitalism

The bargain that Henry Ford had struck with his employees—economic rewards in exchange for commitment to the company and a high level of effort—became the model that many large American corporations followed and expanded upon during the 1920s. In addition to higher wages, they offered a variety of other benefits intended to reconcile workers to the rigors of factory life and to impose substantial penalties on employees who quit or who were fired. Their approach to personnel management, initially called "industrial betterment," came to be known as "welfare capitalism."

There were various incentives that companies offered during this period to cement the tie of employee to employer. They included home-ownership plans, in which companies offered financial aid packages to employees who wished to buy their own homes; stock purchase plans, in which companies made it possible for workers to buy the stock of the companies by whom they were employed; accident, health, and life insurance plans; company-sponsored pension programs; and paid vacations. Some companies established employee representation plans—these were known as company unions because they were intended as manager-led alternatives to independent labor unions. Corporate leaders appointed a new breed of manager—the personnel manager—to administer these programs. All of these benefits were contingent, however, on workers' keeping their jobs, maintaining high

levels of output, and staying away from independent unions.

The higher wages and welfare programs did not moderate the tough and even brutal treatment of workers in the factories and on the assembly lines. Ford, for example, was notorious during the 1920s for continuing to speed up its assembly lines and for firing workers who could not keep pace. By 1928 Ford had completed the enormous River Rouge plant in Dearborn, Michigan. In what was then the largest and most modern factory in the world, employing nearly 100,000 workers, Ford produced its new Model A automobile—one every nine seconds. "The Rouge" contained its own steel mill, glass factory, and inland docks for the iron ore, coal, and other raw materials. It took just four days for the iron ore that was unloaded at these docks to be turned into a new Model A (Bantich 2001).

Ford achieved this level of output at The Rouge and its automobile plants by maintaining an unforgiving work rate and draconian work rules. Workers could be fired for the most trivial of offenses, including talking and smiling. Workers who displayed any union sympathies were immediately dismissed. There was no lunch break or any other rest periods. No worker was allowed to sit down, even if he got injured on the job. Company doctors treated workers standing up, unless the worker had suffered a leg injury. These rules were enforced by Ford's private police force—the 3,000 stick- and gun-wielding members of the Ford Service Department under the leadership of the notorious Harry Bennett (Brinkley 2003). A Ford worker later described his working conditions at the company: "There were no relief breaks, no lunch periods, nothing to break the terrible speedup. You were really driven. There was no time to talk, to say hello to anybody. You ate lunch with a sandwich in one hand and worked with the other" (Bantich 2001: 9).

The welfare programs and the strong anti-unionism that accompanied them had their intended effect, however. Between 1920 and 1929 union membership declined by over 30 percent and strikes by around 70 percent (Jacoby 1985). On the threshold of the Great Depression, American workers may have been better rewarded than their parents and grandparents were, but they had also been cowed into submission by their employers. Their rewards, and the docility that accompanied them, were about to be shattered.

The Great Depression

The stock market crash of October 1929 marked the beginning of the Great Depression. Over the next four years, blue-collar workers experienced prolonged and devastating economic misfortune. They lost their jobs or, if lucky enough to remain employed, they suffered wage cuts. At both General Motors and Ford, employment was cut in half between 1929 and 1932. Ford reduced the minimum daily wage during this period from $7 to $4. By March 1933 one of out every three workers in the U.S. labor force was out of work. There was no federal unemployment assistance and little unemployment compensation from the companies that had laid them off; once unemployed workers had exhausted their meager savings, they and their families were forced to depend on local and private charities for their daily living needs. Blue-collar workers and their families now experienced soup kitchens, hunger marches, and home evictions.

The catastrophe of the Great Depression had two immediate consequences. The first was

that it led workers to reconsider their loyalty and commitment to their employers. Welfare capitalism was based on the understanding that workers would receive employment security and good wages in return for avoiding unions, showing up for work regularly, and tolerating assembly-line speed-ups and tyrannical foremen. This effort-for-earnings bargain became meaningless once companies starting cutting employees and wages. To make matters worse, many companies laid off the oldest workers first, even though they had served their employers the longest. The loss of worker goodwill became complete when protests against low wages, hunger, and unemployment were met with corporate indifference or outright violence.

The most notorious incident of company violence took place at Ford's giant River Rouge plant in Dearborn, Michigan. On March 7, 1932, 3,000 protestors, many of them unemployed Ford workers, marched from downtown Detroit to the Rouge factory. Their demands included hiring of laid-off workers, an end to the speed-up of the assembly line, two fifteen-minute rest periods during the working day, abolition of the Service Department, and an end to the foreclosures of the homes of former Ford workers. At the gate of the factory, they faced Dearborn police and the men from Harry Bennett's Service Department. Bennett's men turned fire hoses on the marchers and then opened fire with a submachine gun. Four marchers were killed and nineteen were seriously wounded. Harry Bennett himself was the only policeman or Service Department member to be hurt—he was hit on the head by a rock when he approached the crowd. The hunger march killings completed Henry Ford's transformation from the corporate hero of the Five Dollar Day to corporate villain (Brinkley 2003).

