Neo-Taylorism at Work: Occupational Change in the Post-Fordist Era

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    The last quarter of the twentieth century saw an erosion of job security in both manual and professional occupations. In this article, we investigate how the proliferation of employee involvement schemes in manual production and the growth of layoffs, temporary outsourcing, and project-based teams in the professions have influenced working conditions in both manual and professional settings. We argue that these practices represent not a departure from scientific management as is often presumed, but rather adoption of Taylorist principles not fully manifested in Fordist-era mass production. Flexible practices have thus expanded the influence of scientific management in manual work, and extended the scope of its application into the professions in an era perhaps more aptly termed neo-Taylorist than post-Fordist. Using data derived from the population of workplace ethnographies, we evaluate historical shifts in the organization of manual and professional work and outcomes for employees. Our findings support accounts critical of the nature and degree of change in manual jobs and suggest that post-Fordist shifts in the professions have successfully ushered in intensification analogous to what Fordist strategies accomplished in manual work—with unintended negative consequences for workers. Our conclusions point to a general deterioration of conditions in both manual and professional occupations due at least in part to an increasingly rigorous application of the principles of scientific management to both types of work. Keywords: Fordism, scientific management, jobs, work, professionals.

Decreased job security has become a pressing problem as growing numbers of employees face layoffs, outsourcing, temporary and probationary employment, intense screening, and scrutiny of job performance (Cappelli 1999; Leicht and Fitzgerald 2006). Importantly, these challenges have begun to penetrate the professional and managerial classes (Barley and Kunda 2004; Fligstein and Shin 2004), giving rise to financial and work-related pressures heralded in a new genre of social problems books including *White-Collar Sweatshops* (Fraser 2001), *The Fragile Middle Class* (Sullivan, Warren, and Westbrook 2000), and *The Overworked American* (Schor 1992). In his American Sociological Association Presidential Address, Arne Kalleberg (2009) describes how employers' pursuit of flexibility has eroded security among workers throughout the twentieth century, but notes that the expansion of insecurity underway since the 1970s poses an especially novel and somber challenge owing to its increasing centrality in corporate strategy, its global scope, and its sweeping occupational purview.

    Accordingly, to understand advancing employment insecurity, job intensification, and their impact on workers, we look to large-scale structural changes in the organization of

work. Of particular concern are the organizing principles of Fordist mass production that contributed to stark occupational divides in the nature of work during the first three quarters of the twentieth century, and the growing emphasis on flexibility that transformed jobs in the decades that followed. Under Fordism, close supervision, task segmentation, automation, and bureaucratic constraint prompted alienation and deskilling in manual work, while professionals and managers tended to enjoy a more favorable work experience (Blauner 1964; Edwards 1979; Friedson 1984; Piore and Sabel 1984).[1] In what has become known as the post-Fordist era, "flexible" innovations aimed at boosting productivity, reducing costs, and increasing profits have reshaped both sectors and raised new questions about occupational trajectories (Leicht and Fennell 2001; National Research Council 1999). Employee involvement and related innovations have altered manual roles and responsibilities, while increases in outsourcing, layoffs, and project-based teams have transformed management and the professions.

In this article, we argue that these developments reflect a revitalization of scientific management. We thus begin our study with a critical evaluation of post-Fordist-era flexibility, making the case that flexible innovations in manual and professional occupations embody principles of scientific management not fully manifested in Fordist-era production. Revisiting the writings of scientific management's chief proponent, Frederick Winslow Taylor, we explore the application of his ideals in Fordist and post-Fordist manual production and the recent expansion of Taylorist principles into the professions.

In the empirical part of our analysis, we use data derived from workplace ethnographies conducted over the past 80 years to investigate how the mounting influence of scientific management has altered manual and professional/managerial work. Our findings support accounts critical of the nature of change in manual settings and suggest that post-Fordist-era shifts successfully ushered in intensification of professional/managerial jobs analogous to what Fordist strategies accomplished in manual work. We augment a burgeoning literature on professional/managerial change with a theoretical model that links post-Fordist flexibility to intended and unintended consequences that increasingly impinge on the quality of professional work life. We conclude that flexible innovations embodying previously neglected principles of scientific management have contributed to a general deterioration of employee well-being in an era perhaps more aptly termed neo-Taylorist than post-Fordist.

Flexibility and Scientific Management in the Post-Fordist Era

Flexible innovations in manual and professional work share an emphasis on productivity and profits, but differ in their more proximate applications. In the manual sector, flexible arrangements arose chiefly from the need for a more adaptable production scheme. Though highly productive, the Fordist approach depended upon strong consumer demand for standardized, mass-produced goods (Piore and Sabel 1984). When global competition and increased demand for customized products exposed these limitations, manufacturers adopted more flexible, "lean" practices, including participative teams guided by principles of continuous improvement (Smith 2001; Womack, Jones, and Roos 1990). These innovations have eased *some* of the alienating aspects of manual production while intensifying others (Hodson 2001).

Flexibility in the professions has followed a different tack. In the 1980s and 1990s, emphasis on profits skyrocketed with increases in deregulation, international competition, buyouts/acquisitions, and rising shareholder expectations, prompting firms to pursue flexible arrangements

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1. We group professional and managerial occupations together due to overlap in the nature of work, increasing overlap in professional and managerial roles (e.g., nurse supervisors, supervising engineers, and so on), and increasing resemblance between managerial and professional work due to downsizing, outsourcing, and flattened hierarchies (Friedson 1984; Kraft 1999; Leicht and Fennell 2001).

with their professional and managerial employees as well (Cappelli 1999; Fraser 2001). Although equally rooted in financial objectives, these measures targeted not simply tasks, but the employment relationship itself, resulting in increased layoffs, temporary outsourcing (hiring professional consultants on a contract basis), and rapidly changing project-based teams (Barley and Kunda 2004; National Research Council 1999). This "loose coupling of jobs" has generated uncertainty and anxiety in the knowledge-based sectors (DiTomaso 2001:247).

Scholars have largely rejected the notion that flexible innovations of the post-Fordist era represented a significant departure from Fordist ideology and practice (see Williams et al. 1992 for an overview of this literature). Some have argued that post-Fordist production techniques not only failed to challenge the tenets of Fordism; instead, they applied its rationalist ideals of standardization, efficiency, intensification, and control to the manufacturing process as a whole (Kraft 1999; Vallas 1999). We develop and expand on this theme, making the case that flexible innovations do more than extend the influence of scientific management principles already embedded in Fordist mass production. Rather, flexible innovations represent a revision of production methods such that principles of scientific management not previously incorporated into Fordist regimes have assumed key positions in the post-Fordist era. In the remainder of this section, we demonstrate how core principles of scientific management neglected under Fordism were implemented through flexible innovations in manual and professional work, revealing the shared foundations of Fordist and post-Fordist-era practices in this single, internally consistent doctrine.[2]

Scientific management aimed to establish "best practices" that would replace workers' discretion over daily tasks, eliminate inefficient "rule-of-thumb" techniques, and curtail reliance on delayed incentives to elicit the initiative of unmotivated workers. Taylor ([1903] 1947:36–37) highlighted four key managerial responsibilities: (1) amass working knowledge traditionally possessed by workers; (2) reduce those techniques to a series of smaller tasks dictated by written procedures; (3) scientifically select workers, train them, and ensure they use established methods; and (4) separate from manual workers the decision-making components of work tasks, including all aspects of planning and coordination.

Henry Ford did not adopt Taylor's method wholesale but rather combined important aspects of the technique with other innovations of the day. Likewise, Fordist-era manufacturers embraced elements such as task segmentation and separation of planning from execution, while downplaying other principles clearly evident in Taylor's ([1903/1911/1912] 1947) writing. Viewed in light of the complete scientific management doctrine, these Fordist-era strategies discounted differences in individual capacities and employee innovations—key elements of productivity and continuous improvement according to Taylor. Furthermore, they failed to apply controls to "keep [the 'brain workers'] fully busy all the time" as Taylor ([1903] 1947:121) himself instructed. In the following sections, we demonstrate how post-Fordist flexible innovations introduce these neglected components of scientific management into manual and professional work.[3]

Worker Selection and Discipline

The selection of particular types of workers (and the barring, removal, or sanctioning of those not deemed desirable) permeates the writing of Taylor ([1903/1912] 1947), who repeatedly

2. A number of scholars have documented Taylor's influence on flexible practices generally associated with Japanese total quality management. For example, Freeman (1996) traces the influence of scientific management on Japanese management practices, from 1912 (one year after publication of Taylor's *Principles of Scientific Management*) through the 1960s (see also Hays 1994).

3. Other sectors, including service and lower white-collar work, have also shifted substantially in recent decades, often in response to employers' replication of efficiency enhancing aspects of Fordist production in these arenas (National Research Council 1999). We focus our attention on manual and professional/managerial occupations, where neo-Taylorism is most readily apparent.

defined "first-class" workers along lines of "mental caliber," "character," and "fit," and whose methods dictated removal of "second-class" employees. His own application of scientific management in the Symonds Rolling Machine Company, in fact, *began* with the ejection of all but the speediest workers, a step he later described as vital to improving output:

> That thirty-five girls were able to do the work which formerly required about one hundred and twenty is due, not only to the improvement in the work of each girl, owing to better methods, but to the weeding out of the lazy and unpromising candidates, and the substitution of more ambitious individuals (Taylor [1903] 1947:90).

