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The Degradation of Work in the Twentieth Century

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Scientific Management

The classical economists were the first to approach the problems of the organization of labor within capitalist relations of production from a theoretical point of view. They may thus be called the first management experts, and their work was continued in the latter part of the Industrial Revolution by such men as Andrew Ure and Charles Babbage. Between these men and the next step, the comprehensive formulation of management theory in the late nineteenth and early twentieth centuries, there lies a gap of more than half a century during which there was an enormous growth in the size of enterprises, the beginnings of the monopolistic organization of industry, and the purposive and systematic application of science to production. The scientific management movement initiated by Frederick Winslow Taylor in the last decades of the nineteenth century was brought into being by these forces. Logically, Taylorism belongs to the chain of development of management methods and the organization of labor, and not to the development of technology, in which its role was minor.[1]

Scientific management, so-called, is an attempt to apply the methods of science to the increasingly complex problems of the control of labor in rapidly growing capitalist enterprises. It lacks the characteristics of a true science because its assumptions reflect nothing more than the outlook of the capitalist with regard to the conditions of production. It starts, despite occasional protestations to the contrary, not

from the human point of view but from the capitalist point of view, from the point of view of the management of a refractory work force in a setting of antagonistic social relations. It does not attempt to discover and confront the cause of this condition, but accepts it as an inexorable given, a "natural" condition. It investigates not labor in general, but the adaptation of labor to the needs of capital. It enters the workplace not as the representative of science, but as the representative of management masquerading in the trappings of science.

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It is impossible to overestimate the importance of the scientific management movement in the shaping of the modern corporation and indeed all institutions of capitalist society which carry on labor processes. The popular notion that Taylorism has been "superseded" by later schools of industrial psychology or "human relations," that it "failed"—because of Taylor's amateurish and naive views of human motivation or because it brought about a storm of labor opposition or because Taylor and various successors antagonized workers and sometimes management as well—or that it is "outmoded" because certain Taylorian specifics like functional foremanship or his incentive-pay schemes have been discarded for more sophisticated methods: all these represent a woeful misreading of the actual dynamics of the development of management.

Taylor dealt with the fundamentals of the organization of the labor process and of control over it. *[. . .]* If Taylorism does not exist as a separate school today, that is because, apart from the bad odor of the name, it is no longer the property of a faction, since its fundamental teachings have become the bedrock of all work design.[2] *[. . .]*

[. . .] Control has been the essential feature of management throughout its history, but with Taylor it assumed unprecedented dimensions. The stages of management control over labor before Taylor had included, progressively: the gathering together of the workers in a workshop and the dictation of the length of the working day; the supervision of workers to ensure diligent, intense, or uninterrupted application; the enforcement of rules against distractions (talking, smoking, leaving the workplace, etc.) that were thought to interfere with application; the setting of production minimums; etc. A worker is under management control when subjected to these rules, or to any of their extensions and variations. But Taylor raised the concept of control to an entirely new plane when he asserted as an *absolute necessity for adequate management the dictation to the worker of the precise manner in which work is to be performed.* That management had the right to "control" labor was generally assumed before Taylor, but in practice this right usually meant only the general setting of tasks, with little direct interference in the worker's mode of performing them. Taylor's contribution was to overturn this practice and replace it by its opposite. Management, he insisted, could be only a limited and frustrated undertaking so long as it left to the worker any decision about the work. His "system" was simply a means for management to achieve control of the actual mode of performance of every labor activity, from the simplest to the most complicated. To this end, he pioneered a far greater revolution in the division of labor than any that had gone before.

Taylor created a simple line of reasoning and advanced it with a logic and clarity, a naive openness, and an evangelical zeal which soon won him a strong following among capitalists and managers. His work began in the 1880s but it was not until the 1890s that he began to lecture, read papers, and publish results. His own engineering training was limited, but his grasp of shop practice was superior, since he had served a four-year combination apprenticeship in two trades, those of patternmaker and machinist. The spread of the Taylor approach was not limited to the United States and Britain; within a short time it became popular in all industrial countries. In France it was called, in the absence of a suitable word for management, "l'organisation scientifique du travail" (later changed, when the reaction against Taylorism set in, to "l'organisation rationnelle du travail"). In Germany it was known simply as *rationalization*; the German corporations were probably ahead of everyone else in the practice of this technique, even before World War I.[3]

