# Doing versus Thinking: John Dewey's Forgotten Critique of Scientific Management

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*Abstract*: Scientific management introduced a novel way of organizing work and measuring productivity into the modern workplace. With a stopwatch and a clever method of analysis, Frederick Winslow Taylor is either acclaimed or reviled, depending on the audience, for giving industrial/organizational consultancy a groundbreaking tool: the efficiency study. What is less well known is that the American pragmatist John Dewey criticized scientific management for its dualistic assumptions, for treating workers as pure doers or "muscle" and management as pure thinkers or "brains" in an efficient, though inhumane, work process. The first section of this paper examines the similarities and differences between Dewey's and Taylor's respective conceptions of science and management. In the second section, I consider Dewey's critique of scientific management in his book *Democracy and Education*. The paper concludes with some thoughts about the implications of Dewey's critique of Taylorism for organizational theory and industrial relations today.

## Deweyan Inquiry and Scientific Management

The literature comparing John Dewey's pragmatism and Frederick Winslow Taylor's scientific management is surprisingly small.[1] What makes its diminutive size unsettling is that there are, in fact, multiple grounds for comparing Deweyan pragmatism and Taylorism. Both Dewey and Taylor were committed to experimental inquiry, technological progress, industrial democracy, worker welfare and the extension of science to all areas of life. Although we can find agreement in their general commitments, significant disagreements emerge in the details.[2]

What is the relationship between management and Dewey's model of experimental inquiry? For John Dewey, inquiry manifests in a matrix of knowing and acting events, involving the framing of a problem, proposing hypotheses, testing, observing results and treating the experimental outcomes as fallible and revisable in the light of future testing. His five-step method of inquiry was intended to apply to practical problems, or "problems of men," not solely to more specialized problems encountered in the laboratory.[3] Dewey identified *management* with an ad-hoc procedure or a best practices approach to problem solving: "So far as ability of control, of

*management*, was concerned, it amounted to rule-of-thumb procedure, to routine. If circumstances resembled the past, it might work well enough; in the degree in which they deviated, failure was likely" (MW 9: 273 [my emphasis]). Identifying Deweyan inquiry with management is a relatively recent phenomenon. "Dewey's Pragmatic Instrumentalism is an encouragement to 'management,'" Larry Hickman (2007, p. 143) declares, "an intelligent reworking of what is unsatisfactory in order to render it more satisfactory." On this interpretation, Dewey saw little need to append the adjective *scientific* to the noun *management*, since the objective of science is just to exert greater control over, to *manage*, our environment. In the professions, the need for intelligent inquiry and management is especially pressing: "Farmer, mechanic, painter, musician, writer, doctor, lawyer, merchant, captain of industry, administrator or manager, has constantly to inquire what it is better to do next. Unless the decision reached is arrived at blindly and arbitrarily it is obtained by gathering and surveying evidence appraised as to its weight and relevancy; and by framing and testing plans of action in their capacity as hypotheses: that is, as ideas" (LW 12: 162-3). Though the expression was Taylor's more than Dewey's, *scientific management* might approximate some of the virtues of scientific inquiry. However, there is also a looming disanalogy between management and inquiry: While management can connote excellence, it rarely implies the degree of rigor that characterizes inquiry, particularly scientific inquiry.

## Taylor and the "One Best Way"

More recently, Taylor has come to represent the entire corporate system with all its purported evils, not the least of which is the widely reviled practice of management consulting.[4] However, blaming Taylorism for the pathologies of corporate consulting might be undeserved.[5] Putting aside these claims, though, how did Taylor himself formulate the theory of scientific management? In short, he described scientific management as a "philosophy in industrial management" (Clair et al., 2008, p. 140).[6] Taylor envisioned its widespread adoption as a promising first step toward realizing workplace democracy.[7] Scientific management's philosophical program can be distilled into four straightforward principles: (i) there is just "one best way" to complete a job task, (ii) workers must be selected scientifically to match the task they are to perform, (iii) workers must be paid as a function of how efficiently they accomplish the job task, and (iv) congenial worker-management relations result when managers ensure that workers understand the job task, are properly trained and agree to submit to the experimentation required to determine the one best way (Spender and Kijne, 1996, pp. 18-9, Clair et al., 2008, pp. 136-7).[8] Taylor (1998, p.

