WHY TEAMWORK FAILS: OBSTACLES TO WORKPLACE CHANGE IN FOUR MANUFACTURING PLANTS

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Using data from a comparative, multisite ethnography, this paper identifies some of the social and organizational conditions that limited the impact of workplace transformation at four manufacturing plants during the 1990s. Although these plants adopted an array of new work practices, most achieved only limited gains and were generally unable to transcend the traditional boundary between salaried and hourly employees. A key reason lay in the managerial orientation toward production that was brought to bear on the process of workplace change. This orientation, which placed substantial emphasis on scientific and technical rationality, limited the firm's ability to provide an overarching normative or moral framework within which workplace change might unfold, leaving team systems vulnerable to anomic tendencies, to status distinctions among hourly employees, and to other sources of instability. The predominance of a technical, expert-centered orientation toward production also introduced salient contradictions into the new work regimes, pitting a logic of standardization *against managerial efforts to cultivate a logic of* participation. *These findings suggest that successful implementation of workplace change may depend on the ability of corporate executives to demonstrate the very capacity for flexibility that they often demand of their hourly employees.*

ORGANIZATION theorists commonly argue that centralized, bureaucratic organizational structures are increasingly giving way to more "flexible" and participative arrangements that are better suited to contemporary economic conditions (for reviews see V. Smith 1997; Vallas 1999). Some theorists celebrate these developments as heralding an era of increased worker autonomy (Adler 1992; Heckscher 1988, 1994; Kern and Schumann 1992). Others warn of heightened managerial influence (Barker 1993, 1999; Berggren 1992; Graham 1995; Grenier 1988). Few dispute the notion that U.S. firms are undergoing historically significant patterns of change that promise to redefine the nature of managerial authority and the structure of organizational control (Cappelli 1995; Kalleberg 2001; Powell 2001).

Yet the further one moves past such abstract generalities, the more ambiguities and uncertainties one seems to confront. One such uncertainty stems from a disturbing gap between theoretical models of the new work practices and the empirical evidence concerning their actual implementation. Claims made on behalf of the "lean" system of pro-

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duction, for example (Adler 1992; Hackman and Wageman 1995; Kenney and Florida 1993; Womack, Jones, and Roos 1990), have often found little support in empirical case studies, suggesting that the promise of the "quality movement" may be limited to a handful of "celebrity" organizations such as Saturn or the New United Motor Manufacturing, Inc. plant (NUMMI), jointly run by Toyota and General Motors (Berggren 1992; Dohse, Jurgens, and Malsch 1985; Lawler, Mohrman, and Ledford 1992, 1995; Milkman 1997; Prechel 1994; Rubinstein 2000).

A second source of uncertainty concerns a development that Pil and MacDuffie (1996: 423) have dubbed a "striking paradox." Although a substantial body of evidence now indicates that new work practices make possible significant performance advantages over their Fordist equivalents (e.g., Appelbaum et al. 2000; Cappelli and Neumark 2001; Ichniowski et al. 1996; Levine and Tyson 1990; Shaiken, Lopez, and Mankita 1997), the proportion of establishments that can genuinely be called "transformed" remains quite small (cf. Osterman 2000). The question, then, is why firms that purport to be rationally acting organizations appear to resist the very methods that would best equip them to achieve their stated goals.

A third source of uncertainty arguably underlies the previous two and stems from the tendency of researchers to focus on the *outcomes* of workplace change without examining the social and organizational *processes* that arise during the introduction of the new work practices. Among students of industrial relations, for example, the tendency has been to gather data on the performance of particular types of work systems, typically using either cross-sectional survey data or (less commonly) panel data on productivity. Although some studies have incorporated a broader set of outcome measures such as wages, stress, or job attitudes (see Appelbaum et al. 2000; Berggren 1992; Kuhlmann and Schumann 2001), the prevailing research designs make it difficult to capture the social relations that unfold during the course of workplace change. As a result, little is known about the ways in which nominally similar work practices are shaped by particular organizational conditions. Nor do we have a clear understanding of how actors at different levels within organizations tend to respond to organizational changes of various sorts.

Here I take aim at these sources of uncertainty, using qualitative methods to study workplace transformation initiatives at four unionized, brownfield manufacturing sites. My goals are both interpretive and explanatory. First, I seek to provide a deeper understanding of the changes that have unfolded within U.S. manufacturing plants during the 1990s, when interest in new production concepts significantly increased. Second, I aim to identify some of the most salient obstacles to the pursuit of workplace change, accounting for the relatively limited success of new structures in displacing traditional, hierarchical work structures. The plants studied here are all drawn from a single, fairly traditional branch of production: the pulp and paper industry, a largely unionized and capital-intensive branch of production that has often lagged in the introduction of new process technologies and work practices (Vallas 2001; Vallas and Beck 1996). Because this industry has recently sought to adopt many forms of innovation suggested by the quality movement, it provides an especially opportune site for research on the obstacles to workplace change. My analysis is not framed as an exercise in hypothesis testing; instead, it aims to reconstruct existing theory by drawing attention to important tendencies that have previously been ignored (Burawoy 1998).

I begin by reviewing previous lines of analysis concerning the nature and impact of nontraditional work systems and by sketching the theoretical orientation that guides the present analysis. I describe the research strategy employed and the contexts in which the data were collected. Then I present findings bearing on two important forms of workplace change—"team" initiatives and "continuous improvement" programs—neither of which succeeded in transcending the traditional boundary between salaried and hourly employees. I argue that the reason for such limited gains lay in the managerial orientation toward production that informed the workplace restructuring initiatives. This orientation, which privileged scientific and technical rationality, had a double effect on the outcome of workplace change. First, it sharply

limited the firm's ability to provide any overarching normative or moral framework within which workplace change might unfold. Second, the predominance of a technical, expert-centered orientation toward production introduced salient contradictions into the new work regimes, which were often torn between two conflicting organizational logics. Workplace change progressed furthest, and was relatively contradiction-free, at the one plant that enjoyed a significant measure of freedom from corporate control, suggesting that centralized corporate dominance over the process of workplace change acts to reproduce workplace hierarchy. I conclude by drawing out the theoretical and practical implications of my findings and by suggesting future lines of analysis for research on the limits of workplace change.

TEAMS, TRADITION, AND WORKPLACE TRANSFORMATION

Much of the initial ferment concerning new managerial practices in the United States emerged during the 1980s, when international competition from Europe and Japan exposed important vulnerabilities within U.S. production systems, in effect delegitimating the organizational orthodoxy that firms had inherited from the past (Appelbaum and Batt 1994; Cappelli and Neumark 2001; Heckscher 1988, 1994). Initially, the focus for change was on employee involvement and quality circles. By the end of the 1980s, however, two more fully articulated models had appeared.