Initially, Fordist mass production regimes by and large disregarded Taylor's assertions regarding the significance of worker attributes, treating workers instead as interchangeable parts.[4] The introduction of teams into unskilled and assembly work, however, brought worker selection back into high relief, while also co-opting the regulatory effect of peers on worker effort (see Taylor [1903/1911/1912] 1947). Team-based production relies heavily on normative control, with firms recruiting significantly on the basis of whether prospective employees are likely to meet expectations (Huang and Cappelli 2006). Hiring frequently involves elaborate, multi-stage testing and orientation procedures including psychological profiling, multiple interviews, and team scenario exercises aimed at excluding applicants deemed unlikely to conform (Graham 1995). Once hired, firms mold workers, inducting them into a normative culture with emphasis on attitude, behavioral expectations, and organizational history, values, and practices. Though workers sometimes resist, firms endeavor to hold them accountable to these standards through supervisory and peer surveillance and with pay tied to group performance (Sewell 1998; Vallas 2003). A successful steel manufacturer exemplifies the potential value of this approach:

> Nucor built its entire system on the idea that you can teach farmers how to make steel, but you can't teach a farmer work ethic to people who don't have it in the first place. So . . . it located its plants in places . . . full of real farmers who go to bed early, rise at dawn, and get right to work without fanfare . . . Nucor ejected people who did not share this work ethic [and] . . . built its pay system around a high-pressure team-bonus mechanism . . . In one extreme case, workers chased a lazy teammate right out of the plant with an angle iron (Collins 2001:50–51).

Worker selection has also emerged as a defining consideration in the employment of professionals and managers, whose productivity has become a pressing matter for firms competing in an economy that increasingly trades in ideas (Kraft 1999). Though their tasks do not lend themselves easily to the standardization, fragmentation, and removal of discretion that Taylor prescribed for manual workers, professional/managerial productivity *is* highly subject to the influence of worker selection.

> The fact is, that the more attractive qualities of good manners, education, and even special training and skill . . . count for less in an executive position than the grit, determination, and bulldog endurance and tenacity that knows no defeat and comes up smiling to be knocked down over and over again . . . Along with what may be called "constructive imagination," these qualities count most for success in this kind of executive work (Taylor [1903] 1947:140–41).

Indeed, firms with the most substantial market share gains in the post-Fordist era prioritized selecting the "right" types of individuals for these jobs (Collins 2001). Paralleling Taylor's own practices, these organizations "*first* [got] the right people on the bus (and the wrong people off the bus)," while less successful firms relied on the "initiative and

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4. In the early part of the twentieth century, the Ford Motor Company attempted to combat resistance to oppressive work arrangements with additional remuneration also meant to combat financial worries that distracted workers on the job. These bonuses (the famous five-dollar day) were available to workers meeting Ford's paternalistic standards for cleanliness, thrift, sobriety, and familial responsibility. Those deemed unfit for participation in this plan were unaffected, apart from receipt of a lower wage (see Nevins and Hill 1957).

incentive" technique Taylor ([1911] 1947) sought to replace (Collins 2001:44, emphasis in original).

> The comparison companies . . . placed greater emphasis on using incentives to "motivate" otherwise unmotivated or undisciplined people. The great companies . . . focused on getting and hanging on to the right people in the first place—those who are productively neurotic, those who are *self*-motivated and *self*-disciplined, those who wake up every day, compulsively driven to do the best they can because it is simply part of their DNA (Collins 2005:15, emphasis in original).

> In determining "the right people," the good-to-great companies placed [less emphasis on] specific educational background, practical skills, specialized knowledge, or work experience . . . [and placed greater weight on] dimensions like character, work ethic, basic intelligence, dedication to fulfilling commitments, and values [which] are more ingrained (Collins 2001:51).

Professionals and managers may be predisposed to high levels of effort, since credential-based "signaling" and "screening" processes select into their ranks individuals who are well educated and achievement oriented (Collins 1971; Wilk and Cappelli 2003). But in the competitive and rapidly shifting post-Fordist economy, where share price and profitability dictate survival, firms want something more—the very best people putting forth heroic effort. They have achieved these aims in part thanks to temporary outsourcing, structured insecurity, and constantly shifting project-based teams, which clearly express to employees the importance of meeting or exceeding firms' selection criteria for continued employment.[5]

Contract-based professional work has been part of firms' broader outsourcing strategy since the late 1980s—a shift underscoring the vulnerability of both "permanent" and contract employees (Leicht and Fennel 2001). Contractors are keenly aware of the need to remain in good standing with the firm, especially those hoping to transition into a more stable employment relationship (Barley and Kunda 2004). Likewise, the presence of contractors demonstrates what may happen to employees' jobs if they fail to meet expectations (Smith 2001). To heighten pressure, firms have increasingly encouraged their "permanent" employees to think of themselves as subcontractors whose positions depend upon the value their skill set imparts to the firm; and some have gone a step further, laying off workers and rehiring them on a contract basis (Cappelli 1999; DiTomaso 2001).

Professional and managerial job insecurity has also increased, particularly during the 1990s (Fligstein and Shin 2004; National Research Council 1999; Smith 2001). As firms strategically shed upper-level employees, they use the threat of elimination to place performance pressure on those that remain. Intel, for example, required department supervisors to rank workers in relation to their peers and routinely dispensed formal quotas for layoffs ("between 5 and 10 percent" according to a former manager). The message was clear: "Intel is not going to be a place where you can work until retirement," and continued employment depends upon outperforming your peers (Fraser 2001:14, 153–54).

A final flexible innovation that has helped expand the scope of worker selection into the professions is the use of project-based teams with limited life spans, shifting membership, and flattened hierarchies (National Research Council 1999; Womack et al. 1990). In these ever-changing environments, firms mold identities to produce the "appropriate individual," subjecting employees to peer evaluation augmented by a highly developed culture of discipline explicitly defining the characteristics of the "right" person for the job and the organization. Technical skills take a backseat to issues of "character," which has been reinvented as "self-discipline," "self-control," and a savoir-faire adaptability capable of attending to rapidly shifting demands (Hughes 2005:608–11). Gideon Kunda's (1992) study of high-tech engineering provided a detailed account of the pressure to succeed in this context. Traditional modes

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5. Because individual aptitude for professional and managerial tasks are best evaluated in practice (Collins 2005:15; Taylor [1903] 1947:141; see also Cappelli 1999:11), worker selection in these settings may be best understood in the Darwinian sense—only the fittest survive.

of evaluation were supplemented and sometimes replaced by the power of reputation, and workers were judged on the basis of conformity to cultural expectations, a record of team success, and a combination of supervisory and peer surveillance.

Worker Innovation

Worker input, which was virtually nonexistent in Fordist mass production, is a second component of scientific management that has received renewed attention in the post-Fordist era. In contrast to Ford, Taylor possessed a keen awareness of the potential, and need, for worker insights to increase efficiency over time:

> For each job there is the quickest time in which it can be done by a first-class man . . . Under all the ordinary systems, this "quickest time" is more or less completely shrouded in mist. In most cases, however, the workman is nearer to it and sees it more clearly than the employer (Taylor [1911] 1947:59).

> The ingenuity and experience of each generation—of each decade, even, have without doubt handed over better methods to the next . . . The management . . . know[s] better than any one else, that their own knowledge and personal skill falls far short of the combined knowledge and dexterity of all the workmen under them (Taylor [1911] 1947:32).

Harnessing this knowledge requires codification of techniques employed by "first-class men" (Taylor [1903] 1947:168, [1912] 1947:52). Taylor instructed employers to revise procedures on the basis of subsequent worker insights, which he notably distinguished from discretion over daily tasks:

> It is true that with scientific management the workman is not allowed to use whatever implements and methods he sees fit . . . Every encouragement, however, should be given him to suggest improvement, both in methods and in implements. And whenever a workman proposes an improvement, it should be the policy of the management to make a careful analysis of the new method . . . [W]henever the new method is found to be markedly superior to the old, it should be adopted as the standard for the whole establishment (Taylor [1911] 1947:128).

> [I]t is *through those suggestions* from the workmen *that nine-tenths of our progress is made* . . . And in that way we get *most* of our knowledge and make our improvements in methods and implements (Taylor [1912] 1947:196, emphasis added, see also pp. 199–200).

Clearly articulated avenues for input, however, were underdeveloped by Taylor and were almost entirely absent in Fordist mass production.[6] Indeed, the dominant Fordist conception of workers as interchangeable parts was antithetical to the notion that workers were *capable* of contributing valuable ideas. This seeming hyperrationalized approach was thus *irrational* with respect to increasing efficiency. An automobile assembler quoted by Robert Guest (1983) illustrated this point:

> I had lots of ideas I could suggest but I have given up. If management doesn't want to draw on my many years of experience, I will say nothing. I'll do just the least amount I can get away with without being disciplined. I'll take my paycheck and forget about the job (pp. 148–49).