The second consequence was that the federal government, following the victories of the Democrats in the 1932 elections, began to intervene in the employment relationship on the side of workers. The changed mood in Washington was demonstrated by the passage of the National Industrial Recovery Act (NIRA) in 1933. One of its provisions specified that workers "shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint or coercion of employers...." Two years later, Congress passed the National Labor Relations Act (NLRA), also known as The Wagner Act, an even more pro-labor piece of legislation that, among other things, prohibited employers from firing workers who engaged in union activities.

The effect of this legislation guaranteeing workers' right to organize was profound. When combined with workers' anger toward their employers and their newfound determination to stand up for their rights, it revitalized the dormant labor movement and led to one of the great social movements in American history—the rise of industrial labor unionism in the 1930s and 1940s. We consider the labor movement at greater length in Chapter 10.

But it was not just workers' attitudes that were changing during the 1930s. This decade also saw the emergence of a new philosophy of personnel management—human relations. This philosophy, which is most closely identified with the studies conducted at the Hawthorne plant of Western Electric by Elton Mayo and his colleagues, was an enormously important step in the history of American industrial management and has been broached in Chapters 1 and 3. What the human relations approach did was to introduce a new idea about workers that challenged

the Taylorist conception of the worker. Taylor regarded workers as *economically* motivated and socially isolated individuals, an idea that Ford and his contemporaries implicitly accepted. The idea behind Taylorism was that employers should find the appropriate economic incentives to motivate workers. Mayo, however, claimed that the workers were motivated by *social* needs, the most important being the need to fit in with the informal social groups they formed in workplaces. Consequently, he argued, employers should reconsider how they conducted personnel management.

The Hawthorne Research: The Discovery of the Work Group

In the mid-1920s, Elton Mayo, an Australian-born researcher affiliated with the Harvard Business School, began a series of experiments at Western Electric's Hawthorne Works factory, just outside Chicago. Western Electric, which was part of the Bell System, manufactured telephone equipment for its parent company, which enjoyed a monopoly over the telephone business. Western Electric had been one of the first companies to adopt scientific management. At the Hawthorne plant, which had been built in 1905, semi-skilled and unskilled workers had replaced skilled workers. Engineers, using time-and-motion studies, now determined how the 20,000 workers in the factory were to do their jobs. The Bell System, like other large corporations, became concerned with worker hostility to scientific management and offered its employees a package of benefits to encourage their loyalty. At Hawthorne, the benefits included a pension plan, sickness and disability benefits, and a sports club. In 1920 the company appointed personnel managers at the plant. The factory, therefore, was in the forefront of the changes that had transformed the American workplace in the early twentieth century, and it proved a receptive setting for researchers eager to test their new ideas about personnel management. The Hawthorne studies began there in 1924 and continued for the next eight years (Gillespie 1991).

The Relay Assembly Test Room Study

Mayo's involvement at Hawthorne began with the relay assembly test room study in 1927. The assembly of telephone relays was a repetitive task that required dexterity and concentration, and the study was designed to measure the effect of fatigue on productivity. Six young female workers—five assembly operators and one layout operator, whose job it was to fetch and distribute parts for the assemblers—were chosen to work in the test room. The experimental protocol consisted of establishing these workers' base rate of production, followed by changing their working environment and then measuring whether their productivity increased or decreased. These changes were introduced over the course of twelve periods, ranging from 2 to 31 weeks in length. The entire experiment lasted five years. In period three, for example, the women were placed on a separate group rate; previously they had been part a department group rate, which meant that their pay was determined in large measure by the performance of the other 95 workers in their department. In the fourth period, the women were given two five-minute rest breaks. In the next period, these breaks became ten minutes in length. Period seven saw a lengthening of the morning rest break to fifteen minutes, and the workers were provided refreshments—coffee or soup and a sandwich—during this period.

Over the next few periods, the experimenters maintained the conditions of period seven, while shortening the length of the working day and working week. As each change was made, the productivity of the five workers rose. Finally, in period twelve, seventeen months into the experiment, the researchers returned working conditions to their period three state. Contrary to their expectations, however, the women's productivity did not decline. For the three months of this period it was in fact 19 percent higher than it had been in period three. The subsequent reintroduction of some of the earlier benefits resulted in further increases in productivity—as the experiment progressed it became apparent to the researchers that the women were more productive in the later periods than in the earlier ones, although in many cases their working conditions were identical (periods three and twelve, for example).