9) insisted that "there is always one method and one implement which is quicker and better than any of the rest. And this one best method and best implement can only be discovered or developed through a scientific study and analysis of all of the methods and implements in use, together with accurate, minute, motion and time study."

In order to discover the *one best way*, Taylor conducted time-motion or efficiency studies in three steps: (i) the basic movements in a job were catalogued, (ii) baseline data for how much time each movement takes was recorded, and (iii) a "standard time" or "quickest time" was experimentally determined by recording the time it took someone one of the fastest workers—who Taylor called a "first-rate" or "first class man"—to complete the task under optimal conditions (e.g. best tools, efficient style of movement, minimal number of movements).[9] While conducting the time studies, Taylor would pay his "first class man" higher wages if he met or exceeded the standard.[10] For it to be effective, scientific managers had to employ the scientific method, not guesswork. Moreover, the technique has to be guided by experiment, not tradition.[11] According to Taylor (1998, p. iv), "the best management is a true science, resting upon clearly defined laws, rules, and principles, as a foundation." One of these rules was that workers unwilling to adapt their behavior to Taylor's method of "task management" would be subject to "enforced cooperation," typically in the form of fines—and if they still failed to conform, dismissal. If scientific management has an underlying normative theory, it might go something like this: When workers achieve their best, even if their best is the result of extreme coercion, the system not only generates more efficient outcomes, but also rewards workers by grooming them to be more virtuous (e.g., disciplined, hard-working, collaborative) moral agents.

However, Taylor did not want the theory of scientific management to take priority over the practice of good management. So he insisted that "at every step [it] has been an evolution, not a theory. In all cases the practice has preceded the theory not succeeded it" (Taylor, 2005, p. 63). As more experiments were conducted, Taylor and his disciples' recommendations evolved.[12] For instance, Taylor opposed the dominant scheme for rewarding and punishing workers during the late nineteenth and early twentieth-century: viz. the traditional piece-work system. As worker productivity increases, management inevitably reduces the pay per piece; so workers respond accordingly, decreasing their output or soldiering.[13] So, according to Taylor's (1985, p. 5) critique, the traditional piece-work system was inefficient because "it is against their [the workers'] best interests... to turn out each day as much works as possible." Consequently, Taylor argued that pay-based incentives for workers whose quantity and quality of output

exceeds the quota established through the time-motion studies motivates and maximizes productivity.[14] The problem with this alternative—often referred to as a "differential piece-rate system"—is that most workers and some managers perceive it as being too harsh, especially when the worker misses the quota by a small margin.[15]

Even Taylor confessed that the ultimate test of scientific management's value would be its results and how these results compared with those produced by alternative systems of industrial management. Similar to William James' thesis that the truth of an idea is its cash-value, Taylor (2005, p. 70) warned that "if scientific management does not pay in dollar and cents, it is the rankest kind of nonsense." While confidently declaring that "the old style of management has not a ghost of a chance in competition with the principles of scientific management," toward the end of his lifetime, it appeared that scientific management would not win the competition (Taylor, 2005, p. 65). With an onslaught of strikes at several plants employing Taylor's system and criticisms from the American Federation of Labor, Congress held a series of hearings investigating whether Taylorism was responsible for greater worker unrest. By 1915, the year of Taylor's death, the time and motion studies that had become the trademark of Taylor's system were banned by Federal law from government facilities (Clair et al., 2008, p. 137). Nevertheless, some of scientific management's principles persist in modern business and industrial practices, such as the standardized employee selection techniques employed by Pic 'n Pay Stores, Toyota Corporation and General Motors, as well as a version of the Gantt-Taylor task-bonus system still in use at Lincoln Electric Company (Clair et al., 2008, pp. 141-2).