One model drew inspiration from economic developments in Western Europe (Berggren 1992; Kern and Schumann 1992; Piore and Sabel 1984), arguing that because consumer tastes increasingly demanded diversified, high-end consumer goods, production required much greater skill and flexibility than the routinized, Fordist production systems could provide. Theorists in this genre advocated the abandonment of mass production models in favor of neo-craft systems that employed highly skilled workers organized into autonomous production teams (Appelbaum and Batt 1994; Berggren 1992; Hirst and Zeitlin 1991; Sabel et al. 1989; Vallas 1999). A second and ultimately more influential approach was spawned by the quality movement emanating from Japan. Although formulations varied, what has come to be called "lean" production involves three principal characteristics: First, it calls for elimination of the unproductive bureaucratic hierarchies previously used to oversee production workers and to maintain quality control. Second, it advocates redistributing the latter tasks to front-line employees themselves. And third, it stresses the need for the continuous improvement of the firm's operations (e.g., through the practice of *kaizen*), with production workers expected to place their knowledge at the disposal of the firm. Because it presupposes the ongoing consent of its production workers, the lean system not only claims to enhance efficiency and product quality but also promises to free workers from the long-established dictates of centralized control (Adler 1992; Hackman and Wageman 1995; Kenney and Florida 1993; Womack et al. 1990; cf. Berggren 1992; Dohse et al. 1985).

Regardless of their differences, theories of neo-craft or lean work regimes imply a significant challenge to the Weberian theory of bureaucracy, in that both foresee a historical transcendence of the "iron cage" of imperative coordination. To be sure, lean production, in particular, places a strong emphasis on quantitative analysis and rational calculation: "Total Quality Management" and "Statistical Process Control" both make abundant use of probability theory and mathematical modeling as bases for process control (Hackman and Wageman 1995; Hill 1991; Klein 1994; Rothschild and Ollilainen 1999). Yet the lean approach *also* stresses the *normative* or moral aspects of organizational control in lieu of the traditional reliance on managerial imperatives. Indeed, Barley and Kunda (1992) go so far as to characterize the current era of workplace change in terms of a shift from "rational" to "normative" managerial rhetoric; that is, a movement *away* from reliance on scientific and technical rationality (such as Taylorism or operations management), and *toward* a normatively grounded pattern that seeks to elicit a shared commitment to the firm.[1]

[1] Throughout the following analysis, I rely on Barley and Kunda's (1992) distinction between these two forms of organizational rhetoric and

Others see team systems in somewhat different terms. Rather than speaking of a shift from one rhetorical system to another, for example, Adler (1992) views lean theory as making possible a *synthesis* of the rational and the normative components of the firm. Studying the now-famous NUMMI assembly plant at Fremont, California, Adler sees the plant's success as stemming precisely from its ability to *fuse* the normative aspects of team systems with the rational emphasis of Taylorism, thus enabling management to elicit workers' commitment to the rationalization of their own jobs. Key to this plant's success was its dramatic reduction in the size of its engineering staff—a shift made possible by transferring the work of job design and analysis to front-line production workers themselves (cf. Kern and Schumann 1992).

Critics of lean theory have questioned the nature of any such syntheses under conditions of advanced capitalism (Berggren 1992; Graham 1995; Grenier 1988). The argument that critics have advanced is that lean production serves powerful ideological functions, encouraging workers to internalize managerial definitions of their work situation, thus actually reducing the residues of autonomy that workers retained under the Fordist regime (Barker 1993, 1999). Although this line of analysis is theoretically suggestive, the evidence presented on its behalf has often seemed weak. For example, in Graham's (1995) study of a Japanese-managed auto plant, workers only rarely seemed to internalize the norms their employer favored. Instead, they engaged in various forms of resistance, even in the absence of union organization (cf. Grenier 1988).[2] In light of such findings, it seems useful to pursue a different, more empirically rooted investigation that seeks to explain the gap between lean theory's claims and the actual work practices it has inspired. Why have the theoretical virtues of workplace transformation so rarely been achieved in practice? What processes and conditions seem to encourage the reproduction of Fordist authority relations? What changes *have* firms sought to adopt, and why?

Previous research in this direction has tended to divide into three discrete lines of analysis. One points toward the phenomenon of structural inertia, suggesting that organizations are "imprinted" with the conditions under which they were born, thereafter tending to cling to long-established routines, production methods, and identities (Hannan and Freeman 1984; Pettigrew 1979; Schoenberger 1997; Stinchcombe 1965). A second approach fastens on resistance to change among middle managers, who are said to view new work practices as threats to their traditional status and authority (Taplin 2001; Zuboff 1988; cf. V. Smith 1990). A third approach has been influential among labor relations specialists, who stress the characteristics of the innovations that firms introduce. Because firms have tended to adopt innovations singly, rather than in the clusters or "bundles" that team systems are said to require, they often fail to achieve the structural complementarities needed to accomplish far-reaching organizational change (Ichniowski, Shaw, and Prennushi 1997; MacDuffie 1995; Pil and MacDuffie 1996).

Although each of these perspectives contains a partial truth, I find each one limited in important respects. Analysis using the concept of structural inertia tends to reify the conservative aspects of organizational culture and to neglect endogenous sources of change (Stark 2001:74). While theories of managerial resistance have stressed the importance of within-firm political processes, they often endow upper levels of management with an omniscience and openness to egalitarian practices that they need not possess (Zuboff 1988). Finally, the approach favored by labor relations theorists has often adopted an essentialist view of the new practices, as if their effects were unmediated reflections of particular innovations rather

control (cf. Kunda 1992). By "rational" controls I mean an orientation toward production based primarily on the efficacy of scientific and technical expertise. By "normative" controls, I mean an orientation that seeks to cultivate a sense of moral obligation or allegiance to collectively defined goals.

[2] Elsewhere, I have argued that the "hegemony" view of team systems exaggerates management's ability to reshape workers' orientations toward the firm (Vallas forthcoming a). Even in plants that are not unionized, I found that team systems actually *increase* worker solidarity over against their managers (cf. Hodson et al. 1993).

than the manner in which the latter were introduced (Hunter, MacDuffie, and Doucet 2002).

Departing from these approaches, I appeal to developments within industrial sociology—especially Thomas's (1994) "power-process" theory of organizational change (cf. Kelley 1990; Wilkinson 1983). As applied here, the notion is that the outcome of workplace change initiatives is in large part shaped by the social and organizational processes that unfold during the implementation of the new work practices. In other words, workplace change is not akin to a surgical procedure performed under anesthesia. Rather, it constitutes a *negotiated* phenomenon in which the language, rhetoric, and strategies that particular occupational groups employ can either blur or heighten the boundaries that exist within the firm (Thomas 1994; Vallas 2001; cf. Fine 1984, 1996; Strauss 1978). As Thomas further suggests, workplace change often provides occupational groups with an opportunity to realign their positions within the firm, setting in motion processes that can have autonomous effects on the outcomes that emerge. Where workplace change fails to transform existing organizational patterns, the reasons may stem less from the nature of the innovations than from the processes that surround and shape their introduction.

