15. See J. H. Stewart Reid, *The Origins of the British Labour Party* (Minneapolis, Minn., 1955), p. 19; and E. J. Hobsbawm, *The Age of Revolution* (New York, 1962), pp. 213–14.
16. Bernal, *Science in History*, p. 383.
17. Samuel Gompers, *Seventy Years of Life and Labor* (1925; New York, 1957), p. 57.
18. Henry Mayhew, in *The Unknown Mayhew*, Eileen Yeo and E. P. Thompson, eds. (New York, 1971), pp. 105–106.
19. E. P. Thompson, *The Making of the English Working Class* (New York, 1964), pp. 291–92.
20. Hoxie, *Scientific Management and Labor*, pp. 131–32.
21. Georges Friedmann, *Industrial Society* (Glencoe, Ill., 1955), pp. 41–43.

Chapter 6

The Habituation of the Worker to the Capitalist Mode of Production

The transformation of working humanity into a "labor force," a "factor of production," an instrument of capital, is an incessant and unending process. The condition is repugnant to the victims, whether their pay is high or low, because it violates human conditions of work; and since the workers are not destroyed as human beings but are simply utilized in inhuman ways, their critical, intelligent, conceptual faculties, no matter how deadened or diminished, always remain in some degree a threat to capital. Moreover, the capitalist mode of production is continually extended to new areas of work, including those freshly created by technological advances and the shift of capital to new industries. It is, in addition, continually being refined and perfected, so that its pressure upon the workers is unceasing. At the same time, the habituation of workers to the capitalist mode of production must be renewed with each generation, all the more so as the generations which grow up under capitalism are not formed within the matrix of work life, but are plunged into work from the outside, so to speak, after a prolonged period of adolescence during which they are held in reserve. The necessity for adjusting the worker to work in its capitalist form, for overcoming natural resistance intensified by swiftly changing technology, antagonistic social relations, and the succession of

the generations, does not therefore end with the "scientific organization of labor," but becomes a permanent feature of capitalist society.

As a result, there has come into being, within the personnel and labor relations departments of corporations and in the external support organizations such as schools of industrial relations, college departments of sociology, and other academic and para-academic institutions, a complex of practical and academic disciplines devoted to the study of the worker. Shortly after Taylor, industrial psychology and industrial physiology came into existence to perfect methods of selection, training, and motivation of workers, and these were soon broadened into an attempted industrial sociology, the study of the workplace as a social system.

The cardinal feature of these various schools and the currents within them is that, unlike the scientific management movement, they do not by and large concern themselves with the organization of work, but rather with the conditions under which the worker may best be brought to cooperate in the scheme of work organized by the industrial engineer.* The

* Personnel management, although thought of as that part of the corporate structure concerned with the worker, is usually given short shrift when a reorganization of actual work is under way. In a recent book, two prominent industrial engineers accord to almost every management level a greater role in the change in work methods than the role which they prescribe for the personnel department. They say flatly, in their recommendations for an overall "operations improvement program": "In the beginning, in most organizations, the personnel director will have no active role in the conduct of an operations improvement program." They restrict the place of this official to his value "as a sounding-board for employee reactions," and to orienting new employees to the program and to answering questions and complaints.[1] As with personnel directors, so also with their academic counterparts in labor sociology. Charles Rumford Walker, one of the more experienced and sophisticated, as well as more "humane," of these stresses this in a section of one of his papers devoted to the "Strategic Role of the Engineer," in which he recognizes that the direction of the evolution of work

evolving work processes of capitalist society are taken by these schools as inexorable givens, and are accepted as "necessary and inevitable" in any form of "industrial society." The problems addressed are the problems of management: dissatisfaction as expressed in high turnover rates, absenteeism, resistance to the prescribed work pace, indifference, neglect, cooperative group restrictions on output, and overt hostility to management. As it presents itself to most of the sociologists and psychologists concerned with the study of work and workers, the problem is not that of the degradation of men and women, but the difficulties raised by the reactions, conscious and unconscious, to that degradation. It is therefore not at all fortuitous that most orthodox social scientists adhere firmly, indeed desperately, to the dictum that their task is not the study of the objective conditions of work, but only of the subjective phenomena to which these give rise: the degrees of "satisfaction" and "dissatisfaction" elicited by their questionnaires.