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The issue here turned on the work content of a day's labor power, which Taylor defines in the phrase "a fair day's work." To this term he gave a crude physiological interpretation: all the work a worker can do without injury to his health, at a pace

that can be sustained throughout a working lifetime. (In practice, he tended to define this level of activity at an extreme limit, choosing a pace that only a few could maintain, and then only under strain.) Why a "fair day's work" should be defined as a physiological maximum is never made clear. In attempting to give concrete meaning to the abstraction "fairness," it would make just as much if not more sense to express a fair day's work as the amount of labor necessary to add to the product a value equal to the worker's pay; under such conditions, of course, profit would be impossible. The phrase "a fair day's work" must therefore be regarded as inherently meaningless, and filled with such content as the adversaries in the purchase-sale relationship try to give it.

Taylor set as his objective the maximum or "optimum" that can be obtained from a day's labor power. "On the part of the men," he said in his first book, "the greatest obstacle to the attainment of this standard is the slow pace which they adopt, or the loafing or 'soldiering,' marking time, as it is called." In each of his later expositions of his system, he begins with this same point, underscoring it heavily.[4] The causes of this soldiering he breaks into two parts: "This loafing or soldiering proceeds from two causes. First, from the natural instinct and tendency of men to take it easy, which may be called *natural soldiering*. Second, from more intricate second thought and reasoning caused by their relations with other men, which may be called *systematic soldiering*." The first of these he quickly puts aside, to concentrate on the second: "The natural laziness of men is serious, but by far the greatest evil from which both workmen and employers are suffering is the *systematic soldiering* which is almost universal under all the ordinary schemes of management and which results from a careful study on the part of the workmen of what they think will promote their best interests."

> The greater part of systematic soldiering is done by the men with the deliberate object of keeping their employers ignorant of how fast work can be done.
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> So universal is soldiering for this purpose, that hardly a competent workman can be found in a large establishment, whether he works by the day or on piece work, contract work or under any of the ordinary systems of compensating labor, who does not devote a considerable part of his time to studying just how slowly he can work and still convince his employer that he is going at a good pace.
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> The causes for this are, briefly, that practically all employers determine upon a maximum sum which they feel it is right for each of their classes of employés to earn per day, whether their men work by the day or piece.[5]

That the pay of labor is a socially determined figure, relatively independent of productivity, among employers of similar types of labor power in any given period was thus known to Taylor. Workers who produce twice or three times as much as they did the day before do not thereby double or triple their pay, but may be given a small incremental advantage over their fellows, an advantage which disappears as their level of production becomes generalized. The contest over the size of the portion of the day's labor power to be embodied in each product is thus relatively independent of the level of pay, which responds chiefly to market, social, and historical factors. The worker learns this from repeated experiences, whether working under day or piece rates: "It is, however," says Taylor, "under piece work that the art of systematic soldiering is thoroughly developed. After a workman has had the price per piece of the work he is doing lowered two or three times as a result of his having worked harder and increased his output, he is likely to entirely lose sight of his employer's side of the case and to become imbued with a grim determination to have no more cuts if soldiering can prevent it."[6] To this it should be added that even where a piecework or "incentive" system allows the worker to increase his pay, the contest is not thereby ended but only exacerbated, because the output records now determine the setting and revision of pay rates.

Taylor always took the view that workers, by acting in this fashion, were behaving rationally and with an adequate view of their own best interests. He claimed, in another account of his Midvale battle, that he conceded as much even in the midst of the struggle: "His workman friends came to him [Taylor] continually and asked him, in a personal, friendly way, whether he would advise them, for their own best interest, to turn out more work. And, as a truthful man, he had to tell them that if he were in their place he would fight against turning out any more work, just as they were doing, because under the piece-work system they would be allowed to earn no more wages than they had been earning, and yet they would be made to work harder."[7]

The conclusions which Taylor drew from the baptism by fire he received in the Midvale struggle may be summarized as follows: Workers who are controlled only by general orders and discipline are not adequately controlled, because they retain their grip on the actual processes of labor. So long as they control the labor process itself, they will thwart efforts to realize to the full the potential inherent in their labor power. To change this situation, control over the labor process must pass into the hands of management, not only in a formal sense but by the control and dictation of each step of the process, including its mode of performance. In pursuit of this end, no pains are too great, no efforts excessive, because the results will repay all efforts and expenses lavished on this demanding and costly endeavor.