Seeking to anchor his analysis within a general theory of social reproduction, Thomas (1994:225–28) relies on Giddens's theory of structuration. By contrast, I suggest that critical theory—in particular, the work of Habermas (1971, 1979, 1987)—may hold important advantages, in that it helps identify the competing logics that can inform particular institutional domains. Thus, in his critique of Max Weber's theory of rationalization, Habermas (1987) suggests that the proliferation of *instrumental* rationality represents but one side of a complex and often contradictory process of historical evolution. The neglected side of the rationalization process involves the growth of *communicative* rationality, oriented toward shared understandings and collective debate. Although the spread of industrial capitalism has allowed instrumental action systems to dominate, or even to "colonize," communicatively oriented ones, for Habermas the relation between the two constitutes a zone of ongoing tension, as various social groups struggle over the legitimate application of instrumental and communicative rationality (Agger 1991; Habermas 1987).

Although Habermas's reasoning is couched at a high level of abstraction, his thinking holds value for the study of formal organizations and workplace change (Burrell 1994). First, it sensitizes us to the ways in which the growth of scientific and technical rationality can obstruct the pursuit of workplace change. Where management favors such a form of rationality without recourse to communicative processes, it seems reasonable to expect that workplace transformation will assume a distorted or contradictory form, with workers viewing the resulting innovations as tending to foreclose the possibility of genuine dialogue and debate. Second, this approach begins to identify conditions that may be necessary for the success of workplace change. Key for Habermas, and for some theorists of the "post-bureaucratic organization" (Heckscher 1994), is the effort to develop institutional supports for communicative processes, ensuring that the new forms of authority rest on debate and discursive legitimation rather than on systemic regulation alone.

However disparate they may seem, these theoretical orientations complement one another in important ways. Both Thomas and Habermas address themes relevant to Weberian analysis of work organizations (cf. Halaby 1986). Both are attuned to the symbolic contexts in which practical activity takes place. And where one focuses on the intraorganizational processes that accompany workplace change, the other situates such processes within the larger context of modernity and the tensions the latter often entails. Taken together, they provide a useful set of orienting assumptions with which to approach the cases at hand.

THE PAPER INDUSTRY AS A STRATEGIC RESEARCH SITE

Until recently, the pulp and paper industry was a highly traditional, regionally focused branch of the economy with a strong pattern of family ownership (McGaw 1987; M. Smith 1997). Firms in this heavily capital-

intensive industry have generally adopted a conservative approach toward their mill operations, favoring incremental changes in production to preserve the value of their existing fixed capital investments (Cohen 1984; M. Smith 1997). Interviews with former managers and executives of mills at different parts of the country suggest that until the early 1970s, many aspects of production continued to rely on a quasi-craft form of work organization in which strategic aspects of the production process rested on traditionally acquired knowledge held by supervisors and hourly employees (cf. Vallas and Beck 1996; Zuboff 1988). To ensure the availability of such local knowledge, companies typically made elaborate provisions for internal labor markets, thus providing incentives for the acquisition of asset-specific skills (Althauser and Kalleberg 1981; Doeringer and Piore 1971). Under these conditions, workers often sustained a rich occupational community among their own ranks, especially among workers holding the most highly skilled jobs (cf. Dudley 1994; Vallas 2001).

Always a highly cyclical industry marked by wide swings in both prices and profits, by the early 1980s the paper industry began to suffer sustained bouts of overproduction and weak economic returns. These problems intensified with the rise of international competition and tightened environmental regulation, prompting many large firms to seek ways of reducing their operating costs and achieving greater operational flexibility. As a result, company after company in the United States began to perceive the traditional system of work rules they inherited as an impediment to their organizational performance (Birecree 1993; Holmes 1997; Walton, Cusher-Gerschenfeld, and McKersie 1994). Three fundamental changes ensued.

First, corporations sought dramatic changes in their labor relations, with many large firms engaging in sharp confrontations with the major unions in the industry. These conflicts, which sometimes involved the use of permanent replacement workers, cast a pall over labor relations and led to a decided shift in the balance of power between labor and management (Beck 1989; Eaton and Kriesky 1994; Getman 1998).

Second, firms began to recast the character of the production process itself. Although the industry had long relied on continuous process production methods, firms now began to introduce an entirely new generation of production machinery and process control systems that promised to achieve greater economies of scale, more consistent quality, reduced crew sizes, and greater stability and throughput. With the introduction of these technologies (and growth in the number of engineering employees as well), many managers began to speak of the need to move papermaking "from an art to a science"—an oft-repeated phrase in many mills (Vallas 2001; Vallas and Beck 1996).

Third, firms searched for newer and more effective work systems that might provide an optimal fit with the new production processes. Especially within more consumer-oriented firms, management energetically sought to transform the structure of mill operations, transcending inherited hierarchies—especially the traditional boundary between salaried and hourly employees. Toward this end, most large firms have introduced a variety of nontraditional work systems (most notably, self-directed teams, high-performance work systems, and employee involvement initiatives) in place of the traditional bureaucratic model. The fate of these initiatives—their success in transcending deeply established organizational forms—is of central importance for my analysis.[3]

RESEARCH STRATEGY AND METHODS

This study originated as part of a wider effort to understand the social processes that underlie the outcome of technological and organizational change. To capture such processes, I invoke qualitative methods, drawing especially on recent developments in workplace ethnography (see Barley 1996; Burawoy 1998; Hodson 1999, 2001; Morrill

[3] Zuboff's (1988) research is particularly important here. The firm she studied is known throughout the industry for its exceptional human resource practices. Although these practices have gained widespread prestige, they have generally failed to inspire substantial emulation within the industry as a whole. One question I pose is why Zuboff's "post-hierarchical workplace" has made such limited headway in recent years.

and Fine 1997).[4] Mindful of the limits of single-site ethnographic research, I combine the depth and richness of such fieldwork with the analytic breadth that multisite research allows. This strategy—essentially that of comparative ethnography—allows me to identify salient variations in the outcome of workplace change and to seek the social and organizational processes that account for such differences (cf. Burawoy 1990, 1998).

My study was jointly sponsored by the company (which I shall call U.S. Paper) and the major union in the industry (PACE International Union, AFL-CIO). Although the original research design allowed for fieldwork at three different mills (chosen to provide variation in the age, history, and product line of the industry's mills), consultation with union staff identified a fourth site that expanded the range of comparisons on which the study could draw. The resulting sample provides for sharp contrasts in plant size (from 400 to 2,000 employees) and complexity (ranging from relatively simple, single-product mills to massive, highly differentiated industrial complexes). All of these mills are unionized, reflecting the industry's high union density, but labor relations are sharply varied, ranging from adversarial to cooperative.

Because all four mills are owned and managed by U.S. Paper, a leading manufacturer of forest products, company ownership has been held constant. Like many of the largest firms in the industry, U.S. Paper has grown largely through acquisitions and now has establishments in many major industrialized nations. Several other firms were approached but declined to provide access for this study, raising the possibility that these data are biased in the direction of a greater openness toward change than is typical in the industry. Data collected from other firms—from an earlier stage of fieldwork conducted at a separate company (Vallas and Beck 1996), as well as oral history interviews and site visits at various mills—indicate that, while such selection biases do exist, they are not highly pronounced.