## Dewey's Critique of Taylorism

Similar to Taylor, Dewey regarded science as a superior method for addressing social problems and recommended its application in many tradition-bound areas of life.[16] In *Democracy and Education*, he concedes that divisions of labor and standardized work procedures are inevitable features of modern life insofar as these innovations make industrial production more efficient. What must be sought in addition is a self-motivated labor force: "Efficiency in production often demands division of labor. But it reduces to a mechanical routine unless workers see the technical, intellectual, and social relationships involved in what they do, and engage in their work because of the motivation furnished by such perceptions" (MW 9: 91). In other words, worker productivity should be optimized not by external rewards or punishments, such as a quota system, piece-work incentive or performance-based work contracts, but by nurturing work-

ers' desires and aspirations so that they eventually take satisfaction from the work itself. Dewey added: "The tendency to reduce such things as efficiency of activity and scientific management to purely technical externals is evidence of the one-sided stimulation of thought given to those in control of industry—who supply its aims" (MW 9: 91). The captains of industry overemphasize "purely technical externals" (MW 9: 91)—time-study efficiency analyses, dissection of jobs into more manageable phases, standardization of work processes and the creation of the perfect pay-for-performance formula—and underemphasize the integration of workers and their talents into the workplace. Here Dewey identifies the culprit of worker malaise and alienation: scientific management, particularly in its tendency to displace the worker's objectives with its own objective of increasing physical efficiency.

Dewey also criticized Taylor's thesis that there is "one best way" for making a work process more efficient. To recall, for Taylor, the optimal method involves surveying the current practices and standards, conducting a time-motion study, determining the optimum practice and standard time and then testing the new method or procedure to verify that it is the best. Dewey disputed this monistic account. He warned against any theory in which "it is assumed that there is one fixed method... [resulting in] [m] echanical woodenness... which separates mind from activity motivated by a purpose" (MW 9: 177). A plurality of methods, not Taylor's "one best way," better achieves the needed flexibility for industrial growth and progress. Similar to Marx's critique of industrial production, Dewey complains that the worker becomes increasingly distanced from his work when managers and planners focus exclusively on efficiency of movement. The physical motions of the workers can be made more efficient, but the result is that workers never develop an appreciation of their place or function in the entire industrial process. The physical activity of laboring becomes cognitively fixed and dead—in Marx's terminology, *alienated*. Dewey claims that multiple methods for increasing productivity should be flexibly tailored to workers' needs; feedback should be elicited by managers from the workers; workers should be encouraged to understand their role in the entire work process; decision-making authority ought to be shared between workers and management; and, thus, the result will be a greater sense of ownership, a harmonious union between bodies and minds, as well as a stronger bond and more collaboration between workers and management.

While Dewey never named the inventor of scientific management, the object of his critique in *Democracy and Education* was undoubtedly Taylor.[17] Indirectly targeting Taylorism, Dewey alleged that its definition

of intelligence was too narrow: "Intelligence is narrowed to the factors concerned with technical production and marketing of goods. No doubt, a very acute and intense intelligence in these narrow lines can be developed, but the failure to take into account the significant social factors means none the less an absence of mind, and a corresponding distortion of emotional life" (MW 9: 91). Intelligence becomes narrowly commodified, an instrumentally rational method for refining technology, increasing worker productivity and manufacturing goods with increased efficiency, and thus greater profits. In addition, Dewey argues against Taylor's concept of the "first-rate man" in what is called the "dogma of social predestination": "[It] assume[s] that some are to continue to be wage earners under economic conditions like the present... and [the social efficiency of the laboring class of wage earners] is surely desirable on all counts—not merely for the sake of the production of better goods at less cost, but for the greater happiness found in work" (MW 9: 327). If management can motivate—or better yet, empower—workers to derive intrinsic rewards from their work, the outcome will be "greater happiness found in the work," not just "the production of better goods at less cost" (MW 9: 327). In short, Dewey saw the "labor problem" and its solution in starkly different terms than Taylor did. For Taylor, it is a matter of finding the right fit between the type of worker and the kind of work (for instance, between the Schmidts of the world and the jobs that require brute-like physical labor), and forcing the worker to adopt the correct method, or the one that optimizes his overall productive output. Dewey wrote: "Much is said about scientific management of work. It is a narrow view which restricts the science which secures efficiency of operation to movements of the muscles" (MW 9: 91). For Dewey, the labor problem and its resolution demand mind/body integration and social efficiency, not the mind/body dualism and physical efficiency that Taylor presumed were at its heart. Similarly, in a study by the AFL-CIO of how to devise more humane and progressive work organizations, its authors conclude that the first step is to eschew "the traditional dichotomy between thinking and doing, conception and execution" that is the unfortunate legacy of Taylorism in the modern workplace (AFL-CIO Committee on the Evolution of Work, 1994, p. 8).