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First Principle

"The managers assume . . . the burden of gathering together all of the traditional knowledge which in the past has been possessed by the workmen and then of classifying, tabulating, and reducing this knowledge to rules, laws, and formulae. . . ."[8] *[. . .]* This brings to an end the situation in which "Employers derive their knowledge of how much of a given class of work can be done in a day from either their own experience, which has frequently grown hazy with age, from casual and unsystematic observation of their men, or at best from records which are kept, showing the quickest time in which each job has been done."[9] It enables management to discover and enforce those speedier methods and shortcuts which workers themselves, in the practice of their trades or tasks, learn or improvise, and use at their own discretion only. Such an experimental approach also brings into being new methods such as can be devised only through the means of systematic study.

This first principle we may call the *dissociation of the labor process from the skills of the workers*. The labor process is to be rendered independent of craft, tradition, and the workers' knowledge. Henceforth it is to depend not at all upon the abilities of workers, but entirely upon the practices of management.

Second Principle

"All possible brain work should be removed from the shop and centered in the planning or laying-out department. . . ."[10] Since this is the key to scientific management, as Taylor well understood, he was especially emphatic on this point and it is important to examine the principle thoroughly.

In the human, as we have seen, the essential feature that makes for a labor capacity superior to that of the animal is the combination of execution with a conception of the thing to be done. But as human labor becomes a social rather than an individual phenomenon, it is possible—unlike in the instance of animals where the motive force, instinct, is inseparable from action—to divorce conception from execution. This dehumanization of the labor process, in which workers are reduced almost to the level of labor in its animal form, while purposeless and unthinkable in the case of the self-organized and self-motivated social labor of a community of producers, becomes crucial for the management of purchased labor. For if the workers' execution is guided by their own conception, it is not possible, as we have seen, to enforce upon them either the methodological efficiency or the working pace desired by capital. *[. . .]*

This should be called the principle of the *separation of conception from execution*, rather than by its more common name of the separation of mental and manual labor (even though it is similar to the latter, and in practice often identical). This is because mental labor, labor done primarily in the brain, is also subjected to the same principle of separation of conception from execution: mental labor is first separated from manual labor and, as we shall see, is then itself subdivided rigorously according to the same rule.

The first implication of this principle is that Taylor's "science of work" is never to be developed

by the worker, always by management. This notion, apparently so "natural" and undebatable today, was in fact vigorously discussed in Taylor's day, a fact which shows how far we have traveled along the road of transforming all ideas about the labor process in less than a century, and how completely Taylor's hotly contested assumptions have entered into the conventional outlook within a short space of time. Taylor confronted this question—why must work be studied by the management and not by the worker himself; why not *scientific workmanship* rather than *scientific management*?—repeatedly, and employed all his ingenuity in devising answers to it, though not always with his customary frankness.

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Therefore, both in order to ensure management control and to cheapen the worker, conception and execution must be rendered separate spheres of work, and for this purpose the study of work processes must be reserved to management and kept from the workers, to whom its results are communicated only in the form of simplified job tasks governed by simplified instructions which it is thenceforth their duty to follow unthinkingly and without comprehension of the underlying technical reasoning or data.

Third Principle

The essential idea of "the ordinary types of management," Taylor said, "is that each workman has become more skilled in his own trade than it is possible for any one in the management to be, and that, therefore, the details of how the work shall best be done must be left to him." But, by contrast: "Perhaps the most prominent single element in modern scientific management is the task idea. The work of every workman is fully planned out by the management at least one day in advance, and each man receives in most cases complete written instructions, describing in detail the task which he is to accomplish, as well as the means to be used in doing the work. . . . This task specifies not only what is to be done, but how it is to be done and the exact time allowed for doing it. . . . Scientific management consists very largely in preparing for and carrying out these tasks."[11]

In this principle it is not the written instruction card that is important. *[. . .]* Rather, the essential element is the systematic pre-planning and pre-calculation of all elements of the labor process, which now no longer exists as a process in the imagination of the worker but only as a process in the imagination of a special management staff. Thus, if the first principle is the gathering and development of knowledge of labor processes, and the second is the concentration of this knowledge as the exclusive province of management—together with its essential converse, the absence of such knowledge among the workers—then the third is the *use of this monopoly over knowledge to control each step of the labor process and its mode of execution.*