The earliest systematic effort in this direction took place in the field of industrial psychology. Its beginnings may be traced back to the experimental psychology taught in nineteenth-century Germany, and in particular to the school of psychology at the University of Leipzig. Hugo Münsterberg, after receiving his training in Wilhelm Wundt's "laboratory" at that institution, came to the United States where, at Harvard, he was in a position to observe the development of modern management in its most vigorous and extensive forms, and it became his ambition to marry the methods of the Leipzig

is determined by "managers and engineers, as architects of the future," while the role of sociologists is that of trying to importune, press upon, and persuade the real designers of the work process to take into account the "neglected human dimension" in order to reduce discontent and increase productivity, to "seize the opportunity" offered by swift technological change, etc.[2]

school to the new practice of scientific management. His *Psychology and Industrial Efficiency* (published in German in 1912, with an English version following the next year) may be called the first systematic outline of industrial psychology.[3] Like Taylor, Münsterberg disdained to conceal his views and aims:

> Our aim is to sketch the outlines of a new science which is intermediate between the modern laboratory psychology and the problems of economics: the psychological experiment is systematically to be placed at the service of commerce and industry.[4]

But what are the ends of commerce and industry? Münsterberg leaves that to others: "Economic psychotechnics may serve certain ends of commerce and industry, but whether these ends are the best ones is not a care with which the psychologist has to be burdened."[5] Having relieved his "science" of this burden, and having turned the task of setting the parameters of his investigations over to those who control "commerce and industry," he returns to this subject only when it is suggested that perhaps the point of view of the workers, who are also part of "commerce and industry," should be taken into consideration. So crass and vulgar an appeal to special interests arouses his horror, and he rejects it sternly:

> The inquiry into the possible psychological contributions to the question of reinforced achievement must not be deterred by the superficial objection that in one or another industrial concern a dismissal of wage-earners might at first result. Psychotechnics does not stand in the service of a party, but exclusively in the service of civilization.[6]

Having identified the interests of "civilization" not with the immense majority of workers but with those who manage them, he can now face without blanching the everyday effects of "scientific work design" upon the worker: ". . . the development of scientific management has shown clearly that the most important improvements are just those which are deduced from scientific researches, without at first giving satisfaction to the laborers themselves, until a new habit has been formed."[7] He sees the role of psychological science in industry as the selection of workers from among the pool offered on the labor market, and their acclimatization to the work routines devised by "civilization," the formation of the "new habit":

> . . . we select three chief purposes of business life, purposes which are important in commerce and industry and every economic endeavor. We ask how we can find the men whose mental qualities make them best fitted for the work which they have to do; secondly, under what psychological conditions we can secure the greatest and most satisfactory output of work from every man; and finally, how we can produce most completely the influence on human minds which are desired in the interests of business.[8]

In this definition we have the aims—although rarely so flatly stated—of the subsequent schools of psychological, physiological, and social investigation of the worker and work. By and large, they have sought a model of workers and work groups which would produce the results desired by management: habituation to the terms of employment offered in the capitalist firm and satisfactory performance on that basis. These schools and theories have succeeded one another in a dazzling proliferation of approaches and theories, a proliferation which is more than anything else testimony to their failure.

The spread of industrial psychology in the United States was in the beginning largely due to the efforts of Walter Dill Scott, a psychologist at Northwestern University who took his doctorate at Leipzig and came to the new field by way of a prior career in advertising. During and after World War I, psychological testing was used by a number of major corpora-

tions (American Tobacco, National Lead, Western Electric, Loose-Wiles Biscuit, Metropolitan Life), and the first psychological consulting service for industry was established at the Carnegie Institute of Technology in 1915, where Scott assumed the first chair of applied psychology in an American academic institution. During the war such testing was conducted on a grand scale in the United States armed forces, also under Scott, and the popularity this gave to the new device encouraged its spread throughout industry after the war. In England and Germany the trend was similar, with Germany perhaps ahead of all others in the field.[9]