## Conclusion

In contrast to Taylorism, Dewey's vision of how to scientifically manage the workplace aligns more closely with what in contemporary organizational theory is called *human relations theory*. Similar to Dewey, human relations theorists recommend a strategy for motivating worker productivity that is linked to intrinsic rewards, worker democracy and empowerment.

Intrinsic rewards are distinctly different from the monetary (or extrinsic) incentives for worker productivity Taylor recommended. Dewey explains why extrinsic rewards and punishments are ineffective motivational tools: "The course of action is not intrinsically satisfying; it is a mere means for avoiding some penalty, or for gaining some reward at its conclusion. What is inherently repulsive is endured for the sake of averting something still more repulsive or of securing a gain hitched on by others" (MW 9: 212). Another tenet of human relations theory which resonates with Dewey's pragmatism, particularly his endorsement of worker democracy, is the view that supervisors should form collaborative relationships with their subordinates as a means of reducing management-worker friction.[18] When workers express their grievances, management can then effectively address these concerns and avert conflict because of their intimate understanding of the workers' psychological needs and dispositions. Moreover, sympathetic supervision can motivate employees to achieve higher levels of performance. The third and final tenet of human relations theory, one which picks up on Dewey's notion of growth, is that employees are motivated by the approval of their co-workers and the support of their supervisors. When management solicits employee input in making organizational decisions, workplace democracy results. The process effectively empowers workers, thereby facilitating their individual and collective growth. Affirming the value of employee empowerment and intrinsic rewards, Dewey states that "the end [of action] should be intrinsic to the action; it should be *its* end—a part of its own course. Then it affords a stimulus to effort very different from that arising from the thought of results which have nothing to do with the intervening action" (MW 9: 212). So, the focus on intrinsic rewards, growth and workplace democracy differentiates the Deweyan/human relations approach to optimizing worker productivity from Taylorism.[19]

Another key difference between Dewey and Taylor is that Taylor had an aversion to theory, which often impelled him to prioritize practice and oversimplify the theoretical foundations of scientific management (Tompkins, 2005, p. 77). The outcome was a truncated or shallow theory that Taylor's opponents could easily criticize, channel public outrage against and even lampoon to the detriment of scientific management. If Taylor had been more inclined to theorize (as Dewey was), then perhaps he would have also developed the principles of scientific management in a direction more consonant with a Deweyan commitment to optimizing workplace productivity through more humane means, such as intrinsic rewards, growth-inducing empowerment and workplace democracy.

## Notes

[1] In this small literature, some commentators disagree about the relationship between Dewey and Taylor. For instance, Patricia Shields (2008) believes that their relationship is invisible to all but the most careful inquirer. For Keith Snider (2000a; 2000b), the connection between Dewey and Taylor is non-existent. Other than their shared historical milieu and the common language of science and management, any direct comparison is, on Snider's view, overstated. In the field of organizational studies, other attempts have been made to connect the intellectual legacy of key figures with Dewey's pragmatism. See, for instance, Ansell's (2009) and Stever's (1986) work on Mary Larker Follett and Dewey.

