

1. Introduction

In the popular mind, Henry Ford and his Ford Motor Company have assumed mythic proportions within the framework of American consciousness. Ford was the archetype of the rags-to-riches myth—the poor farm boy who through spunk, discipline, and hard work moved up the social ladder to become skilled mechanic, engineer, and finally billionaire industrialist. He was the tinkerer-craftsman who produced one of many horseless carriages. In 1903, he founded the Ford Motor Company in a small Detroit workshop. In 1908, he introduced the Model T Ford and met with extraordinary commercial success. Between 1910 and 1914, the technical genius developed mass production and made the conveyor a symbol of the auto-industrial age. In 1914, Ford outraged financiers and industrialists and stunned trade unionists and socialists with his announcement of the then-outrageous Five Dollar Day. He immediately acquired the reputation of humanitarian, philanthropist, and social reformer. And, the Ford legend survived his repressive anti-labor policies in the 1920s and 1930s. In 1940, a Roper survey of American workers revealed that Ford ranked first as the political, industrial, or business leader most “helpful to labor.”¹

To be sure, the Ford myth took different forms with various interpretations. To the venerable John D. Rockefeller, the Ford Highland Park factory was “the industrial miracle of the age.” To many others, Ford propounded a new religious cult and he was “the industrial high priest” or “the high priest of efficiency.” To Charlie Chaplin, Ford brought on “Modern Times,” with workers condemned to perpetual involuntary motions. To Ford workers, he brought on a new disease, Forditis, whose symptoms included “a nervous stomach and all parts of your body breaking down.” To Aldous Huxley, Ford mass production inaugurated the “brave new world” which began in “the year of our Ford” with the birth of the Model T.²

Of course, the Ford legend contained much substance. The period from 1908 to 1921 was important for the development of the Ford

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Motor Company, the automobile industry, and the American industrial economy. These developments took place in the Highland Park factory. In this period, the Ford Motor Company was a remarkable industrial and financial success. It rapidly increased the size of its workforce, the number of automobiles produced, and the amount of its net income. In 1903, it employed 125 workers who manufactured 1,700 automobiles. In 1908, 450 workmen produced 10,607 automobiles. In 1914, 12,880 workers produced 248,307 automobiles. And, in 1921, 32,679 persons manufactured 933,720 automobiles. This was a phenomenal growth in the size of the workforce and in the number of automobiles manufactured. For the same period, the company's net income also increased substantially. It grew from about \$246,000 in the first year, to about \$3,000,000 in 1909, to about \$25,000,000 in 1914, and to almost \$78,000,000 in 1921. And, the small Ford plant began as one of hundreds of small automobile manufacturers in 1903. Yet, in 1908, its share of the automobile market was 9.4 percent. In 1914, it reached 48 percent. Indeed, the period from 1908 to 1914 was one of spectacular organizational and technical innovation as workers and machines strained to satisfy the considerable popular demand for the Model T Ford.³

As a result, the legend and the success have generated countless articles and books on Henry Ford and his Ford Motor Company. The principal works are Allan Nevins and Frank Hill's multivolume *Ford* and Keith Sward's *The Legend of Henry Ford*. Sward, a psychologist who published his work first, has dismantled adequately the Ford myth. He thoroughly surveyed the primary and secondary literature, but he never had access to the Ford Archives. Later, Nevins and Hill compiled their truly massive and comprehensive history of Ford and his enterprise. But contained by the entrepreneurial spirit of the fifties, they did not view Ford and his industrial system with a sufficiently critical eye. They only too readily glossed and glided over the immense social and personal impact of the Ford industrial system on Ford workers. Recently, others have written in depth about Ford's influence on grass-roots America, his public image, and his psychological profile as a business leader. Nonetheless, Ford and his company require a new and substantive re-evaluation and reinterpretation. Recent trends in the history of technology, labor, and management force the relocation of Ford's place in the evolution of the American social and economic system. Such a reinterpretation is the purpose of this book.⁴

In the past, the history of technology has tended to emphasize the

principal inventors, the internal history of technical innovations, and their entrepreneurial exploitation. It has divorced technology from the social relationships of the real industrial world. It has failed to address critically the profound social impact of technology on the world of work. And, this failure has resulted in misinformation on, and misinterpretations of, our social past and present. Recently, historians of technology have begun to chart new directions toward our understanding of the technological past. Merritt Roe Smith's work on the Harpers Ferry armory details the technical development of small arms manufacture with a sensitivity to the influence of technology on the work process. More significantly, David Noble's work on the engineering profession demonstrates how science and technology evolved to serve corporate interests in the late nineteenth and early twentieth centuries. And, his work on the numerical control of machine tools suggests the influence of social decisions and choices on the design of a modern generation of machine tools. Possibly, a "new" history of technology will stand beside the "new" labor and social histories.⁵