In contrast, formal channels for worker input are foundations of continuous improvement, a guiding principle of post-Fordist "lean" production and one of its chief means of improving efficiency. Indeed, beginning in 1974, formal avenues for worker input were established in the factory employing the worker quoted above, and every employee had been trained in problem solving by 1978. Following a worker-assisted redesign of the entire plant, a production manager corroborated Taylor's claims:

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6. Taylor ([1903/1911/1912] 1947) advised use of a wage premium to overcome workers' presumed reluctance to share their labor-saving insights with management but had little else to say regarding how employers might solicit or incorporate employee suggestions.

From a strictly production point of view, efficiency and costs, the entire experience has been absolutely positive . . . we can't begin to measure the savings that have taken place because of the hundreds of small problems that were solved on the shop floor (Guest 1983:152).

In sharp contrast to manual production, the creative capacities of professional/managerial workers have long been recognized (see Taylor [1903] 1947:140, for example). Post-Fordist-era firms thus have not needed to develop new techniques for incorporating professionals' insights into the production process; rather, they have focused on accelerating professionals' pace of work using the employee selection and discipline techniques described above (see also Kraft 1999).

Occupational Trajectories and Work Outcomes

Worker selection and discipline have emerged as significant components of team-based production in manual work and as central concerns in professional employment, thanks in part to increases in temporary outsourcing, heightened job insecurity, and the rise of project-based teams. Worker innovation, frequently taken for granted in the professions, has increasingly been introduced in manual work through formal solicitation of worker input. In this section, we address the *consequences* of these changes through a review of the rhetoric and reality of flexible innovations for outcomes among manual and professional/managerial work groups.

Manual Trajectory

Proponents of scientific management valorized efficiency while downplaying, though not completely discounting, worker outcomes. According to Taylor ([1911] 1947), emphasis on worker selection benefits not only employers, but also workers themselves (pp. 89–90). Exclusion of inferior performers allows firms to develop first-class workers and promote them to the highest grade of work suited to their capacities (Taylor [1903] 1947:29, [1911] 1947:7, [1912] 1947:140–41).[7] Furthermore, workers deemed unfit for one job are free to find another line of work better matched to their abilities and in which they may thrive (Taylor [1912] 1947:176).

Scientific management pioneers noted that incorporation of worker innovation also enhances worker well-being. Frank and Lillian Gilbreth, whose work was much admired by Taylor ([1911] 1947:85), underscored how the potential to assist in devising better methods enhances worker interest on the job.

[T]he chief claim of motion study lies . . . in the fact that it actually supplies work for the mind to do . . . [Workers] can apply the same method of attack to . . . motions in [their] own work that the management has not had the time or money to investigate (Gilbreth and Gilbreth 1917:182–83).

[Scientific management] *makes "to do," mean "to be interested," and to be interested means to be . . . more prosperous, and more happy* (Gilbreth and Gilbreth 1917:211, emphasis in original).

More cooperative, harmonious, and mutually respectful workplace relations also help to secure worker consent, according to Taylor ([1911] 1947:140, [1912] 1947:256).

Above all . . . [workers] should be talked to on their own level by those who are over them . . . and if the superintendents . . . listen to and treat with respect what . . . [workers] have to say . . . The moral effect of this system on the men is marked . . . They work more cheerfully, and are more obliging to one another and their employers (Taylor [1903] 1947:183–84).

7. Scientific management pioneers Gilbreth and Gilbreth (1917) offer a specific avenue to achieve this end: a training and promotion ladder similar to a modern internal labor market that assists firms in recruiting, retaining, and fostering commitment of first-class workers (pp. 165–68, 187–95).

These remarks may strike readers as naïve or even disingenuous, yet they were echoed in later accounts of how participative schemes would "humanize" manual production (Milkman 1997:142):

> Mass production . . . invites an adversarial, hierarchical relation between workers and managers . . . By contrast, flexible specialization is predicated on collaboration . . . [and enhances] the production worker's intellectual participation in the work process (Piore and Sabel 1984:278).

> [L]ean-production . . . provides workers with . . . continuing challenge of making their work go more smoothly . . . [B]y the end of the century . . . lean-assembly plants will be populated almost entirely by highly skilled problem solvers whose task will be to think continually of ways to make the system run more smoothly and productively (Womack et al. 1990:101–02).

> [At General Motors, m]uch was made of the "new Linden" philosophy that workers and foremen should behave respectfully toward one another to maximize everyone's motivation, performance, and thus the plant's competitiveness . . . [A trainer explained:] "In the past, management had the impression that once you walk through the door, you leave your brains there, you come in, and you do what you're told. But . . . now they're working together, because they realize there's a lot of untapped potential out there" (Milkman 1997:166).

Today, researchers and workers alike tend to regard firms' interest in "humanizing" work as secondary to their pursuit of greater productivity and profits (Barker 1999; Graham 1995; Vallas 2003). In other words, to the degree that they materialize at all, improvements in the experience of work arise inadvertently from installation of more efficient techniques or indirectly through heightened social contact on the job.

Prior scholarship has addressed the implications of flexible practices in manual work for an array of intended and unintended consequences for employees. While Taylor distinguished between worker input (which he favored) and task discretion (which he disallowed) without positing a clear relationship, sociologists have tended to ask whether employee participation generates at least some discretion and autonomy. Some have claimed that participation provides a degree of decision making that enhances the meaningfulness of work (Batt 2004; Hodson 2001; Knights and McCabe 2003). Others have posited little net effect, arguing that participation simply expands the number of segmented tasks a worker performs or increases discretion within narrow confines (Cotton 1993; Smith 2001; Vallas 2003). It is also possible that participation actually reduces discretion if insider knowledge, once extracted, is codified into written rules.

Despite shopfloor resistance in participative contexts, many scholars have argued that post-Fordist practices reduce organized opposition to management, whether as a result of an improved work experience, exclusion of workers likely to support militant action, more general declines in union influence, or lateralization of conflict (Graham 1995). Opportunities for participation may afford workers a sense of safety or dignity that foster organizational commitment, as some have suggested (Cappelli and Neumark 2004; Friedman 1977). Alternatively, frustration with a perceived mismatch between rhetoric and reality and/or threats of capital flight that frequently accompany the introduction of participation programs may heighten perceived conflict with management and result in a withdrawal of loyalty (Milkman 1997).

Researchers have generally agreed that participation intensifies work, owing to increased surveillance and elimination of slack in the production line (Sewell 1998). Implications for stress, however, remain unclear; it may increase with ambiguity, responsibility, surveillance, and conflict (Anderson-Connolly et al. 2002), or decline as a result of "having a say" in production (Cotton 1993). Very little is known about the impact of post-Fordist innovations on the experience of increased chaos in the workplace—an important potential side effect of greater flexibility and the promotion of constant change. Chaos may rise with increased workplace flexibility and intensity (Hodson 2001) or decline as a result of more streamlined arrangements, better communication with management, or improved understanding of managerial imperatives and constraints (Edwards and Whitston 1991; National Research Council 1999; Smith 2001).

Professional/Managerial Trajectory

The benefits Taylor espoused for retention of only "first-class" employees were echoed in Jim Collins' (2001) account of the philosophy underlying post-Fordist-era removal of all but the best professional/managerial workers, and in the reflections of executives responsible for these decisions. Here, he explained the impetus for the summary dismissal of 1,600 managers at Crocker Bank soon after its acquisition by Wells Fargo. Like Taylor ([1912] 1947:176), Collins (2001) noted how firings free individuals unfit for one job to thrive in another.

> [T]he Wells Fargo standards were ferocious and consistent . . . Summed up one Wells Fargo executive: "The only way to deliver to the people who are achieving is not to burden them with the people who are not achieving."
>   On the surface, this looks ruthless. But the evidence suggests that the average Crocker manager was just not the same caliber as the average Wells manager and would have failed in the Wells Fargo performance culture. If they weren't going to make it on the bus in the long term, why let them suffer in the short term? . . . Waiting too long before acting is . . . unfair . . . For every minute you allow a person to continue holding a seat when you know that person will not make it . . . you're stealing a portion of his life, time that he could spend finding a place where he could flourish (pp. 52–56).

A small but growing body of research on the consequences of flexibility in managerial and professional work has suggested that job insecurity, temporary outsourcing, and project-based teams have been highly effective in increasing performance pressure among professionals and managers eager to demonstrate their worth. Intense effort is forthcoming in the professions owing to fear of nonsuccess, potential for negative peer evaluation, threat of elimination, and increased workload in the wake of downsizing (Fraser 2001). From the 1980s to the 1990s, for example, professional and managerial workers in California reported longer work hours and more difficulty finding time for work and family, along with increased involuntary job loss and fear of unemployment (Fligstein and Shin 2004).

Just as the early advocates of scientific management prescribed task segmentation for the sake of productivity and efficiency and not for the purpose of degrading the experience of work, new practices in professional/managerial work reflected the harsh realities of market competition, rather than a deliberate intent to undercut worker well-being. Indeed, executives' concerns about morale prompted them to craft "new deals" promising marketable skills useful in future employment in exchange for commitment and hard work in their current positions, although these pledges tended to ring hollow, as skills imparted under conditions of rapid industrial restructuring did not easily transfer elsewhere (Cappelli 1999).