[2] At least one commentator, G. Alan Tarr (2001, pp. 44-5), has exaggerated the similarities between Taylor's scientific management and Dewey's pragmatism. Noting that "Scientific Management attracted broad support during the Progressive Era," Tarr argues that jurist Louis Brandeis' understanding of the American states as "laboratories of democracy" was an outgrowth of his support for Taylor's principles, not a proposal for a novel form of federalism. Though he only mentions "John Dewey's pragmatism" in passing, the comparison with Taylorism is firmly cemented in at least two places within the text. On the basis of their mutual "grounding in empirical analysis" and "distrust of a priori systems" of thinking, he assumes that Taylor and Dewey agreed about the need to develop a science of industrial management that emphasized experimentation for the sake of increased worker efficiency (Tarr, 2001, pp. 44-5).

[3] In the first edition of *How We Think*, Dewey spells out the five stages of experimental inquiry:

> Upon examination, each instance [of intelligent inquiry] reveals more or less clearly, five logically distinct steps: (i) a felt difficulty; (ii) its location and definition; (iii) suggestion of possible solution; (iv) development by reasoning of the bearings of the suggestion; (v) further observation and experimentation leading to its acceptance or rejection; that is, the conclusion of belief or disbelief. (MW 6: 236)

Dewey's examples of experimental inquiry include figuring out how to get to an appointment on time, identifying the function of a pole on the front of a tugboat and determining why bubbles go outside and inside of a cup once washed with hot water and placed upside-down on a kitchen counter (MW 6: 234-5). Conspicuously absent from these examples are many touchstone elements of experimental inquiry in the social and hard sciences: (i) a research design, (ii) a measurement instrument, (iii) a data collection process, (iv) a data analysis technique, and (v) a method of generalizing data to a larger population. So, while encompassing experimental science, inquiry is also experimental in a more general sense, that is, it involves experimental operations that can be applied to *both* common-sense and scientific problems: (i) observation, (ii) analysis, (iii) manipulation and (iv) reflection upon the conditions and consequences of a problematic situation.

[4] According to Kanigel (1997, p. 19), "[w]hen young people during the

1960s sniped at the System, it was in part the Taylor system itself, institutionalized in corporate America, that they opposed." While many of Taylor's contemporaries (for instance, Louis Brandeis and Frank and Lillian Gilbreth) thought scientific management held the secret to perpetual social progress, comparisons of Taylor's methods with those of modern management consultants have cast Taylorism in a negative light (for instance, time-motion studies are compared to consultants' "two-handed regression" where data points are hidden on a scatter plot so that it appears as if there is a clear correlation between two variables). Historian Jill Lepore's (2009) article in *The New Yorker*, "Not So Fast," could be viewed as a similar indictment of Taylorism. Her review of Matthew Stewart's (2009) book *The Management Myth* begins with Stewart's comparison of Taylor's manipulation of evidence to support his theories (Lepore summarizes, "Taylor fudged his data, lied to his clients, and inflated the record of his success") to what management consultants do today in advising Fortune 500 companies on how to reduce costs. In Taylor's defense, Jonathan Tompkins (2005, p. 76) has argued that the difficulty of implementing Taylor's system, which took three to five years and extensive resources, unintentionally generated opportunities for management/efficiency consultants who promised fast and easy results. Hindy Lauer Schachter (1989, p. 59) concurs: "A new occupation arose made up of engineering consultants offering to systematize plants by using some of Taylor's methods but with shortcuts, such as testing work time without prior explanations or worker permission."

[5] Robert Hoxie (1918, p. 40) found that in far too many cases consultants claiming to apply the principles of scientific management were actually basing their recommendations on pseudoscientific ideas and practical hunches, not scientific data.

[6] Taylor had other names for scientific management, including 'functional management', 'scientific time study', and 'task management.' However, the grand hope that scientific management would resolve many social problems has led some recent commentators to invoke Taylor's description of it as a philosophy, in Jonathan Tompkins' (2005, p. 70) case, calling it a "social philosophy."