As capitalist industrial, office, and market practices developed in accordance with this principle, it eventually became part of accepted routine and custom, all the more so as the increasingly scientific character of most processes, which grew in complexity while the worker was not allowed to partake of this growth, made it ever more difficult for the workers to understand the processes in which they functioned. But in the beginning, as Taylor well understood, an abrupt psychological wrench was required.[12] We have seen in the simple Schmidt case the means employed, both in the selection of a single worker as a starting point and in the way in which he was reoriented to the new conditions of work. In the more complex conditions of the machine shop, Taylor gave this part of the responsibility to the foremen. It is essential, he said of the gang bosses, to "nerve and brace them up to the point of insisting that the workmen shall carry out the orders exactly as specified on the instruction cards. This is a difficult task at first, as the workmen have been accustomed for years to do the details of the work to suit themselves, and many of them are intimate friends of the bosses and believe they know quite as much about their business as the latter."[13]

Modern management came into being on the basis of these principles. It arose as theoretical construct and as systematic practice, moreover, in the very period during which the transformation of labor from processes based on skill to processes based upon science was attaining its most rapid tempo. Its role was to render conscious and systematic, the formerly unconscious tendency of capitalist production. It was

to ensure that as craft declined, the worker would sink to the level of general and undifferentiated labor power, adaptable to a large range of simple tasks, while as science grew, it would be concentrated in the hands of management.

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The Primary Effects of Scientific Management

[. . .] A necessary consequence of the separation of conception and execution is that the labor process is now divided between separate sites and separate bodies of workers. In one location, the physical processes of production are executed. In another are concentrated the design, planning, calculation, and record-keeping. The preconception of the process before it is set in motion, the visualization of each worker's activities before they have actually begun, the definition of each function along with the manner of its performance and the time it will consume, the control and checking of the ongoing process once it is under way, and the assessment of results upon completion of each stage of the process—all of these aspects of production have been removed from the shop floor to the management office. The physical processes of production are now carried out more or less blindly, not only by the workers who perform them, but often by lower ranks of supervisory employees as well. The production units operate like a hand, watched, corrected, and controlled by a distant brain.

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Notes

1. It is important to grasp this point, because from it flows the universal application of Taylorism to work in its various forms and stages of development, regardless of the nature of the technology employed. Scientific management, says Peter F. Drucker, "was not concerned with technology. Indeed, it took tools and techniques largely as given" *[Peter F. Drucker, "Work and Tools," in Melvin Kranzberg and William H. Davenport, eds.,* Technology and Culture *(New York, 1972), pp. 192–93].*

2. "As a separate movement," says George Soule, "it virtually disappeared in the great depression of the 1930's, but by that time knowledge of it had become widespread in industry and its methods and philosophy were commonplaces in many schools of engineering and business management" *[George Soule,* Economic Forces in American History *(New York, 1952), p. 241].* In other words, Taylorism is "outmoded" or "superseded" only in the sense that a sect which has become generalized and broadly accepted disappears as a sect.

3. Lyndall Urwick, *The Meaning of Rationalisation* (London, 1929), pp. 13–16.

4. Frederick W. Taylor, *Shop Management,* in *Scientific Management*, p. 30. See also Taylor's *The Principles of Scientific Management* (New York, 1967), pp. 13–14; and *Taylor's Testimony* in *Scientific Management*, p. 8.

5. *Shop Management*, pp. 32–33.

6. Ibid., pp. 34–35.

7. *The Principles of Scientific Management*, p. 52.

8. Ibid, p. 36.

9. Ibid., p. 22.

10. *Shop Management*, pp. 98–99.

11. *The Principles of Scientific Management*, pp. 63, 39.

12. One must not suppose from this that such a psychological shift in relations between worker and manager is entirely a thing of the past. On the contrary, it is constantly being recapitulated in the evolution of new occupations as they are brought into being by the development of industry and trade, and are then routinized and subjugated to management control. As this tendency has attacked office, technical, and "educated" occupations, sociologists have spoken of it as "bureaucratization," an evasive and unfortunate use of Weberian terminology, a terminology which often reflects its users' view that this form of government over work is endemic to "large-scale" or "complex" enterprises, whereas it is better understood as the specific product of the capitalist organization of work, and reflects not primarily scale but social antagonisms.

13. *Shop Management*, p. 108.