Changes meant to foster greater productivity among professionals and managers may also have engendered unintended consequences with negative implications for the quality of work life and social relations on the job. First, a brutally intense pace and overwork sometimes heighten stress to the point of burnout and can contribute to interpersonal competition among professionals and managers, potentially diminishing the sorts of mutual aid and peer assistance that are essential to professional work (DiTomaso 2001; Fraser 2001). Second, insecurity encourages workers to replace loyalty and service with an "armor" of detachment that erodes commitment to jobs and firms (Sennett 1998:25). A withdrawal of loyalty is indeed apparent among contractors who have opted out of a traditional employment relationship and in self-reports of managers whose employers had not fulfilled perceived obligations, including job security (Barley and Kunda 2004; Cappelli 1999). Finally, flattened hierarchies and project-based teams may increase chaos by disengaging work from the traditional hierarchies, obscuring formal lines of authority, and increasing the influence of negotiation and informal relationships on decision making (Kunda 1992; National Research Council 1999). Furthermore, since teams lack bosses in the traditional sense, leadership, accountability, and communication may suffer. For instance, where the stakes associated with reputation are high, team leaders may position themselves as mere facilitators, mediators, or consultants, divorcing themselves from outcomes, walking away from disaster, and increasing workers' frustration with management (Jackall 1988).

The image that emerges from the last quarter of the twentieth century for all employees is one of increased organizational flexibility at the expense of employee well-being. Heightened pressure occurs through increased *self-monitoring* and *group discipline* involving processes well described in the literature on work (see especially Vallas 2003). Flexibility, however, also means an increased focus on *worker selection* through greater scrutiny at hiring and a greater willingness to terminate employees through layoffs or firings. This emphasis on employee selection is widely and keenly experienced by employees but has not been a focus in the literature on flexibility. Heightened screening, greater demands for demonstrable productivity on the job, and less security about retention constitute a dramatically changed employment landscape, especially for professional workers, who have come to expect a certain sheltering from such forces. The consequences of these changes are also manifold and complex and potentially include increased chaos, stress, and conflict at work. Measuring these multiple and sometimes subtle changes and their consequences requires in-depth observations across a wide range of organizations.

The Current Study

To evaluate our theoretical arguments, we ask whether workplace transformations representing scientific management in post-Fordist flexibility are apparent in manual and professional work and whether they have altered the work outcomes addressed here. In other words, are increases in worker selection/discipline and worker innovation apparent in post-Fordist-era manual and/or professional work? Second, what changes are evident in related work outcomes, including performance pressure, the nature of work, chaos, commitment, workplace conflict and stress?

Our analysis extends the literature on manual production by drawing hypotheses from the full range of perspectives on worker participation and by investigating implications for a broad range of outcomes, including insider knowledge and chaos, which have received little attention in prior research. We expect to find increases in both production teams and formal solicitation of worker input, as well as increases in overwork and reductions in organized conflict with management. Other hypotheses are less straightforward owing to divergent perspectives on the implications of worker participation regimes. If the more enthusiastic accounts of participatory practices are accurate, we may expect increases in autonomy, meaning, and commitment, along with reductions in chaos, stress, and perceived conflict with management. More critical perspectives would suggest little net change in autonomy and meaning, possible declines in insider knowledge, little change (or declines) in commitment, increases in stress and chaos, and either increases in perceived conflict with management or lateralization of conflict marked by reductions in perceived conflict with management combined with higher rates of peer antagonism.

Notably, we advance research on professional/managerial work by testing the implications of a neo-Taylorist emphasis on worker selection and discipline for the same set of work outcomes, shedding light on intended and unintended consequences of scientific management principles applied in this sector during the post-Fordist era. We expect increases in all three manifestations of worker selection and discipline (production teams, temporary outsourcing, and job insecurity), and in both aspects of performance pressure (overwork and evaluation via reputation). Although we foresee no change in autonomy, meaning, or insider knowledge, we do expect to find reductions in commitment and increases in chaos, perceived conflict with management, horizontal conflict, and acute stress.

Data, Measures, and Analytic Strategy

Meaningful evaluation of changes in the organization and the experience of work during the transition from Fordist mass production to post-Fordist flexible production requires in-depth data across a range of organizations and across a considerable span of time. A quarter

century ago, Kenneth Spenner (1983) noted that a comprehensive analysis of case studies would present a unique opportunity to balance breadth and depth in illuminating historical shifts in the nature of work. We adopt this approach, deriving our data from the content coding of published, book-length, English-language workplace ethnographies. These in-depth studies, conducted between 1929 and 1999 in a wide range of industrial and occupational settings, represent hundreds of years of doctoral-level research.

Cases suitable for analysis were selected via a two-stage procedure. First, the population of workplace ethnographies was identified with a computer-assisted search of archives, examination of bibliographies in workplace studies, and exploration of library shelves around located ethnographies. Second, a detailed examination of each book identified ethnographies with in-depth accounts of organizational, managerial, and employee characteristics and behavior. Books that did not focus on at least one clearly identifiable work group (workers in the same job, completing the same set of tasks) in a single organizational setting were eliminated, along with those that were too short, ambiguous, or thematic to yield useful data.[8] A few books provided data on two or more work groups; for example, Rosabeth Moss Kanter's (1977) study of the "Industrial Supply Corporation" yielded two cases—clerical workers and managers. The data for the current study are thus taken from 127 organizational ethnographies—70 focusing on manual occupations and 57 focusing on professional/managerial occupations. The majority of the books are from the United States (80 cases), the United Kingdom (19 cases), other industrialized nations such as Canada, France, and Japan (5 cases each) with the remainder spread across such nations as Scotland, Israel, and Australia. Appendix A lists example books included in the study.

A team of four researchers developed the coding instrument for the ethnographies. The first step was to generate a list of variables and preliminary response categories representing core concepts in the workplace literature (organizational attributes, the labor process, workplace social relationships, worker resistance, and so on). Second, team members read and coded a common selected ethnography, and then met to compare results and to decide upon retention/removal of items and refinement of variables, response categories, and coding protocols. This process of reading, coding, and refining was repeated for eight selected ethnographies, with the goal of creating an instrument that trained coders could complete for all ethnographies with maximum reliability.

Once the coding instrument was finalized, the full set of ethnographies was read and coded by the same initial team of four researchers, participants in a year-long graduate research practicum, and additional graduate research assistants supported by a grant from the National Science Foundation. All coders were trained to use a common protocol and were instructed not to use their existing knowledge or opinions to make inferences regarding work conditions, but rather to rely on direct evidence presented in the ethnographers' reports. Coders typically had ample evidence from which to draw, since ethnographers generally attend to key themes in the sociology of work (e.g., the work process, workplace behaviors and attitudes, group dynamics, and employee-management relations) relevant to understanding conditions in any given workplace (see Tope et al. 2005).

Coders worked individually, carefully reading the ethnographies they coded, assigning a score for each variable, and recording the page numbers on which evidence for each coding decision could be found. The team of coders then met together to review each case in detail. For each ethnography, the team member who coded it would describe the case and report the values assigned to each variable, along with the evidence used in making coding decisions. Any uncertainty about how to code a particular variable was resolved at this time, as the entire team reviewed relevant passages identified by the coder, came to a consensus regarding the best answer, and assigned a final score to the item in question.[9] The result is data on hundreds of work

8. This search ended only after it ceased to produce new titles for consideration. Approximately 800 books were secured, generally through the university library or inter-library loan, and examined in detail.

9. We acknowledge that ethnographers bring their own biases to bear on the workplaces they study. Their interests and backgrounds may influence the information that each records and how it is represented. We assume that their

groups in an array of industries, occupations, and organizational settings. Appendix B provides information on the industrial, occupational, and organizational locus of the total sample.

Each case represents a single work group in a single organizational setting. Work groups were defined by the occupational focus on the ethnographer. Thus, Kunda (1992) focused on engineers in an engineering firm (as distinct from the clerical staff or managers). Similarly, Tom Juravich (1985) focused on assembly workers in a wire production plant. This occupational focus is what allowed us to generate cases representing manual and professional workers separately.

Each variable was thus coded with respect to a particular occupational work group within a particular organization. For example, *autonomy* measures the level of independent input that work group members had in completing their tasks. This five-point item includes values of 1 ("none" [workers' tasks are completely determined by others]), 2 ("little" [workers may occasionally select among procedures or priorities]), 3 ("average" [workers have regular opportunities to select procedures or set priorities, but there are definite limits on these choices]), 4 ("high" [workers have significant latitude in determining procedures and setting priorities]), and 5 ("very high" [significant interpretation is needed to reach broadly stated goals]). To illustrate, Kanter (1977) described a high level of autonomy among managers in her case study:

> There is still a great deal of personal discretion required in positions with a high uncertainty quotient . . . Jobs are relatively unstructured, tasks are nonroutine, and decisions must be made about a variety of unknown elements . . . [E]veryone above grade 5 generated a position charter and wrote, in conjunction with his or her boss, a statement of objectives and performance standards (pp. 52–60).

Subjective experiences were likewise coded with regard to the work group as a whole. Coders took special care to assign values consistent with ethnographers' reports of sentiments shared by most workers. *Meaningfulness of work*, for example, is a three-point measure of the degree to which members of the work group tend to regard their work as meaningful. Codes range from 1 ("meaningless") to 3 ("fulfilling"). Nursing aides quoted in Nancy Foner's (1994) account of work in a nursing home described the meaning they derived from their jobs:

> "It's not depressing here, you can really help people." In fact, a great many aides spoke of the satisfaction they got from "making patients feel good" and taking good care of them . . . Aides take pleasure, too, from feeling needed and becoming emotionally close to patients. "You're working here," one told me. "You're saving someone's life. They can't feed themselves, can't dress themselves. I feel I'm helping them" (p. 49).