[7] Taylor (2005, p. 64) declared that "[e]fficiency is the hope of democracy," since it would give workers more leisure time to participate in civic life, and "without any question, the large good... from scientific management... come[s] to the worker." Before this, Becker (1992, p. 524) notes, "the liberal political theory of the Enlightenment [dictated that] the rights of citizenship ended where the employer's sway in the workplace began."

[8] Taylor (2005, p. 65) writes: "The first of the great principles of scientific management [involves the]... deliberate gathering together of the great mass of traditional knowledge which, in the past, has been in the heads of the workmen, recording it, tabulating it, reducing it in most cases to rules, laws, and in many cases to mathematical formulae, which, with these new laws, are applied to the cooperation of the management to the work of the workmen." Taylor (1998, p.10) stated that "close, intimate, personal cooperation between the management and the men is of the essence of modern scientific or task management." Sudhir

Kakar (1970, p. 20) comments that "[t]hroughout his adult life, Taylor insisted that scientific management was the only system which would make for peace and harmony between the management and the workers and that this was its only *raison d'être*."

[9] According to Samuel Haber (1964, p. 40), "[t]he 'scientific' nub of Taylor's program was the reduction of work to component elements or 'elementary operations' which were to be fixed, timed with stop watch, and reassembled when needed to provide the method and measurements of any new task." After his break with Taylorism, Frank Gilbreth would criticize Taylor and his followers for "accepting perfunctory and inexact stop-watch methods" (Haber, 1964, p. 41).

[10] Andrea Gabor (2000, p. 4) comments on a worker named "Schmidt" (probably a pseudonym) at the Bethlehem Steel Mill who became the model for Taylor's "first-rate" man: "Schmidt, according to Taylor, had just the 'ox-like' mentality needed to do the brutish physical labor [in this case, hauling bars of pig iron] that Taylor demanded of his workers. Uncomplaining and apparently indefatigable, Schmidt met Taylor's quota, happy to collect a few cents extra pay at the end of each day." In what resembles a kind of social Darwinism, the standard set by Schmitt or any other first-rate man in Taylor's time-motion studies would then fix the quota for all other workers. According to Jonathan Tompkins (2005, p. 74), "[u]nder the Taylor system, only the strongest, quickest, or most dexterous tended to survive."

[11] Taylor (1998, p. 4) noted that the principles of scientific management are meant to "show the enormous gains which would result from the substitution by our workmen of scientific for rule-of-thumb methods."

[12] Similar to scientific method itself, Taylor's (2005, p. 63) approach was both fallible and flexible: "All men... who are in any way connected with scientific management are ready to abandon any scheme, and theory in favor of anything else that could be found that is better. There is nothing in scientific management that is fixed." Taylor's three main disciples were (i) Carl G. Barth, (ii) Frank B. Gilbreth and (iii) Henry Gatt. See Haber's (1964, pp. 31-50) account of each. Daniel Nelson (1980, p. 142) notes that "[t]he actual impact of his [Taylor's] methods... depended on his disciples' activities rather than his. As a result there were variations and differences in emphasis growing out of the disciples' personal styles and perspective."

[13] Gabor (2000, p. 13) explains: "[W]orkers developed their own system for averting rate cuts and the need to work harder to earn the same amount of pay. ... [T]hey scaled back their output, in effect creating their own unofficial quota."

[14] Haber (1964, p. 27) describes the advantages of Taylor's alternative to the traditional piece-rate system: "The differential piece rate was to give the worker a high daily wage and the employer a low labor cost per piece. For society as a whole, the increased production would lower prices and raise the general standard of living."

[15] Due to this shortcoming, Taylor's follower, Henry Gantt, developed a task and bonus system in which bonuses started at the average worker's quantity and quality of output and increased accordingly (Haber, 1964, p. 44; Thompson, 2005, p. 75).