The premise of industrial psychology was that, using aptitude tests, it was possible to determine in advance the suitability of workers for various positions by classifying them according to degrees of "intelligence," "manual dexterity," "accident proneness," and general conformability to the "profile" desired by management. The vanity of this attempt to calibrate individuals and anticipate their behavior in the complex and antagonistic dynamics of social life was soon exposed by practice. The prolonged and exhaustive experiments conducted at the Western Electric plant on the west side of Chicago—the so-called Hawthorne experiments—during the last years of the 1920s crystallized the dissatisfaction with industrial psychology. In those experiments, a Harvard Business School team under the leadership of Elton Mayo arrived at chiefly negative conclusions—conclusions, moreover, which were remarkably similar to those with which Taylor had begun his investigations almost a half-century earlier. They learned that the performance of workers had little relation to "ability"—and in fact often bore an *inverse* relation to test scores, with those scoring best producing at lower levels and vice-versa—and that workers acted collectively to resist management work-pace standards and demands. "The belief," said Mayo, "that the behavior of an individual within the factory can be predicted before employment upon the basis of a laborious and minute examination by tests of his mechanical and other capacities is mainly, if not wholly mistaken." [10]

The chief conclusion of the Mayo school was that the workers' motivations could not be understood on a purely individual basis, and that the key to their behavior lay in the social groups of the factory. With this, the study of the habituation of workers to their work moved from the plane of psychology to that of sociology. The "human relations" approach, first of a series of behavioral sociological schools, focused on personnel counseling and on ingratiating or nonirritating styles of "face to face" supervision. But these schools have yielded little to management in the way of solid and tangible results. Moreover, the birth of the "human relations" idea coincided with the Depression of the 1930s and the massive wave of working-class revolt that culminated in the unionization of the basic industries of the United States. In the illumination cast by these events, the workplace suddenly appeared not as a system of bureaucratic formal organization on the Weberian model, nor as a system of informal group relations as in the interpretation of Mayo and his followers, but rather as a system of power, of class antagonisms. Industrial psychology and sociology have never recovered from this blow. From their confident beginnings as "sciences" devoted to discovering the springs of human behavior the better to manipulate them in the interests of management, they have broken up into a welter of confused and confusing approaches pursuing psychological, sociological, economic, mathematical, or "systems" interpretations of the realities of the workplace, with little real impact upon the management of worker or work.*

* The actual place of industrial psychology and sociology in corporate policies was succinctly expressed by three specialists in industrial engineering at the end of an article called "Current Job Design Criteria": "It can be concluded that company policies and practices [this refers to the companies studied in the article] in job design are inconsistent with programs and

If the adaptation of the worker to the capitalist mode of production owes little to the efforts of practical and ideological manipulators, how is it in fact accomplished? Much of the economic and political history of the capitalist world during the last century and a half is bound up with this process of adjustment and the conflicts and revolts which attended it, and this is not the place to attempt a summary. A single illustration, that of the first comprehensive conveyor assembly line, will have to suffice as an indication that the wrenching of the workers out of their prior conditions and their adjustment to the forms of work engineered by capital is a fundamental process in which the principal roles are played not by manipulation or cajolery but by socioeconomic conditions and forces.

In 1903, when the Ford Motor Company was founded, building automobiles was a task reserved for craftsmen who had received their training in the bicycle and carriage shops of Michigan and Ohio, then the centers of those industries. "Final assembly, for example," writes Eli Chinoy, "had originally been a highly skilled job. Each car was put together in one spot by a number of all-around mechanics." [12] By 1908, when Ford launched the Model T, procedures had been changed somewhat, but the changes were slight compared with what was soon to come. The organization of assembly labor at that time is described as follows by Keith Sward:

> At Ford's and in all the other shops in Detroit, the process of putting an automobile together still revolved around the versatile mechanic, who was compelled to move about in order to do his work. Ford's assemblers were still all-around men. Their work was largely stationary, yet they had to move on to their next job on foot as soon as the car-in-the-making at their particular station had been taken the whole distance—from bare frame to finished product. To be sure, time had added some refinements. In 1908 it was no longer necessary for the assembler to leave his place of work for trips to the tool crib or the parts bin. Stock-runners had been set aside to perform this function. Nor was the Ford mechanic himself in 1908 quite the man he had been in 1903. In the intervening years the job of final assembly had been split up ever so little. In place of the jack-of-all-trades who formerly "did it all," there were now several assemblers who worked over a particular car side by side, each one responsible for a somewhat limited set of operations.[13]