Similarly, *commitment to organizational goals* was coded on the basis of whether work group members tend to internalize organizational objectives (adopting organizational goals as their own and generally exhibiting behavior consistent with those goals). As the following selection illustrates, this was sometimes revealed in workers' response to requests for additional effort:

> [T]he press foreman requested that in the future more overtime be worked "for the sake of the company" . . . The worker reaction to these proposals, although expressed in a friendly fashion, was firm opposition. To the suggestion that they work more overtime "for the sake of the company," they spontaneously replied, "We work to protect our standard of living and not for the benefit of the company." In strong terms, the workers defended the individual worker's right to choose whether or not to work overtime (Cole 1971:65).

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reports provide accurate, though not always complete, accounts of the settings they researched. The scholars conducting these studies are housed in an array of disciplines, ranging from anthropology to management to nursing, reducing the potential for intradisciplinary interests to unduly shape their content. Coders' orientations may also influence their interpretations of the text. The coding protocol and debriefing sessions, in which the entire coding team met together to review each case in detail, examine evidence, and resolve complexities, were important means by which we attempted to mitigate individual influences. Significantly, the research question, arguments, and hypotheses addressed in this article were formulated only after data collection was complete, limiting the extent to which data were intentionally or unintentionally coded to conform to predetermined patterns.

To investigate temporal change, we classify cases on the basis of whether the research was initiated before or during/after 1975, and then compare mean scores of manual and professional/managerial work groups for select variables. We chose this year because it is the zenith of a transition generally seen as occurring between the mid-1960s, when quality circles were first established in Japan, and the mid-1980s, by which time post-Fordist practices were evident in most industrialized countries, having diffused rapidly in the wake of the economic crisis of 1973 (Hakim 1990; Womack et al. 1990).[10]

We begin with a "validity check," in which we identify variables associated with macro-level changes *known* to differ between the pre- and post-1975 periods. The variables evaluated include *percent female* (the percent of work group members who are female), *modal education level*, *union presence*, *formal strikes* during the research period, and *part-time employment* (a binary variable indicating the presence of any part-time workers in the work group) (see Appendix C for a description of all variables included in this study).[11] Next, we investigate temporal change within occupational categories. We identify a set of variables representing the organization of work and worker outcomes argued to have changed in the post-Fordist era. Finally, we compare pre- and post-1975 means for subsamples of manual and professional/managerial work groups and evaluate these occupational trajectories in relation to one another.

Our theoretical discussion has highlighted post-Fordist-era manifestations of Taylor's under-recognized emphasis on *worker selection,* calling attention to its presence in team-based production in both manual and professional/managerial settings, and its prominence in the context of professional/managerial outsourcing and job insecurity. An awareness of the importance of the worker selection theme in both Taylor's writings and in their application in the workplace is an important complement to existing understandings of team settings that focus on heightened self-discipline and team discipline as a defining characteristic of flexible production (see the seminal work of Vallas 1999, 2003). We model settings with a heavy focus on worker selection and discipline with binary variables for *production teams*, *temporary outsourcing* (indicating the presence of any temporary employees in the work group), and *job insecurity*. We also underscore Taylor's attention to the significance of *worker innovation*, a key post-Fordist addition to manual work with a binary indicator of *formal solicitation of worker input.*

Our measures of worker outcomes include a range of variables grouped by theme. We argue that post-Fordist principles associated with worker selection/discipline and worker innovation have increased pressure to perform, intensifying the pace of work in manual and professional occupations and heightening control via peer evaluation, especially in the professions. We measure *performance pressure* with indicators for *overwork*, defined as a brutally intense pace, and *evaluation via reputation*, defined as status hierarchies based on success. The *nature of work* includes variables tapping *autonomy*, *meaningfulness of work,* and *insider knowledge*. *Chaos* is measured with indicators of inadequate *communication*, *leadership*, and *organization of production*. We include three measures of *commitment—commitment to organizational goals*, *commitment to management*, and *commitment to the job*. *Vertical conflict* includes *perceived conflict with management* and *organized opposition to management*. *Horizontal conflict* includes *peer nonassistance* and *peer interference*. Finally, *acute stress* is a binary indicator denoting extreme emotional stress experienced by the average worker—a work outcome often clearly evident in psychological distress prevalent among workers and/or in reliance on coping mechanisms to get through the day.[12]

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10. We also compared cases derived from studies initiated prior to 1970 to those derived from studies initiated in or after 1985. Results were remarkably similar, apart from some decreases in significance attributable to smaller sample sizes. This table is available upon request.

11. Demographic data (including gender composition and educational attainment of workers) are generally regarded as important for understanding work group dynamics. Thus, ethnographers are often quite specific when reporting on these background variables. When coders found too little information to properly code a variable, the value was set to missing.

12. For example, genetic counselors in a pediatric hospital psychologically distance their own lives from the devastating realities they confront at work. One explains, "What you have to do is this . . . When you get up in the morning,

Table 1 • *Pre-1975 and Post-1975 Means and Significance Tests of Temporal Change for Work Groups in Unskilled/Assembly and Professional/Managerial Occupations (Combined)*

Variable	Pre-1975 (1)	Post-1975 (2)	Temporal Change (3)
Percent female	15.86	34.90	**
Modal education level	2.43	3.42	***
Union presence	.84	.49	***
Formal strikes	.19	.05	*
Part-time employment	.08	.18	†
N	50	77	

†*p* <.10 *p* < .05 ***p* < .01 ****p* < .001 (two-tailed tests)

Findings

The results of comparisons for our "known trends" variables are presented in Table 1. Trends reflecting well-known macro-level change are readily apparent in these data—including significant increases in work groups' average percent female, modal education level, and presence of part-time employees, and significant declines in union presence and formal strikes.[13]

Table 2 presents findings regarding pre- and post 1975 conditions in unskilled/assembly (columns 1 and 2) and professional/managerial work groups (columns 4 and 5). Significant changes within unskilled/assembly (column 3) and professional/managerial work (column 6) are denoted, as are significant differences between unskilled/assembly and professional/managerial work in the pre-1975 (column 7) and post-1975 (column 8) periods.

Manual Work

Turning to the key substantive concerns of changes in manual and professional/managerial work, we see that, consistent with expectations, the data suggest significant increases in the percent of manual work groups with *production teams*, rising from 3 to 33 percent, and *formal solicitation of worker input*, growing from 15 to 39 percent. As expected, the proportion of manual work groups experiencing *overwork* also increased (from 9 to 27 percent). Not surprisingly, there was no apparent change in *evaluation via reputation*—a dimension of performance pressure less applicable in manual work, where segmented tasks reduce stark differentiation along lines of successful execution.

Revealingly, for manual workers there were no attendant increases in *autonomy* or *meaningfulness of work* (in both cases, changes were slight and nonsignificant). Yet, a significant decline in the level of *insider knowledge* is apparent. Together, these findings lend support to arguments that post-Fordist practices fail to ameliorate deskilling and alienation in manual work, and may in fact augment it by extracting workers' knowledge and integrating it into standard operating procedures as Taylor instructed.

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pretend your car is a spaceship. Tell yourself you are going to visit another planet. You say, 'On that planet terrible things happen, but they don't happen on my planet. They only happen on that planet I take my spaceship to each morning'" (Bosk 1992:171).

    13. Because our data do not comprise a random sample of all work groups, trends and statistical significance must be interpreted with caution. We present these trends here to establish the general representativeness of the data.

Table 2 • *Unskilled/Assembly and Professional/Managerial Work Group Means, Tests of Temporal Change within Occupations, and Tests of Occupational Difference within Time Periods*

	Unskilled/Assembly			Professional/ Managerial			UA/PM Difference	
	Pre-1975 (1)	Post-1975 (2)	Sig (3)	Pre-1975 (4)	Post-1975 (5)	Sig (6)	Pre-1975 (7)	Post-1975 (8)
Scientific management in post-Fordist flexibility								
Worker selection and discipline								
Production teams	.03	.33	***	.00	.17	**		
Temporary outsourcing	.18	.19		.00	.10	*	*	
Job insecurity	.32	.44		.07	.13		*	**
Worker innovation								
Formal solicitation of worker input	.15	.39	*	.38	.46			
Work outcomes								
Performance pressure								
Overwork	.09	.27	†	.00	.08	†	†	*
Evaluation via reputation	.00	.00	na	.00	.18	*	na	*
Nature of work								
Autonomy	2.18	2.22		3.81	3.95		***	***
Meaningfulness of work	1.60	1.39		2.67	2.46		***	***
Insider knowledge	3.69	3.29	†	4.56	4.46		**	***
Chaos								
In communication	2.25	2.09		1.60	2.14	*	**	
In leadership	2.97	3.03		2.50	2.93	†	†	
In the organization of production	2.82	3.00		2.40	3.10	**	†	
Commitment								
To organizational goals	.32	.48		1.00	.87	*	***	***
To management	.59	.50		.83	.58	†		
To the job	1.97	1.94		2.46	1.97	†		
Vertical conflict								
Perceived conflict with management	2.81	3.17		2.29	3.14	**		
Organized opposition to management	2.90	2.32	†	1.40	1.53		***	**
Horizontal conflict								
Peer nonassistance	3.18	2.96		1.69	2.86	**	***	
Peer interference	.30	.71	*	.58	.71			
Acute stress	.00	.20	*	.25	.41		*	†
N	34	36		16	41			

†*p* < .10 na (not applicable due to absence of change) **p* < .05 ***p* < .01 ****p* < .001 (two-tailed tests)

We were somewhat surprised that our three measures of *chaos* did not rise for manual workers, given greater overwork and a tendency to stress production lines in order to identify and eliminate slack. Attendant increases in chaos, however, may have been checked by better two-way communication with management, which accompanies worker input and improves workers' understanding of the production process and perceptions of organizational leadership.