[16] Dewey's critique of scientific management did not just echo the widespread sentiments of his times. Not surprisingly, union organizers, members of the U.S. Congress and a large section of the American public demonized Taylor and Taylorism during the Progressive era for worsening the condition of the average worker. Andrea Gabor (2000, p.7) characterizes the general tenor of the complaints made by "Taylor's detractors": "Taylorism was the essence of the mechanistic, alienating character of modern industrialism. Under Taylor, standardization and managerial control, professionalism and scientific method were championed as never before. A new cadre of slide rule- and stop-watch-wielding experts commandeered the factory floor."

[17] Unfortunately, Dewey did not single out Taylor as the target of his critique. One reason might have been that while he disputed the specifics, he was generally sympathetic to the reformist spirit of Taylor's project. Dewey did disagree that external rewards and punishments were necessary to motivate employees to perform the job task more efficiently. Since physical efficiency is not the sole aim of industrial management, monetary incentives should not be the only instrument for motivating workers. Besides physical efficiency, the other aim is what Dewey called 'social efficiency': workers comprehend the significance of their vocation and derive intrinsic rewards from laboring to achieve a shared objective. In a socially efficient workplace, employees feel that their participation is not just a matter of subordinating their own personal desires to the desires of management in exchange for a wage. Rather, work offers them opportunities for growth and release of their potentialities, and as such it is more than just the sum total of their individual movements. Moreover, unlike physical efficiency, it is difficult, if not impossible, to make interpersonal comparisons of social efficiency. In the words of Taylor's protégé, Sanford Thompson, "the personal equations of different men vary greatly" (cited in Gabor, 2000, p. 17). When social efficiency is achieved, those who labor come to understand and appreciate the relationship between their own work, the work of their fellow laborers and management, as well as the value of their work to the greater society.

[18] Sympathetic supervision can motivate employees to achieve higher levels of performance. In Elton Mayo's (1923, p. 422) interpretation of the Hawthorne studies, a series of experiments on working conditions and worker productivity at the Western Electric Company's Hawthorne Works, he found evidence that the personal attention supervisors paid to the needs of workers resulted in increased morale and productivity. In Fritz Roethlisberger's (2005, p. 166) parallel analysis of the Hawthorne studies, he concluded that "the worker is a social animal and should be treated as such."

[19] Some of Taylor's contemporary critics doubt that the emergence of human relations theory has accomplished more than to install a thin veneer over "the human machinery" of Taylorism. Harry Braverman notes that with the rise of Taylorism, "practitioners of 'human relations' and 'industrial technology' are [merely] the maintenance crew for the human machinery." Cited in Kanigel (1997, p. 17).

**Works Cited**

AFL-CIO Committee on the Evolution of Work. (1994) *The New American Workplace: A Labor Perspective.* Washington, DC: American Federation of Labor-Congress of Industrial Organizations.

Ansell, C. (2009) Mary Parker Follett and Pragmatist Organization. In Paul S. Adler (ed.), *The Oxford Handbook of Sociology and Organization Studies.* Oxford: Oxford University Press.

Bartle, J. R. and P. M. Shields. (2008) Applying Pragmatism to Public Budgeting and Financial Management. Faculty Publications-Political Science, Department of Political Science, Texas State University, available at <http://ecommons.txstate.edu/polsfacp/48>, accessed 10/29/2009.

Becker, C. (1992) Democracy in the workplace: Union representation elections and federal labor law. *Minnesota Law Review* 77: 495-603.

Clair, R. B., M. McConnell, S. Bell, K. Hackbarth and S. Maths. (2008) *Why Work: The Perception of a "Real Job" and the Rhetoric of Work through the Ages.* West Lafayette, IN: Purdue University Press.

Dewey, J. (1996) *The Collected Works of John Dewey: The Electronic Edition.* L. A. Hickman (ed.). Charlottesville, VA: Intelex Corporation. (Abbreviations used in citations: MW = *Middle Works*; LW = *Late Works.*)

Evans, K. G. (July, 2000) Reclaiming John Dewey: Democracy, Inquiry, Pragmatism, and Public Management. *Administration & Society* 32(3): 308-328.