Data collection began in November 1999 and continued until August 2001. I conducted the great bulk of the fieldwork myself, but two graduate researchers joined in the research, providing additional sources of insight and observation. With management's permission, we were free to select departments for particular attention, to join production crews during their shifts, to sit in on various production and team meetings of both salaried and hourly personnel, and generally immerse ourselves in the culture of the mills. Although data were collected in both traditional and nontraditional production areas, I focused particular attention on the nontraditional departments, which included 10 discrete instances of "team" initiatives.[5] In addition, data were collected on the nature of the firm's "continuous improvement process," a company-wide program to involve salaried and hourly workers in project-oriented teams that aimed to enhance mill operations in concretely measurable ways.

In all, roughly 1,700 hours were spent collecting observational data in these mills, with observations conducted during varying times of day. To supplement the ethnographic data, semistructured interviews were conducted with a purposive sample of roughly 75 salaried employees (mainly managers, supervisors, and process engineers) on matters involving new technology and team systems. To grasp temporal processes, a considerable proportion of these interviews (as well as conversations during the fieldwork generally) was oriented toward reconstructing the evolution of workplace change initiatives. These data, combined with documentary sources (memoranda, correspondence, and reports), provided a reasonably full picture of the processes involved in the transformation of work. Key features of the four mills (which I call Bordermill, Pinetown, Mountainmill, and NewTown) are outlined in Table 1.

[4] Of particular relevance are the efforts of Burawoy (1990, 1998), whose "extended case method" develops a strong program linking qualitative research with theory reconstruction (also see Barley 1996).

[5] These 10 initiatives represent the population of such efforts in these mills, with one exception—a small production area in one mill, employing roughly 20 utility workers—where I was unable to gather sufficient data for inclusion in the analysis.

Following the claims that many theorists have made (Adler 1992; Heckscher 1988, 1994; Kern and Schumann 1992; Womack et al. 1990; Zuboff 1988), I define the success of workplace change initiatives not on the basis of their performance but instead on their ability to transcend the long-standing antagonism between salaried and hourly workers—that is, the division between the manager and the "managed." I therefore define "successful" efforts at workplace transformation as involving formally-initiated changes in workplace governance that expand hourly workers' autonomy, foster a heightened level of commitment to the firm, and in so doing blur the boundary between hourly and salaried employees. "Failed" initiatives are those that generate ongoing conflict and distrust, or demands for a return to a traditional work system. Initiatives that attain an intermediate or transitional state—some measure of success, but with conflicts and resentments still apparent—are defined as having achieved "mixed success."

FINDINGS

U.S. Paper began to undertake workplace change initiatives in the early 1990s. These initiatives, which were loosely drawn from the quality movement, fell into two broad categories. One centered on the introduction of *nontraditional work systems*, which managers generally referred to in terms of "team concept," self-directed teams, and high-performance work systems. Although these initiatives vary, workers involved in them are typically expected to assume responsibilities previously assigned to supervisors. Team members hold meetings at the outset of each shift, planning key activities and tasks on their own (thus allowing for sharp reductions in the number of first-line supervisors). Typically, workers are employed in the context of simplified or flexible job classifications (often requiring workers to rotate jobs as the situation requires) and pay-for-knowledge systems of compensation (that reward the accumulation of new skill sets). Most team members have responsibility for a functional area (such as production, quality, or safety), which requires frequent reporting to and consultation with team members. The 10 team initiatives I studied are described in Table 1, which enumerates each and provides data summarizing the outcome and number of workers involved as well.

A second category of workplace transformation involved a *continuous improvement initiative*. This effort, which I call Plant Improvement Process (PIP), for the most part began in 1994 when a leading management consulting firm introduced it on a trial basis at two of the firm's mills. Informed by lean theory, the principle underlying PIP was the effort to enhance mill performance in measurable ways without requiring increased capital investments. To achieve this goal, managers were instructed to seek the commitment of *all* employees, both hourly *and* salaried, encouraging them to share their production knowledge and expertise across organizational boundaries and ranks. By the time my fieldwork began in 1999, these two forms of workplace change had been underway for a minimum of four years, and in one mill for nearly a decade. Table 1 also provides data summarizing each mill's experience with PIP.

Viewed as a whole, my fieldwork gives rise to five important observations concerning U.S. Paper's efforts to break with traditional hierarchical work structures. First, even using relatively generous estimates (counting both "mixed" and "successful" cases as favorable outcomes), the data in Table 1 suggest that the aggregate impact of these nontraditional team initiatives has been quite limited. Even at Bordermill, the plant where labor relations have been the most cooperative, viable team systems have encompassed only 88 workers, or just under 10 percent of the mill's workforce. In none of the other mills has the penetration of workplace transformation exceeded this percentage—in most, the number is considerably smaller. In short, efforts to transform the work systems in these mills have remained exceptional initiatives encompassing a small minority of workers. Moreover, these initiatives show little sign of expanding their reach.

Second, "successful" initiatives are confined to the smaller, traditional cases where workers have invoked customary patterns of machine control rather than the more elaborate systems that human resource

Table 1. Elements of Workplace Transformation in Four Pulp and Paper Mills

Elements	Mill			
	Bordermill	Pinetown	Mountainmill	NewTown
Size (number of employees)	Large (>1,000)	Large (>1,000)	Medium (<500)	Medium (<800)
Character of labor relations	Generally cooperative	Sharply adversarial since 1980s	Adversarial	Sharply adversarial until late 1980s, then increasingly cooperative
Team Initiatives[a]				
Where applied (number of workers and outcome in parentheses)	*Case 1.* New converting machine (32; failure) *Case 2.* New paper machine (40; mixed) *Case 3.* New cutting and wrapping machine (16; success) *Case 4.* Woodyard (32; success)	*Case 5.* New converting machine (32; mixed) *Case 6.* Woodyard (45; success)	*Case 7.* New paper machine (45; failure) *Case 8.* Pulp mill (12; success) *Case 9.* Maintenance (50; failure)	*Case 10.* Recycled pulping operation (28; mixed)
Continuous Improvement (PIP)[b]				
When and how adopted	1996, in compliance with headquarters provisions	1997, in compliance with headquarters provisions	1997, in compliance with headquarters provisions	1991, as local initiative
Provisions for union involvement	None	None	None	Extensive
Extent of hourly worker participation	Occasional	Rare	Rare	Extensive

[a] "Successful" team initiatives involve formally-initiated changes in workplace governance that expand hourly workers' autonomy, foster a heightened level of commitment to the firm, and blur the boundaries between hourly and salaried employees. "Failed" initiatives are those that generate conflict and distrust, or create demands for a return to traditional work systems. "Mixed-success" initiatives attain some measure of success, but conflicts and resentments remain.