The Hawthorne researchers concluded that there was no evidence to support their initial hypothesis that workers' fatigue reduced their productivity. The steadily rising productivity in the relay assembly test room had demolished that theory, but it left the question of how to explain what had happened. The researchers pointed instead to the social changes that had occurred in the test room. First, the attitude of the women had improved because they were supervised less strictly (they were allowed to talk while they worked, for example) and they were given more control over their work pace. The women were happier and, therefore, more productive (Mayo 1933). The reason for the loosening of supervision was that the investigators needed to gain the cooperation of the workers in order for the experiment to succeed. The result, two of the original researchers, F. J. Roethlisberger and William J.Dickson, later remarked in their classic study of the Hawthorne studies, was that "the investigators inadvertently altered the total social situation of the group....In the process of setting the conditions for the test, they had completely altered the social situation of the operators and their customary attitudes and interpersonal relations" (1939: 182–183).

Second, over time the women in the relay assembly test room formed a group or informal organization, linked initially by their common work and their separation from the other factory workers and later by a sense of participation in an important project. It was a group that had been allowed to develop autonomously and spontaneously, yet did not exist in opposition to management. On the contrary, their group ties reinforced the idea that the experiment and their work mattered, which encouraged them to work harder. Roethlisberger and Dickson observed that this group was "an organization which not only satisfied the wishes of its members but also worked in harmony with the aims of management" (1939: 560).

In the years since the Hawthorne studies were conducted, sociologists have debated whether the increased productivity was really due to relaxed supervision; some have questioned whether supervision was in fact more relaxed. We will not pursue this debate here. What is widely accepted is the idea that workers act in solidarity with others in their work group, not as isolated individuals. The important role that groups play in determining workers' productivity was confirmed by another Hawthorne study, the Bank Wiring Observation Room study, which was conducted from November 1931 to May 1932.

The Bank Wiring Room Observation Study

The bank wiring room contained a group of fourteen workers, consisting of nine wiremen, three soldermen, and two inspectors. The researchers decided to focus their attention on group dynamics. Unlike the relay assembly room study, there were to be no experimental manipulations of the daily working environment. The workers were simply to be observed working under standard shop conditions. Other than placing these workers in a separate room, the researchers wanted to disrupt the men's work as little as possible; they received no special treatment or favors, and they were to be monitored by a single observer, who was instructed to remain unobtrusive throughout the course of the study.

Observation of the workers generated some remarkable findings. First, although the workers were on a group piece rate, which presumably gave them an incentive to produce as much as possible, every worker was restricting his output. Restriction of output meant that the workers had decided on their own not to exceed an upper limit and to ensure that their weekly output rates remained relatively constant. Second, workers had sanctions ranging from ostracism and ridicule to "binging" (punching one's co-worker as hard as one could on his shoulder) for workers who exceeded the output quota. Third, there were noticeable differences in the weekly output rates of the workers—some workers produced well below the quota and one worker regularly exceeded it—that could not be attributed to differences in soldering ability and dexterity or intelligence because test scores did not correspond to output. For example, the worker with the lowest output among the nine wiremen ranked highest on the intelligence test and third highest on the soldering and dexterity test. The worker who scored highest on soldering and dexterity ranked seventh in output (Roethlisberger and Dickson 1939: 409–446).

Restriction of output by workers and sanctions to enforce compliance with a quota were not, by themselves, a big surprise. Frederick Taylor had commented on this behavior in his writings on scientific management, as we see in Chapter 6. The variations in output, however, were more startling. The researchers ultimately explained these by pointing to the emergence of two distinct subgroups or cliques within the bank wiring room. One was based among the workers in the front of the room (clique A), the other among the workers in the back (clique B). Although the group as a whole was unified on certain issues, such as the need for a quota, in other respects the workers were quite divided. Further, there was a difference in status: clique A was the dominant group. Productivity differences corresponded to group membership and status. The highest producer was a worker who was a loner, who chose not to associate with the members of clique A, even though he was located in their section of the room. He apparently did not care that he was ostracized for exceeding the quota or "ratebusting." The lowest producers were the three members of clique B, who were criticized by some of the other workers for goofing off too much and not contributing their fair share of total output (this was called "chiseling") (Roethlisberger and Dickson 1939: 508–522).

The relay assembly test room and the bank wiring observation room studies had both demonstrated that workers formed groups or informal organizations in the workplace. The difference between the groups in the two settings, the researchers later concluded, lay in the

extent to which they promoted cooperation with or resistance to the company's management. The group of women in the relay assembly test room encouraged these workers to develop a sense of themselves as being special and to take pride in their work; the group of men in the bank wiring room encouraged these workers to maintain their established patterns of working and to oppose any changes that their supervisors wanted to make.