Fesmire, S. (2003) *John Dewey and Moral Imagination: Pragmatism in Ethics.* Bloomington, IN: Indiana University Press.

Gabor, A. (2000) *The Capitalist Philosophers: The Geniuses of Modern Business—Their Lives, Times, and Ideas.* New York: Times Business.

Haber, S. (1964) *Efficiency and Uplift: Scientific Management in the Progressive Era, 1890-1920.* Chicago: University of Chicago Press.

Hickman, L. A. (1998) Dewey's Theory of Inquiry. In L. A. Hickman (ed.), *Reading Dewey: Interpretation for a Postmodern Generation* (pp. 166-186). Bloomington and Indianapolis: Indiana University Press.

———. (2007) *Pragmatism as Post-Postmodernism: Lessons from John Dewey.* New York: Fordham University Press.

Hoxie, R. F. (1918) *Scientific Management and Labor.* New York: D. Appleton and Company.

Kakar, S. (1970) *Frederick Taylor: A Study in Personality and Innovation.* Cambridge, MA: MIT Press.

Kanigel, R. (1997) *The One Best Way: Frederick Winslow Taylor and the Enigma of Efficiency.* New York: Viking Penguin.

Lepore, J. (October 12, 2009) Not So Fast. *The New Yorker.* Available at <http://www.newyorker.com/arts/critics/atlarge/2009/10/12/091012crat_atlarge_lepore>. Accessed October 21, 2009.

Mayo, E. (1923) The Irrational Factor in Society. *Journal of Personnel Research* 1(10): 419-426.

Nelson, D. (1980) *Frederick W. Taylor and the Rise of Scientific Management.* Madison: University of Wisconsin Press.

Roethlisberger, F. J. (2005) The Hawthorne Experiments. In J.M. Shafritz, J.S. Ott and Y.S. Jang (eds.), *Classics of Organization Theory*, 6th edition (pp. 158-166). Belmont, CA: Thomson-Wadsworth.

Schachter, H. L. (1989) *Frederick Taylor and the Public Administration Community: A Reevaluation.* Albany: State University of New York Press.

Shields, P. M. (March/April, 2008) Rediscovering the Taproot: Is Classical Pragmatism the Route to Renew Public Administration? *Public Administration Review* 68(2): 205-21.

Snider, K. (2000a) Expertise of Experimenting? Pragmatism and American Public Administration 1920-1950. *Administration & Society* 32(3): 329-354.

———. (2000b) Rethinking Public Administration's Roots in Pragmatism: The Case of Charles A. Beard. *American Review of Public Administration* 30(2): 123-145.

Spender, J. C. and H. J. Kijne. (1996) *Scientific Management: Frederick Winslow Taylor's Gift to the World?* Boston, Dordrecht and London: Kluwer Academic Publishers.

Stever, James A. (1986) Mary Parker Follett and the Quest for Pragmatist Administration. *Administration & Society* 18(2): 159-177.

Stewart, M. (2009) *The Management Myth: Why the Experts Keep Getting it Wrong.* New York: W.W. Norton.

Tarr, G. A. (2001) Laboratories of Democracy? Brandeis, Federalism, and Scientific Management. *Publius* 31(1): 37-46.

Taylor, F. W. (2005) The Principles of Scientific Management. In J. M. Shafritz, J. S. Ott and Y. S. Jang (eds.), *Classics of Organization Theory*, 6th edition (pp. 61-72). Belmont, CA: Thomson-Wadsworth. (Originally published in 1916.)

———. (1998) *The Principles of Scientific Management.* Mineola, NY: Dover Publications. (Originally published in 1911.)

Tompkins, J. R. (2005) *Organization Theory and Public Management.* Belmont, CA: Thomson-Wadsworth.

Wehane, P. H. (1999) *Moral Imagination and Management Decision-making.* Oxford: Oxford University Press.