We also found no increase in *commitment to organizational goals, commitment to management,* or *commitment to jobs* for manual workers. This may reflect either workers' perceptions that the ideology of team-based production masks an underlying desire to intensify work (Graham

1995), or a realization that formal solicitation of input may not alter production arrangements to the degree anticipated.

Consistent with expectations for manual workers, the nature and direction of conflict on the job changed markedly in the post-Fordist era. The level of *organized opposition to management* declined significantly, although *perceived conflict with management* did not, suggesting that conflict is stifled, not eliminated under post-Fordism. Discord also appears to have been displaced onto coworkers. Although rates of *peer nonassistance* did not change substantially, *peer interference* grew significantly, affecting 30 percent of manual work groups before 1975 and 71 percent after. An example from a surgical equipment manufacturer illustrates how the use of teams for peer evaluation can set the stage for infighting among coworkers:

> There isn't much about team meetings to like . . . Many workers referred to the team system as the rat system . . . One facilitator . . . held two-hour meetings in which he apparently enjoyed picking away at people. If it wasn't one thing, it was another; something always managed to drive some poor soul into tears . . . Managers seemed intent on creating little cliques, little factions of workers that fight each other . . . while managers and facilitators stand back and watch the fireworks (Grenier 1988:30–31).

Our evidence suggests that post-Fordist-era manual workers also increasingly direct their frustrations inward. The proportion of work groups experiencing *acute stress* rose significantly, from 0 to 20 percent in the post-1975 era. The above example suggests that interpersonal dynamics associated with teamwork can produce stress between employees. Below, a worker describes how mounting responsibility associated with formal solicitation of worker input can also increase personal stress:

> It's both good and bad. You see a lot more people willing to put in a lot more time for their teams than they would for their manager. If the team and the product are working right, you really have a sense of accomplishment. This is what we're doing, and we're damn proud of it. If the team is not working right, you have that same sense of responsibility and the stress to succeed that a manager does. You take it home with you. You do take teamwork home with you (Barker 1999:163).

In sum, consistent with critical perspectives on post-Fordist era change, growth in use of production teams and employee input for manual workers was accompanied not by rising autonomy or meaningfulness of work, but rather by declines in insider knowledge and dramatic increases in overwork. Furthermore, conflict is increasingly lateralized and internalized, as indicated by reductions in organized opposition to management alongside growth in peer interference and acute stress.

Evidence also runs counter to accounts suggesting that flexible practices would narrow some of the differences in the nature of manual and professional/managerial work (Piore and Sabel 1984; Womack et al. 1990:101–02). As Columns 7 and 8 indicate, occupational gaps in autonomy and meaningful work were unchanged in the post-Fordist era. Moreover, manual work groups now lag *further* behind professional/managerial work with respect to insider knowledge but they are catching up in terms of stress. Thus, contrary to the rhetoric accompanying installation of flexible practices, the neo-Taylorist revision of manual production has prompted deterioration in key dimensions of manual work.

Professional/Managerial Work

Temporary outsourcing and *production teams*, both key to the application of neo-Taylorism to professional/managerial occupations, increased significantly after 1975—from 0 percent to 10 percent and 17 percent, respectively. Consistent with claims that *job insecurity* among rofessionals was not reflected in aggregate data until the late 1990s (see Barley and Kunda 2004:10), our measure of job insecurity registered a positive but nonsignificant change across

time.[14] In the professions, performance pressure is evidenced not only in the intensity of pace, but also in the salience of reputation—both of which have increased significantly. The proportion of work groups experiencing *overwork* increased from 0 to 8 percent; and those with *evaluation by reputation*, as indicated by status hierarchies based on success, rose from 0 to 18 percent.

We argue that the emergence of overwork and evaluation by personal reputation alongside the growth of temporary outsourcing is *not* coincidental, but reflects purposive intent to pressure professional/managerial employees to demonstrate their worth by intensifying their effort. A senior manager in the high-tech engineering firm Kunda (1992) observed illustrates this dynamic: "Get them in survival mode. Convince them that survival is at stake, that there is a threat to survival . . . They'll kill themselves" (p. 172).

Job insecurity and temporary outsourcing appear to be effective in generating heightened pressures for performance, helping to explain why productivity usually holds steady or rises in companies that have downsized, despite diminished morale among layoff survivors (National Research Council 1999).[15] A contract worker describes "permanent" employees in the Silicon Valley: "You can smell the fear in the halls . . . People are so tense, so afraid that they are going to screw up. They wonder about the next layoff" (Barley and Kunda 2004:59). Contractors also feel the pinch:

> I want to make sure that when they are laying off contractors . . . I am the last one on the list. So I do a lot of things. Like when I came on board for the first two weeks I probably worked 70 hours a week and billed them for 40. I had been there a week when they noticed that I was there at six in the morning until six at night (Barley and Kunda 2004:236).

Reduced staffing is another means by which job insecurity intensifies professional work. Dana Beth Weinberg (2004) describes how pressure on nurses grew in the wake of staff reductions and installation of total quality management, which resulted in increased patient loads and expanded supervisory responsibilities:

> Nurses . . . felt they did not have enough time with patients to assess their condition and recovery and to plan and implement their care . . . [T]hey did not have time to supervise people . . . who were carrying out care plans the nurses did not have time to construct (p. 68).

> "We have days . . . where you can't stop. And there are a number of days where you go without eating at all," one nurse told me. "There are days you don't eat lunch until three or four o'clock, starting at 7:00 A.M. There are days you try to get to the bathroom by three, literally," said another. Indeed not having time to sit down for a moment of respite, to eat, or to go to the bathroom was a topic of animated discussion in focus groups with nurses (p. 154).

Workplace changes that bring employee selection and discipline to the fore in professional/managerial settings also appear to engender unintended consequences that can run counter to many managerial goals and are potentially detrimental to employee well-being. After 1975, professional and managerial work groups demonstrate significantly less *commitment to organizational goals*, *commitment to management*, and *commitment to their jobs*, and evidence suggests that firms' withdrawal of commitment to workers may well be to blame (National Research Council 1999). Facing such situations, some professionals have rejected "permanent" employment altogether

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14. We also compared professional/managerial job insecurity prior to 1975 versus 1990 and later. The benefits of greater temporal contrast were offset by the loss of cases, resulting in the increase in job insecurity remaining statistically nonsignificant.

15. Organizational culture is frequently deployed to exert additional control, defining member roles and establishing a system whereby professional/managerial workers hold themselves and one another accountable. According to an executive: "You can't *make 'em* do anything. They have to *want* to. So you have to work through the culture. The idea is to educate people without them knowing it. Have the religion and not know how they ever got it!" (Kunda 1992:5). Workplace cultures can be enormously effective in securing effort of professional/managerial employees, who judge themselves and others on the basis of both performance and conformity to expectations, particularly with regard to attitude and endurance (Fraser 2001).

in favor of full-time contracting, in the process gaining not only potential for higher short-term incomes but also greater job insecurity and heightened pressure to perform (Barley and Kunda 2004).

The emergence of new modes of production in professional/managerial work environments has been accompanied by significant increases in every form of chaos. Kunda's (1992) work illustrates the consequences of continuously shifting project-based teams for the *organization of production*. Continuous change becomes a fact of life as projects appear and disappear overnight, sometimes reappearing in new formats with new personnel, or under new leadership, departments, or funding. Employees describe their work arrangements as "vague, decentralized, chaotic, ambiguous" (p. 30). During a culture seminar, a speaker says: "I have been fired once, unfunded twice, reorganized twice. I was moved like a piece of old meat, and when I finally found something—[An audience member shouts:] 'They cancelled it!'" (p. 124).

Leadership and *communication* also suffer. Since evaluation is by reputation, and employees are judged on last performance, team leaders may distance themselves from projects with uncertain outcomes. In a rapidly shifting context, lack of communication can serve as a strategy for self-preservation and can actually facilitate career success, in part because it allows managers to attribute to others blame for failures (Jackall 1988). An upper-level manager and a high-level executive explain:

> We're judged on the short run because everybody changes their jobs so frequently . . . [Y]ou're not tracked from one job to the next, so you can milk your present situation and never have it pinned on you in the future . . . [Milking means] just putting absolutely no money at all into the business . . My favorite things are not [replacing] . . . inventory, [which] shows up as direct profit on your balance sheet; not [replacing] people who retire, and stretch[ing] everybody else out; . . . cut[ting] working inventories to the bone . . . And you know what happens when you do that? The guy who comes into that mess is the one who gets blamed, not the guy who milked it . . . In fact, however, the manager who "takes the money and runs" is usually not penalized but rewarded and indeed given a license to move on to bigger mistakes (pp. 91–94).