[b] The Plant Improvement Process (PIP) involves employees in project teams charged with improving mill operations in specific and measurable ways. Teams are commissioned by a Leadership Team, to which they are accountable.

managers have preferred. In these smaller, traditional initiatives—Cases 3, 4, 6, and 8—highly skilled workers have in effect used management's wish to cut supervisory layers to gain de facto rights of self-management over their own production areas. As one manager told me (referring to the workers in Case 3), "They run that machine the way they like, and they don't call us unless the place is burning up." Likewise, in Case 8 at Mountainmill, when the human resource manager proposed a high-performance work system for a small pulping department, the operators rejected his proposal in favor of their own, preferred arrangement. In the larger production areas, by contrast, where human resource managers *have* introduced the more highly formalized systems (Cases 2, 5, and 10), the results have been significantly less favorable,

achieving only "mixed" success at best. In these latter cases, team initiatives have gained a measure of acceptance, and workers do welcome the reduced closeness of supervision they entail. But there is little evidence of a sharp change in workers' attitudes toward their jobs or in their perceptions of salaried employees. Substantial residues of conflict and resistance toward management persist in these instances, with workers often refusing to participate in key features of the new work systems (such as job rotation).

Third, even these limited gains have been offset by instances (Cases 1 and 7, and to a lesser extent Case 9) in which team initiatives have quite dramatically and visibly collapsed amid accusations of deception and betrayal running in both directions.[6] These instances of failure are especially important, not only because of the heightened distrust toward management they produce among the workers who were directly involved but also because such experiences typically ripple outward into the adjoining production areas, reaffirming the traditional boundaries that exist among other workers as well.

Fourth, although the company has invested thousands of hours in PIP, and has derived significant cost savings, steering committees and PIP teams at three of the mills have remained almost entirely the domain of salaried employees (especially process engineers), with participation by hourly workers remaining extremely rare.[7] Moreover, very little connection has been formed between PIP and the efforts to introduce team systems: The two categories of workplace change have essentially run in parallel, with few if any points of interaction between them. This has reinforced the relative isolation of existing team initiatives, while depriving PIP of any strong normative or moral component that might engage the energies of hourly employees.

Fifth, Table 1 also reveals an important exception to the prevailing pattern of limited organizational change. At NewTown, PIP has developed much more fruitfully than elsewhere, engaging hourly workers to a far greater extent than at the other three mills, despite the inauspicious labor relations in place when it was first introduced. Indeed, NewTown's version of PIP has achieved a far-reaching change in authority relations not evident elsewhere in the firm. This disparity in the development of PIP warrants careful discussion and analysis below.

Thus, despite the resources the company has invested, the overall pattern is one in which new production concepts have registered only limited success. Nontraditional team systems have in effect remained islands in a sea of adversarial work relations. Although the company has invested energy and resources in PIP, and has in fact reaped some economic benefits, the predominant pattern has been one in which the boundary between salaried and hourly workers has been largely reproduced and in some cases apparently inflamed (cf. Milkman 1997; Prechel 1994).

The issue to be addressed, then, centers on the conditions that account for the tenacity of the Fordist regime. What social and organizational processes have inhibited workplace change, forestalling the spread of new work practices and confining them within particular departmental boundaries? Why have efforts to adopt innovative work systems remained relatively undeveloped and isolated phenomena within particular production areas? Why have three of the company's mills shown so little movement toward "transformed" work practices, while one mill has so clearly surpassed them in this regard? And why has the continuous improvement process been so starkly dominated by salaried employees?

[6] Case 7, discussed further below, is typical. The operators on this paper machine were once enthusiastic participants in their team system, but now bitterly refuse to comply with its dictates. They view plant management's behavior as utter manipulation through which a cohort of managers sought career advantages at the workers' expense.

[7] Company data from Pinetown are illustrative. Of the 140 salaried employees who were potentially involved in PIP during the third wave of 2000, 132 participated (or 94.3 percent). By contrast, only 50 hourly employees (less than 5 percent) are listed as participants. My observations suggest that even these figures overestimate hourly worker participation. Pressured by managers to increase worker involvement, supervisors often report higher levels of worker participation than actually exist.

Normative Deficiencies within Team Systems

Both advocates and critics of team systems contend that the new work practices hinge on the articulation of a normative pattern of control that encourages employees to internalize a sense of commitment or moral obligation to the organization's goals (Graham 1995; Kunda 1992; Zuboff 1988). I found little evidence of such a trend. To be sure, managers did take some steps in this direction. At the start-up of Mountainmill's new paper machine (Case 7), production crews were trained in numerous "soft skills," whose content (e.g., conflict resolution and team leadership) was oriented toward generating worker commitment to the team initiative and to the success of the new machine. During the course of my fieldwork, the company also adopted new "leadership development" workshops as well as a new "Core Values" policy that outlined the company's moral commitments, in these ways signaling management's aim of engaging the allegiances of its employees.

Yet overall, such efforts played a decidedly minor role in the everyday operations of these mills. Indeed, when my fieldwork began, symbolic gestures (such as the hosting of dinners honoring the achievements of particular production crews) had been dramatically curtailed, usually on budgetary grounds. Moreover, many workers on team systems felt frustrated at the company's reluctance to provide sufficient facilitators on shift to support their team initiatives. It was hard to escape the conclusion that managers tended to view the normative or cultural elements of the new work practices as holding only secondary importance, instead focusing the bulk of their attention on the technical and financial aspects of production. As a result, the social and cultural aspects of workplace change went largely unaddressed, placing sharp limitations on the team initiatives U.S. Paper introduced.

I observed three distinct ways in which such limitations arose. The first developed where workplace rules grew weak, inconsistent, or ill-defined—conditions that approximate what Hodson (1999, 2001) has termed the "anomic workplace." A second emerged where status distinctions among hourly workers were imported into the new team systems, undermining the possibility of cooperation and coordination within production crews. A third arose where managers were compelled to rely on their personal resources—most notably, charismatic authority—in ways that proved highly volatile or unstable, sometimes leading to the collapse of nontraditional initiatives in highly public ways. Although these conditions are analytically distinct, empirically they often combined, not only with one another but also with other factors to be discussed below.

Workplace anomie. Although U.S. Paper's executives had made a commitment to reconfigure the firm's internal operations, the precise contours of their efforts in some ways remained highly ambiguous. Most notably, their obvious commitment to the ideal of continuous improvement coexisted uneasily with their support for worker self-direction, without ever specifying precisely how these elements would combine in actuality. Not surprisingly, given such inconsistencies at the corporate level, efforts to develop team systems sometimes developed abiding ambiguities and inconsistencies at the point of production itself. Such anomic conditions in the work rules governing particular initiatives often provided the basis for conflicting interpretations that in turn generated substantial discord, suspicion, and distrust. This was the case at Bordermill and Mountainmill (Cases 1 and 7), where team initiatives ultimately resulted in bitter and highly public failures.

The events that unfolded at Bordermill occurred on a new converting (rewinding and packaging) machine that was introduced in the mid-1990s. Although both plant and corporate management hoped that this team system would spread outward into the surrounding production areas, the initiative instead rapidly escalated into bitterness and accusations on either side. Within a year, management concluded that workers had used the team system merely to gain higher wages, without offering any increased work effort in return. For their part, workers felt that management was using the team system to undercut key provisions of their collective bargaining contract, thereby reducing the local union's strength. Such discord stemmed

partly from two ambiguities in the work rules that governed the new team system. One involved the role of workers' seniority rights; the second centered on the distribution of pay-for-skill wage increments.