Within this context, the Ford Motor Company offers a critically important example of the social impact of technology on work processes. Uniquely situated in the historical evolution of industrial technology, the Ford Highland Park factory represented full realization of the American system of production and the maturation of the modern industrial age. And, the Ford experience suggests that the conscious control of labor and labor processes was an essential feature of the development of Ford industrial technologies. The Ford industrial technology did not emerge in a social vacuum, but in an environment of social and economic decisions and choices about the nature of workers and work processes. Most important, the Highland Park plant transcended craft techniques in the metal and the carriage and wagon trades and moved toward the sophisticated, capital-intensive technologies of the auto-industrial age.

In this sense, the history of Ford industrial technology moves over to the terrain of the history of Ford labor. In recent years, the "new" labor history has examined and emphasized the worker rather than his institutions. It has studied "history from the bottom up" in order to uncover the richer and more complex textures of working-class life. The "new" labor history has followed the lead of Edward P. Thompson and Eric Hobsbawm in Great Britain and David Brody, Herbert Gutman, and David Montgomery in the United States. It has been far more sensitive to the questions of class, ethnicity, cul-

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ture, family and community life, work processes, and work discipline. It truly has transformed our understanding of the role of labor in the American past.⁶

In spite of their considerable importance to American social and economic development, the history of Ford workers never really has been written. Of course, Nevins and Sward have touched on some aspects of the lives of Ford workers, but they consistently have focused on Ford or his company. Particularly in the early years, the Ford community of producers has remained in the background of the historical past. They did not conduct a successful great strike and did not create a formidable labor institution. Instead, their history has resided in the anonymous corners of the shops and departments of the Highland Park plant. Their history has involved changed work processes, diluted skills, degraded work, and transformed social relations between managers and workers and among workers themselves. It also has involved a persistent pattern of resistances and struggles against the disciplines and controls imposed from above.

So, the history of Ford labor is inextricably interconnected with the history of Ford management. Labor history must consider "history from the top down." Despite the prevailing American opinion that labor and management are bound together with common interests, they do have antagonistic interests in certain realms of their relationship. A bottom line is wages and profits. Here, both sides make the impossible demand for more, more, more. Another area is control over work and work processes with its mutual incompatible interests. Managers strive for discipline and productivity; workers demand autonomy and a reasonable pace of work.

The history of management also has been transformed in recent years. Alfred D. Chandler, the dean of American business historians, has produced a definitive work on the development of the modern managerial tradition. However, he basically has been silent on the impact of modern forms of management on workers and their work processes. Nonetheless, others have addressed these important questions. Daniel Nelson has written a survey on the origins of the "new factory system" from 1880 to 1920. Moreover, he included workers in this important aspect of American industrial development. And, David Montgomery has detailed the struggles between managers and workers over the control of labor and labor processes in the late nineteenth and early twentieth centuries. And, all three have indicated that the early twentieth century was critical for the evolution of modern management.⁷

In this respect, the Ford Motor Company emerged in the midst of the genesis of modern management. It stood at the transition from traditional and crude forms of labor management to modern and sophisticated ones. It combined the traditions of scientific management, welfare work, and personnel management. Moreover, for a brief period, the Ford Motor Company experimented with a unique and sophisticated set of social controls which presaged the social science approach of the Hawthorne experiments in the 1920s. The Ford experiment reflected the contradictory mood of the Progressive Era and contained a deep-seated paternalism towards Ford workers. In the end, it failed because it did not meet a fundamental managerial need—the discipline and control of the Ford labor force.

Against this backdrop, the basic theme of this book is the transformation of the industrial technology and the subsequent changes in the social and cultural framework of the modern factory. In other words, this book explores the development of a new industrial technology, the personal and social reaction of workers to that technology, and the managerial efforts to overcome worker resistance to the new form of production. In order to accomplish this, it draws together various strands from the discipline of history—the history of technology, social and labor history, cultural history, and business history.