> If I tell someone what to do . . . the inference . . . is that he will succeed in accomplishing the objective. Now, if he doesn't succeed, that means that I have invested part of myself in his work and . . . I can't bawl [him] out if things don't work. And this is why a lot of bosses don't give explicit directions. They just give a statement of objectives, and then they can criticize subordinates who fail to make their goals (p. 20).

Poor leaders may escape blame from their superiors, but not from their subordinates, who are frustrated with vague and imprecise instructions, which they experience as incompetence. In fact for professionals, *perceived conflict with management* rose significantly after 1975, and the evidence suggests that increased chaos, especially in leadership and the organization of production, was a key factor. A contractor explains:

> [The companies] are in deep shit. And the reason they are in so deep is because they have been poorly managed or poorly planned. Like when I was working at Astrotech, . . . things changed every day: the project plan, the features of the software product. When that happens, people cannot get work done . . . They hire people . . . who have not done the work . . . They have no clue as to what is required to get things done. They don't know what is reasonable and what is not (Barley and Kunda 2004:57–58).

Horizontal conflict has also risen as a result of changes in professional/managerial work. *Peer nonassistance* increased significantly between the pre- and post-1975 periods. For example, a computer simulation engineer for a Toyota subsidiary found that management cultivated competition of this nature and turned a blind eye to theft of ideas from coworkers:

> [O]ver lunch, Erberto said, "By the way, I overheard a conversation today. Apparently, Genda is saying your results are not good . . ." I couldn't believe my ears. Weren't Genda and I working on the project

together? . . . [H]e looked like a puppy, [but] acted like a snake. I was furious . . . I . . . discovered that [we] were actually in competition with each other so the management could see who had the superior technology (Mehri 2005:60–61).

[Y]ou're right to watch out for Oda. He's notorious for stealing other people's ideas . . . [H]e's able to produce results very quickly for the top managers, so they like him and don't care what he does (Mehri 2005:142).

Increases in chaos and peer nonassistance in the professions appear to have reduced some historic privileges of this type of work relative to manual employment (see columns 7 and 8). These factors may have contributed to greater stress in the post-Fordist era for professionals. The proportion of professional/managerial work groups experiencing *acute stress* rose from 25 percent before 1975 to 41 percent after 1975. A brutal pace and overwork are responsible for stress among nurses fearful that excessive demands on their time will spell disaster for patients *and* for themselves:

> "It goes nonstop," a nurse stated, "That's hard. It's very hard. It's frustrating because you feel like you're not giving the best care that people deserve all the time . . . I don't feel like I am able to do that as well as I did before." In another interview, a distressed nurse anguished, "The care is shoddy. It doesn't feel safe, from a practitioner's standpoint. This isn't how I care for people; so I don't want to do this. I'm going to get nailed" (Weinberg 2004:83–84).

Frustrated workers often have no choice but to internalize their stress, since resistance runs the risk of job loss—a palpable hazard in the twenty-first century.

Qualitative accounts suggest that horizontal conflict also contributes to emotional stress, which sometimes culminates in burnout characterized by exhaustion, drug abuse, and family breakdown:

> Reputation in this company is based on the last performance. They are out to get you, sharpening the knives. You are a violinist, and if the string breaks, that is it; you've had it. You are as good as lost. Burnt out. This is like primordial soup . . . [T]here are people nipping at your heels, holding a gun against your head (Kunda 1992:200).

As this quote suggests, burnout serves firms' worker selection purposes, eliminating "second-class" workers from the organization and ensuring that only the "fittest" survive. In so doing, burnout also ensures that firms are populated by workers best suited to the rising challenges of professional and managerial work.

A Model of Intended and Unintended Consequences of Neo-Taylorism in Professional/Managerial Work

We have argued that worker selection and discipline have been brought to the fore in professional and managerial occupations through increases in outsourcing, job insecurity, and project-based teams. Our comparisons of ethnographic case studies conducted before and after 1975 provide evidence of these shifts and concurrent changes in worker outcomes. We offer a model of temporal change in the professions summarizing these dynamics, including intended and unintended consequences, presented in Figure 1. The model posits that temporary outsourcing, job insecurity, and increasing use of production teams enhance performance pressure (evaluation via reputation and overwork). Many consequences, however, are unintended. Temporary outsourcing and job insecurity diminish workers' commitment to organizations, to management, and to jobs. Short-term arrangements introduced with team-based production invite chaos in leadership, communication, and the organization of production, which generates vertical conflict, particularly perceived conflict with management. Finally, performance pressure increases horizontal conflict, which takes many forms, including peer nonassistance. Evidence also suggests that performance pressure and horizontal conflict produce acute stress, sometimes culminating
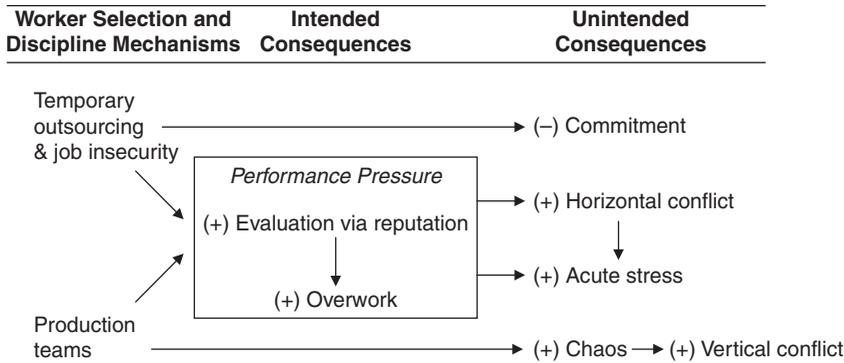
Worker Selection and Discipline Mechanisms	Intended Consequences	Unintended Consequences

Temporary outsourcing & job insecurity ──────────────→ (−) Commitment

Performance Pressure

(+) Evaluation via reputation ──────→ (+) Horizontal conflict

(+) Overwork ──────→ (+) Acute stress

Production teams ──────────────→ (+) Chaos → (+) Vertical conflict

Figure 1 • *Intended and Unintended Consequences of Neo-Taylorism in Professional/Managerial Work*

in burnout. The combined effects can be devastating for worker well-being, as this engineer's account suggests:

> I should never have taken this job . . . Bastards just threw me into this damn project. No feedback, no guidance, no support, no warning . . . I was so busy with all the details . . . Had to rely on the group members. And they wouldn't communicate. With each other. Or with me. And the schedules were unrealistic in the first place. Probably because of all the politics. When we started to slip, things just fell apart. Everyone was watching. Probably whispering. I found out later that my boss was checking who was logged on at night. They do that. This company's like an aquarium. And my problems at home didn't help. Drinking more and more . . . Maybe I should take it easy for a while. Or even reconsider this whole damn company . . . [T]here should be a warning out front: High Technologies—It's Hazardous to Your Health (Kunda 1992:19).

Summary and Conclusions

Investigation into the impact of scientific management on the work experience has tended to emphasize aspects of the technique expressed under Fordism. Revisiting Taylor's original doctrine, we explore how its manifestation in contemporary practices, its expansion into a broader array of occupations, and fuller enactment of its ideals in the post-Fordist era shape the lives of workers today. Our analysis of case studies allows us to adjudicate among competing perspectives on recent change in manual production and to offer a more comprehensive account of recent trends in the nature of professional and managerial work. Connecting these shifts to a resurgence in Taylorist ideology (which prioritizes efficiency and profits over worker well-being) assists us in tracing the devastating progression of scientific management into manual work and its encroachment on the professions, where the nature of work has long been assumed to offer some measure of protection against its rationalizing tendencies.

Existing academic literature highlights increased self-discipline and team discipline under flexible employment arrangements. The current results also suggest that intensified employee selection (and de-selection) activities go hand-in-hand with greater internalized discipline. The consequences of these new flexible arrangements for both manual and professional workers are complex and largely negative. Greater chaos and conflict—both horizontal and vertical—characterizes the flexible workplace, as does reduced commitment. The brunt of many of these changes have been felt most keenly in management and the professions, which were previously sheltered from such forces, leading to a limited convergence of manual and professional work experiences, despite divergent incomes.

Shifts in manual work reveal some surprises. We find substantial support for sociological accounts critical of the potential of post-Fordist innovations to benefit manual workers. Manual work increasingly takes place in teams with formal solicitation of worker input. While these shifts have failed to fundamentally increase manual workers' autonomy, enhance the meaningfulness of their work, or facilitate their commitment, they do appear to have augmented performance pressure, particularly the pace of work. Thus, team members appear to be correct when they describe themselves as working "harder, not smarter"—both mentally and physically—under lean production (see Stewart and Garrahan 1995). Yet, intensification of manual work does not appear to have been accompanied by rising chaos, which might otherwise have been implicated in the observed increases in coworker conflict and stress. This trend may reflect improved understandings of managerial imperatives and constraints that often accompany participative techniques.