The first of these issues emerged in the selection of workers for assignment to the team system. Although the collective bargaining agreement was unclear on this point, managers believed that when vacancies occurred on the team system, they had the right to fill such openings without being encumbered by the contract's seniority provisions. Hourly workers interpreted the agreement quite differently and reacted with sharp resentment when workers hired off the street began to earn much higher pay (owing to the pay-for-skill system used in this case) than did the workers who had been at Bordermill for years. Senior workers saw this as a slap in the face and began to view the team system as a means of pitting young workers against old.

Magnifying the intensity of this seniority conflict was an ambiguity in the pay-for-skill system both parties had devised: When pay increments were delayed for months while a certification system was established, workers began to suspect that the department's manager was intentionally dragging his feet in order to minimize his production costs. Effort levels began to fall off noticeably—workers stopped rotating jobs, and production quotas went unmet for months at a time—in turn redoubling management's determination to sidestep the traditional seniority system. This production area has been shrouded in conflict and acrimony for several years now, with many workers now viewing it as "a joke."

Equally anomic conditions, although in a different form, arose when the new paper machine was installed at Mountainmill (Case 7). As a very old mill, Mountainmill had accumulated a complex mélange of work rules, many of which were poorly documented.[8] Adding a new team system only complicated the situation, as it gave rise to an elaborate array of rules based alternately on custom, the collective bargaining contract, and the new cooperative agreement, with each side resorting to one or another set of rules in accordance with its needs.

During the start-up of the new machine at Mountainmill, a spirit of cooperation persisted until disputes arose over the rules surrounding holiday and funeral pay, which eventually escalated into a major battle concerning the distribution of overtime among maintenance workers in traditional and nontraditional areas of the mill. These disputes prompted management to shift its understanding of the team concept, retreating from its commitment to self-directed work teams in ways that left the coordinates of the new initiative that much more ambiguous. When an arbitrator ruled in favor of the workers on the overtime grievance, management refused to pay, and the cooperative relationship management had sought with its hourly employees gave way to intense discord. As one worker put it, with only a little exaggeration: "The only thing that keeps [the mill manager] alive is the company's 'no-weapons' policy."

The cases briefly described here involve situations in which managers and workers reached what they thought was a clear understanding of the rules that would govern the transition from traditional to nontraditional work systems. Yet, despite the apparent clarity, the process of change brought forward highly charged events and situations that revealed such understandings to be fraught with ambiguities. Such anomic conditions created the space for sharply conflicting definitions of the situation and of the motives each party attributed to the other, leading to the collapse of both team initiatives. When my fieldwork concluded, few workers continued to comply with the expectations of these two team systems, and the initiatives were widely viewed as deeply troubled efforts at best. Many managers acknowledged that their planning for the team initiatives was much too hastily completed, especially when compared with the careful planning and the abundant resources devoted to the technical aspects of the new machine systems.

[8] A flood had wiped out many of management's files, forcing them to rely on local union documentation. This fact, coupled with the mill's tendency to rely on customary agreements, left the status of many work rules chronically unclear, especially when shifts occurred in key management positions.

STATUS DISTINCTIONS AMONG HOURLY EMPLOYEES. Normative deficiencies in the new team systems found a second form of expression in demographically based status distinctions, especially across gender and racial lines. Analysts of workplace change have neglected these factors until quite recently (Ollilainen and Rothschild 2001; Townsend and Scott 2001), but my evidence suggests that such distinctions warrant much more attention than they have received.

On many converting machines, jobs are embedded within "lines of progression" (job ladders) that reach upward from highly routinized jobs at the sealing and wrapping ends of the machine to more highly skilled and better paying jobs at the winding end. Because work at the winders has strategic effects on the quality of subsequent operations, winder operators enjoy considerable informal authority. And because the winder's job is a heavy and arduous one, entailing the lifting of heavy metal chucks (spools), the work has historically been defined as a "man's job"; fearing both the physical and social consequences that might flow from their performance of such jobs, women have been loathe to move upward in the line of progression. As a result, a sexual division of labor is apparent within traditionally organized converting areas, with men generally controlling the winder's jobs and women clustered at the sealing and wrapping ends of the machines. Moreover, because the men have taken decades to work their way upward in the line of progression, they tend to develop a strong identification with their jobs and grow highly reluctant to perform less skilled tasks at the other end of their machines. My data suggest that *these gender boundaries are often imported into the new team systems*, establishing powerful impediments to the flexibility and job rotation that the new systems presuppose.

This pattern was most clearly apparent at Pinetown's new converting machine (Case 5). This machine was installed in the mid-1990s using a team system that has had mixed effects. The new production area was more heavily mechanized than the older converting machines at Pinetown, easing the physical burdens of the work considerably. The machine was designed to encourage a cooperative and flexible deployment of labor, and workers were expected to develop operational proficiency at both ends of the machine (winding *and* wrapping). In theory, this obligated the operators to work "flexibly"—to provide cooperation and mutual support across traditional job boundaries and to accept rotating job assignments, whether during a given shift or from one shift to the next. But in practice, things have not worked out this way.

Although women workers did tend to participate in job rotation, working either end of the machine as circumstances required, the same cannot be said for the men. The great majority of men steadfastly clung to the winding end of the machines, resisting suggestions that they take their turns at the wrapping end. Moreover, most of the men I observed were reluctant to help women workers at the wrapper except under the most urgent conditions. The women resented having to nag the men for help—the domestic parallels are obvious here—but little change has been forthcoming. The situation is described in the following excerpt from my field notes, taken at Pinetown's new converting department.

> I stroll over to talk with Kiner and Gun . . . . They're on the #10 winder, sitting for a bit as the machine seems to do well. We talk a little about the work system, and both Gun and Kiner say they don't see any reason to rotate. The reasons they give are several—they don't feel really proficient on the wrapper, they are more comfortable running the winder—but they simply seem more attached to the winders and don't want to be bothered with other parts of the machines. Kiner mentions that there is tension among crew members—"people get the red ass for whatever reason"—and he allows that most of the conflict does seem to happen across the winder and wrapper end of the machines. Asked why, he says it's because "you know what women are like—they tend to fight more when they're put together. You know what I mean?" From the wrapper end, the argument is one of resentment at the winder operators' refusal to pitch in and help their fellow crew members. But from the perspective of the men, it's really just a question of women who fight and nag too much, as women are "prone" to do. (Pinetown, March 24, 2000)

A similar pattern emerged again a few days later:

> Larry's got his hands full right now—his winder is repeatedly jamming and needs careful coaxing. So I move over to talk with Ernie for a while. He's over by one of the winders, as usual. I ask him whether there's ever much conflict among team members. Laughing at the question, he says "My Lord, yes!"—especially between the men and the women. He explains: "You got the women going 'yap yap yap' [motions with his hands to indicate flapping jaws]. You know how women are? They want everything like they want it. But we took care of that." He means that, as shop steward, he was able to find ways of reducing the obligation of senior workers to participate in job rotation. (Pinetown, March 26, 2000)

All of the evidence indicates that *gender boundaries run like an implicit seam across this converting machine*, defining one side of it as a man's territory and the other side of it as women's—constraining its functioning in various ways.