This book begins with an examination of the introduction of the Model T Ford in 1908 and the evolution of mass production in the Ford Highland Park factory from 1910 to 1914. It pays particular attention to the adoption of new and advanced machine-tool technologies, the reorganization of work, and the development of the concepts of progressive production and progressive assembly. It explores the impact of these innovations on craft forms of production, skill, and the character of work. It then examines changes in the structure of the workforce within the factory. The emergence of the new form of specialized worker—the “deskilled” specialist—resulted in the influx of large numbers of new workers to the Ford factory. Not possessing the industrial skills and discipline that came from the traditional craft system, former peasants and former farmers created special problems for Ford factory managers.

Whereas the Ford Motor Company created the most sophisticated and efficient industrial technology of the time, serious social and psychological limitations to the new technology emerged. Low rates of productivity resulted from problems in which industrial managers labelled the “human element of production.” These problems included preindustrial immigrant attitudes and forms of behavior,

worker lateness and absenteeism, high rates of labor turnover, soldiering and output restriction, and craft and industrial unionism. In late 1913, as the coordinated and synchronized industrial processes neared completion, the company selected John R. Lee to update and upgrade its labor policies. Lee inaugurated a series of reforms which followed the Progressive Era's pattern of welfare capitalism. He established an employment department and instituted a "skill-wages" job classification system. This system it created a "job ladder" based upon productivity and sought to connect industrial discipline with the desire for upward mobility. He also instituted an Employees' Savings and Loan Association to ameliorate the economic insecurities of immigrant working-class life.

Nevertheless, the Lee reforms did not solve the Ford labor problems. Consequently, in January 1914, the company went further and announced its famous Five Dollar Day. More than simply a high-wage policy, the Five Dollar Day attempted to solve attitudinal and behavioral problems with an effort to change the worker's domestic environment. The company divided the worker's income into approximately equal parts of wages and profits. Each worker received his wages. However, the worker received his profits, and hence the Five Dollar Day, only when he met specific standards of efficiency and home life. The implementation of this labor policy required the formation of a Sociological Department and its staff of investigators to examine the Ford worker's domestic life and advise him how to live in order to obtain profits. The company attempted to change an immigrant worker's life and culture to its preconceived ideal of an "American standard of living," which it felt was the basis for industrial efficiency. It even instituted an English School to teach the English language, American values and customs, and the proper habits of work to foreign factory operatives.

However, the Ford industrial experiment proved short-lived. The First World War undermined the unique Ford Profit-sharing Plan, war-induced inflation eroded the financial incentive of the Five Dollar Day, the war-time labor market brought back labor problems, and the national mood became more authoritarian and repressive. During the war, Ford labor policies shifted from social uplift to industrial espionage. The American Protective League maintained a network of spies within the Ford factory. It was connected to the Sociological Department and to local, federal, and military authorities. It maintained reports on the anti-patriotism, trade unionism, and inefficient habits of recalcitrant or dissident workers.

In 1919, the Automobile Workers' Union conducted a strike against a major Ford body supplier. In the face of labor insurgency in Detroit, the company resorted to factory spies to discover and eliminate inefficiency, trade unionists, and socialists from the Ford plant. From this point on, tougher labor policies forced the acceptance of more regimented work routines in the Ford factories.

In the end, the unique and short-lived Ford program did not succeed. Yet, its significance goes beyond the boundaries of success or failure. It marked an early managerial strategy to match working-class culture to the requirements of the modern factory. It sought to transform personal and social attitudes and behavior through the home and the community, but the root of Ford problems lay in the factory.

The primary perspective of this study is that of the automobile worker. Its purpose has been to detail the crucial events and circumstances that created modern line production in the automobile industry, as well as the reactions and responses of automobile workers to the new work processes. For this reason, the study has boundaries relative to time, place, and subject matter. First, the period from 1908 to 1921 has been emphasized because it contains important technical and managerial innovations in the Ford enterprise. It saw the introduction of the Model T Ford, the technical transformation of industrial processes, the experimentation with novel social controls, and the return to conventional management. Second, this study only examines developments in the Highland Park factory. To be sure, the Ford empire included numerous, but relatively small, branch assembly plants in this period. And, the huge River Rouge plant came into being at the end of this period. Nevertheless, the Highland Park plant was the location of Ford technological innovation and social experimentation. It employed the overwhelming majority of the Ford workforce with tens of thousands of workers. Third, this study does not focus on the biographical profile of the leading figures of the Ford Motor Company. From the perspective of Ford workers, Ford officials, engineers, and factory managers are important for what they did to industrial processes and how they thought about workers. Again, this is the story of automobile workers, a chapter in the larger history of labor and work in modern America.