The Human Relations Philosophy of Personnel Management

Elton Mayo and his fellow Hawthorne researchers used this dichotomy between cooperation in the relay assembly room and resistance in the bank wiring room to promote a new philosophy of personnel management: human relations. The basic assumption underlying human relations was that workers' group loyalties could be either an asset or an obstacle to company management. To make them an asset, however, managers had to know what workers' sentiments and feelings were. This meant studying workers both differently and more intensively than was customary. The researchers proposed a new therapeutic approach to managing workers, which they named "personnel counseling." The personnel counselor, who would not hold any formal authority in the organization, was to be an expert in handling human problems. The intervention of the counselor marked a different approach to factory discipline. If a worker was unproductive or unhappy, the counselor would take that worker aside and probe the reasons—personal or job-related—for her discontent. Together they would identify the causes and the counselor would then help the worker to identify some possible solutions. Once the worker understood the reasons for her dissatisfaction, human relations advocates claimed, she would work more effectively with her co-workers, would be more cooperative with management, and would be more productive.

The strength of the Hawthorne research lay in two important discoveries. First, the researchers had found that workers formed alliances with one another to defend their mutual interests rather than acting as isolated, self-interested individuals. Second, they had found that productivity depended on whether managers could get workers to cooperate with them. These two discoveries went hand in hand. Managers could not assure themselves of workers' cooperation by providing economic incentives but had to accept that workers would act primarily out of loyalty to their work group. The weakness of the philosophy of labor management—human relations—that arose from these discoveries was that the solution to the problem of how best to handle workers remained firmly individualistic. Despite showing that workers could only be understood in the context of the groups to which they belonged, the researchers' practical recommendations emphasized individual counseling and therapy. They believed that workers who resisted management, such as those in the bank wiring room, had personal problems that needed to be brought to the surface through a one-on-one open-ended interview with a personnel counselor. They did not consider whether output restriction might be a form of collective worker resistance to managerial control. They did not consider whether workers might be justified in resisting managers.

The shortcomings in the human relations approach were exposed in the next decade as workers in industry after industry organized

themselves into labor unions (see Chapter 10). The rise of the labor movement was fueled by the resentment that workers felt toward their employers for ignoring their grievances. Given the intense conflict between workers and managers in the 1930s, it is hardly surprising that personnel counseling was not widely adopted. The enduring legacy of human relations is not its specific techniques of personnel practice, however. Its lasting contribution was that it changed how managers thought about and talked about their organizations. First, human relations elevated the status of personnel management as a discipline by placing it on a base of scientific knowledge. Second, it highlighted a new managerial talent—the exercise of social or emotional skills. A good manager was now one who understood what made others—colleagues, subordinates, and superiors—tick. Third, it encouraged managers to experiment with ways of increasing worker participation and promoting teamwork. More than seventy years later, companies continue to strive for participation and teamwork in the workplace (Bendix 1956; Gillespie 1991).

Summary

In order to mass-produce manufactured goods, American employers replaced skilled craftsmen with semi-skilled and unskilled workers. Mass production meant that employers had to acquire the knowledge of the craftsmen, reorganize their work, and reallocate it among workers who were to operate machines and to work on assembly lines. Frederick Taylor's philosophy of scientific management gave employers a strategy for understanding workers' skills and replacing them with their own work arrangements. The most important of these arrangements was the assembly line, which was first introduced in Henry Ford's automobile factories. The result was fast-paced, repetitive, and highly productive work.

Workers disliked assembly lines and other forms of mass-production work because of the relentless pace of the line in combination with pressure from foremen to maintain high levels of output. They responded by going absent, quitting their jobs, and joining unions, one of the most prominent of which in the first decades of the twentieth century was the Industrial Workers of the World. Employers responded by introducing personnel management—the creation of incentives for employee cooperation—to combat resistance to factory discipline and to extend their ability to control the workforce they employed. These incentives included Henry Ford's famous Five Dollar Day and various incentives, such as home- and stock-ownership plans and company pensions and health insurance plans, which were known as "welfare capitalism." Welfare capitalism came to an end with the Great Depression, which destroyed the bargain between employer and employee on which it was based.

In the years following the Depression employers began to rethink their view of workers, largely in response to a series of studies conducted by a group of researchers, led by Elton Mayo at the Hawthorne plant of Western Electric. The results of two of these studies—one conducted in the relay assembly test room and the other in the bank wiring observation room—challenged the notion, implicit in both scientific management and welfare capitalism, that workers were isolated individuals who responded to economic incentives. The Hawthorne researchers showed that

workers formed groups and that the code of the group determined whether they cooperated with management in achieving high production or resisted management in restricting output. Mayo and his colleagues promoted a new approach to personnel management, known as human relations. Although the techniques of the new approach, such as personnel counseling, were not widely adopted, the influence of the philosophy of human relations can be seen in contemporary practices such as team building and encouraging employee participation.