Racial boundaries sometimes played a similar role, as was especially apparent in Bordermill. Although work relations at this mill were generally, but not entirely, amicable, and the local union has elected an African American to an important position in the recent past, there are sharp racial disparities in the composition of its various departments. For example, the overwhelming majority of workers in the converting department (in which Case 1 was embedded) were African Americans—a situation that stands in sharp contrast with the racial composition of the mill's other production areas and with the make-up of the supervisory force. Senior black workers believe that such racial disparities stem from discriminatory practices during the 1960s and 1970s, when converting was "a man-killer's job" (as one worker put it) and came to be race-typed. Although there was little evidence of present discrimination, a sharp boundary was evident between the white supervisory force and the department's largely black workforce, introducing important elements of distrust into the department's team system (Case 1) and multiplying the intensity of the conflicts engendered by the organizational ambiguities discussed above.

This fact was apparent in the selection of employees for assignment to the new converting machine, as suspicion arose among some minority workers that management would try to favor whites for these higher-paying jobs. At least one African American worker chose to apply for the team system only when he and his friends concluded that whites would otherwise be preferred. Later, when the pay-for-skill system was delayed, a group of minority workers felt that neither the company nor the local union was acting in good faith and circulated a petition alleging discrimination on the part of management and their union. The minority workers in this production area were relatively senior, and most could recall the dirty and undesirable jobs black workers were initially assigned. Many felt that they had already paid their dues in multiple ways and saw little reason to provide the intense work effort their white supervisors demand.[9]

THE LIMITS OF CHARISMATIC AUTHORITY. Given the relative lack of organizational attention to the normative aspects of workplace change, some managers felt compelled to resort to an extraordinary, person-centered form of authority as a means of establishing a common bond across the class divide. Such charismatic forms of authority did for a time inspire in team members the feeling that they were embarking on an especially significant mission that warranted sacrifices and a selfless orientation they would not ordinarily embrace. However, such charismatic bonds ultimately proved highly volatile. In the absence of structural supports, the establishment of charismatic authority tended to displace social conflicts in a lateral direction, fostering disputes among production crews. These conflicts, coupled with the "shocks" of managerial succession, rendered team systems based on charismatic authority impossible to sustain.[10]

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[9] Interestingly, the successful team initiative in Bordermill's converting department (Case 3) was composed entirely of white employees, who enjoyed a greater sense of kinship with the department's managers (Townsend and Scott 2001; Vallas forthcoming b).

[10] Surprisingly, despite the purported trend toward the dismantling of bureaucracies, there have been few recent studies of charismatic authority by sociologists of work and organizations. The

The use of charismatic authority was especially apparent in the case of a business manager who oversaw the installation of Mountainmill's new paper machine (Case 7). This man, an experienced manager I will call Joseph, positioned himself as a visionary leader of the start-up of the new machine and its team initiative. Once the workforce was selected, training in both "hard" and "soft" skills was provided in a schoolhouse adjacent to the mill. Workers recall feeling part of an inspiring endeavor that was opening up new paths in the industry's history. This perception even found expression in the technical training that workers received, which was often provided by Joseph himself. Under his tutelage, workers who gained formal knowledge (replete with "diplomas" and graduation ceremonies) were encouraged to think of themselves as a distinguished group of employees, apart from and above their counterparts in the older, traditional parts of the mill. By establishing sharp distinctions between "his" team members and the hourly workers they had left behind, Joseph succeeded in blurring the boundary between salaried and hourly workers in the new area of the mill.

This aspect of the start-up is remembered quite vividly by workers in all areas of this mill. One member of the start-up crew recalled Joseph encouraging his workers to believe that "*we* walk up *here* [gestures with one hand] while other workers walk down *here* [other hand, lower]." Said a worker in the traditional production area of this mill: "It was like they were the special child. Here we were, running the mill and keeping things afloat, and *they* were off *studying* things." Another worker recalls coworkers whom he'd known since grade school snubbing him in the supermarket, as if he were no longer worthy of attention. Such divisions established sharp limits on the possible application of team systems, which the older parts of Mountainmill came to view with disdain. They also jeopardized the cooperation needed across different parts of the production complex, with information sharing across the mill sometimes becoming strained. When I asked one worker in the new production area whether he'd ever think about going back to the older department from which he came, he immediately said no. When I took this as a measure of support for the team system, he quickly corrected my interpretation: "You have to understand—if I went back over there, *those guys would kick my ass!*"

Eventually, even as anomic conditions took their toll on the team system, Joseph was promoted to general manager of the Mountainmill plant, a position that required him to adopt a new relation toward the workers he had previously managed. As he sought to cope with the needs of multiple departments within the mill, and as his successors proved unable to sustain the charismatic bonds he had established, team members increasingly felt betrayed and manipulated, and they eventually played leading roles in the effort to discredit Joseph in the eyes of corporate executives. His person-centered work regime in effect produced his own downfall: When "his" workers brought particularly damning information to light, he eventually had to resign.

The Thrust for Efficiency: Continuous Improvement, Contradiction, and Corporate Control

Thus far I have suggested that management's orientation toward the production process led it to neglect the *normative* components of the very team systems the company sought to introduce. This deficiency left the new team systems vulnerable to dislocations in varying forms. Related to this tendency was a second source of weakness in the company's new work practices, as was especially apparent in the Plant Improvement Process (PIP), its continuous improvement program. Here what occurred was a tendency to stress the *rational* components of production so heavily as to introduce significant tensions and contradictions into the process of workplace change. Because of the value that management attached to scientific and technical rationality, PIP evolved into an expert-centered initiative that eventually

bulk of the research on charismatic leadership has been driven by organizational psychologists (e.g., House, Spangler, and Woycke 1991; Shamir, House, and Arthur 1993). For an exception, see Biggart (1989).

stood at odds with the notion of worker participation itself.

Management's emphasis on scientific and technical rationality imposed two distinct limitations upon PIP. First, it often brought two distinct and incompatible logics to bear on the new team initiatives, eventually giving rise to inherently contradictory regimes on the new paper machines. Second, as part of the firm's commitment to strengthening the technical basis of its internal operations, management adopted a centralized, corporate-wide system governing PIP, lending this program a rigidity that limited its ability to engage hourly workers or to respond to local needs.

CONFLICTING LOGICS. My fieldwork provides data on social relations at three newly installed paper machines. Two of these had incorporated nontraditional work systems (Case 2 at Bordermill and Case 7 at Mountainmill). A third machine, installed at Pinetown, relied on a traditional work system and is thus not shown in Table 1.