Implications for resistance among manual workers are more complex. Added knowledge, especially in combination with integration of work tasks, may enable workers to develop less detectable modes of resistance (Vallas 2003). On the other hand, countervailing dynamics associated with globalization and jobless growth can undermine workers' capacity to resist. While levels of commitment to organizations, managers, and jobs have not changed significantly, organized opposition to management has declined. Moreover, workplace conflict in the post-Fordist era is increasingly lateralized, eroding the basis for unified resistance by rendering coworker relationships—traditionally a source of social support—more conflicted and stressful.

Significant shifts are also apparent in the organization of professional/managerial work, including increases in team-based production, temporary outsourcing, overwork, and evaluation via reputation. These flexible practices, which reflect an expanded scope of Taylor's methods, have heightened performance pressure and impinged on the nature of professional work and employee well-being, largely by way of unintended consequences, including reduced commitment, increased chaos, vertical conflict, horizontal conflict, and acute stress.

Similar to manual workers, who bore the brunt of the costs associated with Taylorist and Fordist modes of production, professional and managerial workers have shouldered much of the burden accompanying neo-Taylorism. Employers' selection efforts combined with workers' fear of job loss have buffered firms from outright resistance (Cappelli 1999:131). However, there is reason to believe that firms do pay a price. Some of the most compelling trends in professional/managerial work have to do with chaos and deteriorating coworker relationships, which impede creativity and thus undercut the productive potential of post-Fordist innovations. Poor leadership, uncertain channels of communication, and peer nonassistance rooted in jockeying for status in pressure-cooker environments can constrict the flow of information—an important foundation of much professional work, especially in team-based production. As a consequence, innovation takes a back seat to career preservation dictating such strategies as "let nothing stick to you" (Sennett 1998:79), "don't . . . rock the boat" (Smith 2001:112), "don't make enemies" (Fraser 2001:111), and "don't make waves" (Kunda 1992:118).

Overall, our results suggest that flexible innovations reflecting an increasingly rigorous application of scientific management have contributed to a general deterioration of conditions in both manual and professional/managerial work, underscoring Neil Fligstein and Taek-Jin Shin's (2004) contention that bifurcation in incomes is not necessarily accompanied by bifurcation in work arrangements, and that job content changes do not necessarily mirror income trajectories, at least not in a straightforward fashion. Though financially rewarded for their efforts, professionals and managers appear to be working harder than ever before as a result of expansion of Taylorist principles into their occupations. Unintended consequences, moreover, are impinging on the intrinsic rewards of their work.

These trends show no signs of abating. In his address to a national conference of IT managers, former General Electric CEO Jack Welch (2008) advised attendees to "de-layer," "get

leaner," and focus on their "best people." As we have illustrated, these prescriptions go hand-in-hand with deterioration of the professional/managerial work experience. And yet, even the most "hurried and worried" professionals in some of the qualitative research we review speak of an addiction to their work—the fulfillment of which elicits a strong sense of accomplishment and satisfaction. Teasing apart the complementary influences of these inward drives versus outward pressures is an important task for future research.

This study illuminates how core principles of scientific management neglected under Fordism were implemented through flexible innovations in manual and professional/managerial jobs, and explores the implications of neo-Taylorism for work in the post-Fordist era. Firms have clearly achieved many of their goals in both sectors: increasing consent to the terms of production as set forth by management and intensifying the pace of production. Yet, unanticipated outcomes, particularly those having to do with heightened conflict among coworkers, undercut the productivity enhancing aspects of these innovations. The preponderance of disadvantage, however, clearly accrues to manual and professional/managerial employees who face increasing pressures, overwork, stress, and conflict at work.

Appendix A • *Examples of Ethnographies Included in the Data by Occupational Category and Year of Initiation*[a]

Unskilled/assembly
  Initiated pre-1975
    Burawoy, Michael. 1979. *Manufacturing Consent: Changes in the Labor Process under Monopoly Capitalism.* Chicago: University of Chicago Press
    Chinoy, Ely. 1955. *Automobile Workers and the American Dream*. Garden City, NY: Doubleday.
    Lupton, Tom. 1963. *On the Shop Floor: Two Studies of Workshop Organization and Output.* New York: Pergamon Press.
    Wedderburn, Dorothy. 1972. *Workers' Attitudes and Technology*. London, UK: Cambridge University Press.

  Initiated post-1975
    Besser, Terry L. 1996. T*eam Toyota: Transplanting the Toyota Culture to the Camry Plant in Kentucky*. Albany: State University of New York Press.
    Greene, Anne-Marie. 2001. *Voices from the Shopfloor: Dramas of the Employment Relationship*. Burlington, VT: Ashgate.
    Hamper, Ben. 1991. *Rivethead: Tales from the Assembly Line*. New York: Warner.
    Juravich, Tom. 1985. *Chaos on the Shop Floor: A Worker's View of Quality, Productivity, and Management*. Philadelphia: Temple University Press.

Professional/managerial
  Initiated pre-1975
    Blau, Peter M. 1955. *The Dynamics of Bureaucracy: The Study of Interpersonal Relations in Two Government Agencies*. Chicago: University of Chicago Press.
    Hodgson, Richard C., Daniel J. Levinson, and Abraham Zalenik. 1965. *The Executive Role Constellation: An Analysis of Personality and Role Relations in Management*. Boston: Harvard University Press.
    Millman, Marcia. 1976. *The Unkindest Cut: Life in the Backrooms of Medicine*. New York: William Morrow.
    Smigel, Erwin O. 1969. *The Wall Street Lawyer: Professional Organizational Man?* New York: Free Press.

  Initiated post-1975
    Cressey, Peter. 1985. *Just Managing: Authority and Democracy in Industry.* Philadelphia: Open University Press.
    Street, Annette Fay. 1992. *Inside Nursing: A Critical Ethnography of Clinical Nursing Practice*. Albany: State University of New York Press.
    Stross, Randall E. 2001. *eBoys: The First Inside Account of Venture Capitalists at Work.* New York: Ballantine.
    Zell, Deone. 1997. *Changing by Design: Organizational Innovation at Hewlett-Packard*. Ithaca, NY: Industrial and Labor Relations Press.

[a] Studies were classified as pre- or post-1975 based on the year that studies were initiated, rather than year of publication. Studies initiated in 1975 are included in post-1975 subsamples.

Appendix B. • *Industrial, Occupational, and Organizational Locus of*
Work Groups in the Total Sample of Workplace Ethnographies

	Percent
Industry	
Extractive and construction	5.9
Nondurable manufacturing	13.8
Durable manufacturing	18.7
Transportation equipment	8.4
Transportation, communication, and utilities	8.9
Wholesale and retail trade	10.8
Finance, insurance, real estate, and business services	8.4
Personal services	6.4
Professional and related services	14.8
Public administration	3.9
Total	100.0
Occupation	
Professional	20.3
Managerial	7.9
Clerical	5.9
Sales	3.5
Skilled	9.9
Assembly	27.7
Unskilled	6.9
Service	15.3
Farm	2.5
Total	100.0
Organization Size	
Less than 50	22.8
50 to 99	8.9
100 to 499	20.2
500 to 999	14.2
1000 to 4999	20.7
5000 or more	13.2
Total	100.0
n = 204	

Appendix C • *Variables and Codes*

Variables	Codes
Data validation	
Percent female	Percent female reported for work group: 0% to 100%
Modal education level	(1) grade school (2) secondary school (3) two-year program (4) bachelor's degree (5) graduate degree
Union presence	(0) no (1) yes
Formal strikes	(0) no (1) yes
Part-time employment	Any part-time workers present: (0) no (1) yes
Scientific management in post-Fordist flexibility	
Worker aelection and discipline	
Production teams	Formal (consciously engineered, fully developed) team organization of work: (0) no (1) yes
Temporary outsourcing	Any temporary workers present: (0) no (1) yes
Job insecurity	Little or no job security: (0) no (1) yes
Worker innovation	
Formal solicitation of worker input	(0) no (1) yes
Work outcomes	
Performance pressure	
Overwork	Pace of work is brutal: (0) no (1) yes
Evaluation via reputation	Status hierarchies based on success: (0) no (1) yes
Nature of work	
Autonomy	(1) none (2) little (3) average (4) high (5) very high
Meaningfulness of work	(1) meaningless (2) somewhat meaningful (3) fulfilling
Insider knowledge	(1) none (2) very little (3) average (4) more than average (5) extensive
Chaos	
In communication	(1) good communication (2) average (3) poor
In leadership	(1) exceptional leadership (2) good (3) adequate (4) marginal (5) catastrophic
In the organization of production	(1) exceptional oganization of production (2) good (3) adequate (4) marginal (5) catastrophic
Commitment	
To organizational goals	(0) no (1) yes
To management	Loyalty to a particular manager: (0) no (1) yes
To the job	Turnover: (1) high (2) medium (3) low
Vertical conflict	
Perceived conflict with management	(1) never (2) infrequent (3) average (4) frequent (5) constant
Organized opposition to management	(1) absent (2) infrequent (3) average (4) widespread (5) pervasive
Horizontal conflict	
Peer nonassistance	Informal peer training: (1) extensive (2) more than average (3) average (4) very little (5) none
Peer interference	Within-group interference: (0) no (1) yes
Acute stress	Self-esteem sacrificed regularly or extreme emotional stress: (0) no (1) yes

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