The demand for the Model T was so great that special engineering talent was engaged to revise the production methods of the company. The key element of the new organization of labor was the endless conveyor chain upon which car assemblies were carried past fixed stations where men performed simple operations as they passed. This system was first put into operation for various subassemblies, beginning around the same time that the Model T was launched, and developed through the next half-dozen years until it culminated in January 1914 with the inauguration of the first endless-chain conveyor for final assembly at Ford's Highland Park plant. Within three months, the assembly time for the Model T had been reduced to one-tenth the time formerly needed, and by 1925 an organization had been created which produced almost as many cars in a single day as had been produced, early in the history of the Model T, in an entire year.

The quickening rate of production in this case depended not only upon the change in the organization of labor, but upon

policies in human relations and personnel administration. On the one hand, specific steps are taken to minimize the contribution of the individual, and on the other hand he is propagandized about his importance and value to the organization." [11] But this is more than an "inconsistency," since job design represents *reality* while personnel administration represents only *mythology*. From the point of view of the corporation, there is no inconsistency, since the latter represents a manipulation to habituate the worker to the former.

the control which management, at a single stroke, attained over the pace of assembly, so that it could now double and triple the rate at which operations had to be performed and thus subject its workers to an extraordinary intensity of labor. Having achieved this, Ford then moved to flatten the pay structure as a further cost-cutting measure:

> Before the advent of the assembly line, the company had made a general practice of dispensing more or less liberal bonuses in order to stimulate production and individual initiative. But the moment moving belt lines came into being, Ford did away with incentive pay. He reverted to the payment of a flat hourly rate of wages. The company had decided, said *Iron Age* in July 1913, to abandon its graduated pay scale in favor of "more strenuous supervision." Once the new wage policy had been put into effect, the run-of-the-mine Ford employe could expect no more variation in his earnings than in the operations which he was called upon to perform. His maximum pay was frozen, seemingly for good, at $2.34 per day, the rate of pay which was standard for the area.[14]

In this way the new conditions of employment that were to become characteristic of the automobile industry, and thereafter of an increasing number of industries, were established first at the Ford Motor Company. Craftsmanship gave way to a repeated detail operation, and wage rates were standardized at uniform levels. The reaction to this change was powerful, as Sward relates:

> As a consequence, the new technology at Ford's proved to be increasingly unpopular; more and more it went against the grain. And the men who were exposed to it began to rebel. They registered their dissatisfaction by walking out in droves. They could afford to pick and choose. Other jobs were plentiful in the community; they were easier to get to; they paid as well; and they were less mechanized and more to labor's liking.
>
> Ford's men had begun to desert him in large numbers as early as 1910. With the coming of the assembly line, their ranks almost literally fell apart; the company soon found it next to impossible to keep its working force intact, let alone expand it. It was apparent that the Ford Motor Co. had reached the point of owning a great factory without having enough workers to keep it humming. Ford admitted later that his startling factory innovations had ushered in the outstanding labor crisis of his career. The turnover of his working force had run, he was to write, to 380 percent for the year 1913 alone. So great was labor's distaste for the new machine system that toward the close of 1913 every time the company wanted to add 100 men to its factory personnel, it was necessary to hire 963.[15]

In this initial reaction to the assembly line we see the natural revulsion of the worker against the new kind of work. What makes it possible to see it so clearly is the fact that Ford, as a pioneer in the new mode of production, was competing with prior modes of the organization of labor which still characterized the rest of the automobile industry and other industries in the area. In this microcosm, there is an illustration of the rule that the working class is progressively subjected to the capitalist mode of production, and to the successive forms which it takes, *only as the capitalist mode of production conquers and destroys all other forms of the organization of labor, and with them, all alternatives for the working population.* As Ford, by the competitive advantage which he gained, forced the assembly line upon the rest of the automobile industry, in the same degree workers were forced to submit to it by the disappearance of other forms of work in that industry.

The crisis Ford faced was intensified by the unionization drive begun by the Industrial Workers of the World among Ford workers in the summer of 1913. Ford's response to the double threat of unionization and the flight of workers from his plants was the announcement, made with great fanfare early in 1914, of the $5.00 day. Although this dramatic increase in wages was not so strictly adhered to as Ford would have had the public believe when he launched it, it did raise

pay at the Ford plant so much above the prevailing rate in the area that it solved both threats for the moment. It gave the company a large pool of labor from which to choose and at the same time opened up new possibilities for the intensification of labor within the plants, where workers were now anxious to keep their jobs. "The payment of five dollars a day for an eight-hour day," Ford was to write in his autobiography, "was one of the finest cost-cutting moves we ever made." [16]

In this move can be seen a second element in the adjustment of workers to increasingly unpopular jobs. Conceding higher relative wages for a shrinking proportion of workers in order to guarantee uninterrupted production was to become, particularly after the Second World War, a widespread feature of corporate labor policy, especially after it was adopted by union leaderships. John L. Lewis resolved upon this course of action shortly after the war: in return for encouraging the mechanization of the coal-mining industry and the reduction of employment, he insisted upon an increasing scale of compensation for the ever smaller and ever more hard-driven miners remaining in the pits. The bulk of the organized labor movement in production industries followed his lead, either openly or implicitly, in the decades thereafter. And these policies were greatly facilitated by the monopolistic structure of the industries in question. The workers who were sloughed off, or the workers who never entered manufacturing industries because of the proportional shrinkage of those industries, furnished the masses for new branches of industry at lower rates of pay.

If the petty manipulations of personnel departments and industrial psychology and sociology have not played a major role in the habituation of worker to work, therefore, this does not mean that the "adjustment" of the worker is free of manipulative elements. On the contrary, as in all of the functionings of the capitalist system, manipulation is primary

and coercion is held in reserve—except that this manipulation is the product of powerful economic forces, major corporate employment and bargaining policies, and the inner workings and evolution of the system of capitalism itself, and not primarily of the clever schemes of labor relations experts. The apparent acclimatization of the worker to the new modes of production grows out of the destruction of all other ways of living, the striking of wage bargains that permit a certain enlargement of the customary bounds of subsistence for the working class, the weaving of the net of modern capitalist life that finally makes all other modes of living impossible. But beneath this apparent habituation, the hostility of workers to the degenerated forms of work which are forced upon them continues as a subterranean stream that makes its way to the surface when employment conditions permit, or when the capitalist drive for a greater intensity of labor oversteps the bounds of physical and mental capacity. It renews itself in new generations, expresses itself in the unbounded cynicism and revulsion which large numbers of workers feel about their work, and comes to the fore repeatedly as a social issue demanding solution.

Notes

1. Bruce Payne and David D. Swett, *Office Operations Improvement* (New York, 1967), pp. 41–42.
2. National Commission on Technology, Automation, and Economic Progress, *The Employment Impact of Technological Change*, Appendix Volume II, *Technology and the American Economy* (Washington, D.C., 1966), pp. 288–315, esp. section IV.
3. Loren Baritz, *The Servants of Power: A History of the Use of Social Science in American Industry* (Middletown, Conn., 1960; paperback ed., New York, 1965), pp. 26–36.

4. Hugo Münsterberg, *Psychology and Industrial Efficiency* (Boston and New York, 1913), p. 3.
5. Ibid., p. 19.
6. Ibid., p. 144.
7. Ibid., p. 178.
8. Ibid., pp. 23–24.
9. A brief history of industrial psychology is supplied in Baritz, *The Servants of Power.*
10. Quoted in ibid., p. 95.
11. Louis E. Davis, Ralph R. Canter, and John Hoffman, "Current Job Design Criteria," *Journal of Industrial Engineering*, vol. 6, no. 2 (1955); reprinted in Louis E. Davis and James C. Taylor, eds., *Design of Jobs* (London, 1972), p. 81.
12. Eli Chinoy, "Manning the Machine—The Assembly-Line Worker," in Peter L. Berger, ed., *The Human Shape of Work: Studies in the Sociology of Occupations* (New York, 1964), p. 53.
13. Keith Sward, *The Legend of Henry Ford* (New York and Toronto, 1948), p. 32.
14. Ibid., p. 48.
15. Ibid., pp. 48–49.
16. Ibid., p. 56.

Part II

Science and Mechanization