It is vital to understand that a new paper machine often requires the investment of massive amounts of capital (sometimes in excess of $500 million) and time. Once installed, a new machine commonly generates the bulk of a mill's daily tonnage, which means that any downtime has a major financial impact on both the plant and the corporate division to which it belongs. Such accumulation pressures provide corporate executives with a powerful incentive to ensure that local production managers leave very little to either chance or to the discretion of their hourly employees. For these reasons, executives in each corporate division pursued multiple strategies for reducing the uncertainties that accompanied the operation of their new paper machines. The most obvious result was an effort, beginning in the early 1990s, to impose a system of "best practices" throughout the company's operations.

This effort, which involved the application of detailed grade recipes (directives governing machine operations), took particular force where new paper machines had been introduced. Reinforced by corporate audits of each production area, the system encouraged plant-level business managers and superintendents to "drive out the variation" within the production process—that is, to ensure that operators applied company-defined process settings rather than basing machine operations on their own idiosyncratic ideas. Managers and process engineers wholeheartedly embraced the best practices initiative, seeing it as a way of optimizing the production process. Operators responded differently, seeing the best practices as an ill-defined and often counter-productive system that infringed on their own knowledge and proper sphere of authority.

Such conflicts, common on many of the paper machines I observed, were especially heated on the new paper machines where team systems had been introduced. In these cases, production crews that were recruited on the promise of greater autonomy confronted managerial practices that instead limited their control over machine operations. Here, management's effort to quantify and standardize machine operations came into conflict with its effort to foster self-direction, giving rise to inherently contradictory regimes that were torn between two distinct logics.[11] On one side stood a logic of *standardization* that flowed from corporate management's attachment to a high-volume conception of production (as evident in the system of best practices). Yet on the other side was a logic of *participation*, arising from the effort to establish self-directed teams of autonomous production crews. Such contradictory pressures generated substantial levels of discord and disillusionment, with workers commonly complaining of being made to feel "handcuffed" or "like puppets on a string."

Resentment was especially apparent on the new paper machines at Bordermill and Mountainmill (Cases 2 and 8). At Bordermill, the company had introduced a new, state-of-the-art paper machine in the early 1990s and introduced a self-directed team system that most operators had embraced. Yet shortly after the start up, severe technical problems developed with the machine's head box (a key component that initiates the formation of the sheet), leading to significant amounts of downtime. Seeking to maintain the confidence of the corporate execu-

[11] For discussion of the concept of organizational logics, see DiMaggio (2001:230–36) and Stark (2001).

tives, the plant's production manager (appropriately nicknamed "T-Rex") insisted on applying the firm's best practices as fervently as possible, denying operators the authority to change critical process settings regardless of the situation. This approach led to lingering resentment and widespread perceptions of managerial hypocrisy. Two excerpts from my field notes illustrate the situation that occurred with respect to this machine:

> I ask Jimmy [acting as foreman], who sets the process variables? He draws close to me and, yelling over the relentless drone of the huge machine, says that committees made up of technically trained managers and engineers usually make those decisions. He refers to the old days when tenders would crank things up the way they liked and says "that don't happen anymore," for things are more tightly controlled and people must explain any changes they feel compelled to make. Jimmy knows this can be frustrating, but shrugs off what might be lost, pragmatically saying that "making broke [unsaleable paper] don't pay the bills." (Bordermill, December 16, 1999)

> Lunch is over and several operators leave, but Ray [an operator] is just arriving. . . . He says that they still feel frustrated with the best practices standards. You have to be extremely careful about changing any of the process settings, for if you do, you only expose yourself to risk. If anything goes wrong with the machine, he says, you'll be sure to be singled out as the source of the problem, even if your action was totally unrelated to the real cause. This is true even on weekends [when salaried people are not around]. Even Tuberman [a widely respected operator] had this experience recently. He changed the refiner operations to reduce their sewer losses and spills, and was even thanked by a supervisor. But when the machine went down some hours later, Bo [their superintendent] came around and reprimanded Tuberman. "It's hard to avoid becoming demoralized when this is happening all the time." (Bordermill, June 4, 2000)

When technical difficulties continued on this machine, production managers grew more reliant on corporate engineering staff, only heightening the frustration of these operators. One worker expressed his bewilderment at these developments, which he believed contradicted the needs of the process technologies they used: "It's real strange. The *controls* put you at the center of everything, but *the company* gives you less and less freedom to do your job the way you know how!"

Similar developments unfolded at Mountainmill's new paper machine (Case 7), where decisions concerning the selection of important equipment and materials began to be made over the heads of the production teams, compounding the workers' suspicions about management's motives. While working the graveyard tour, for example, the D shift discovered that a large tear had opened up in their machine's wire (an expensive plastic mesh needed to drain water from liquid pulp). Contrary to customary procedures, the crew was forced to wait several hours until a manager authorized the obvious repair—and even then, the workers were told that only *the vendor* could install a new wire (a decision they found insulting). In another case, a highly skilled worker was chastised for using a greater amount of de-foaming agent than the grade recipe allowed—a trivial intervention, about which his manager knew far less than did the worker himself. In still another case, a production crew on this machine encountered a major spillage, but was unable to reach their superintendent. Forced to take action, they responded by shutting down their machine—a reasonable decision, in the eyes of a maintenance supervisor at least, but one that infuriated their superintendent, who nearly broke the hinges on their control room door when he was told of their decision. Workers took this as yet another sign that management viewed the language of self-direction as empty rhetoric.

The result of these contradictions was a pervasive sense of frustration and betrayal among hourly workers. Some workers accepted the standardization of their jobs, despite their previous aspirations ("making broke don't pay the bills"). Other workers voiced a sense of indignation and resignation ("You begin to wonder why they keep you on the payroll if they think so little of your ability. Wouldn't you feel that way?"). Ironically, the newly installed paper machine that used a traditional work system—the one located at Pinetown—manifested substantially fewer contradictions, resulting in a markedly lower incidence of conflict and discontent,

despite the generally adversarial character of labor relations at this mill.

CENTRALIZED CORPORATE CONTROL. Reflecting the emphasis that U.S. Paper has placed on the achievement of technical efficiency, all four of its mills employed PIP, the company's continuous improvement program. Yet beneath the apparent identity of this effort can be found substantial variations in the nature and evolution of the PIP initiative across the different plants. Three mills—Pinetown, Bordermill, and Mountainmill—adopted variants of PIP that were a direct outgrowth of the corporate-mandated program, while at NewTown, PIP evolved earlier and proceeded down a different and much more locally defined path. These divergent patterns had enormous consequences and warrant careful scrutiny.

The dominant variant of PIP first emerged during the mid-1990s, when a group of senior executives and consultants designed and introduced an elaborate continuous improvement program. Implementation of this program was delegated to a cadre of 20 corporate staff members, who conducted extended site visits at each mill, training plant managers and process engineers in the system they were expected to adopt. At each initial site visit, the corporate staff conducted a "diagnostic analysis" that specified the cost reductions, broken down by business unit, that each mill would be expected to achieve. Formal evaluations (innocuously called "10,000 Mile Check Ups") were later conducted to determine each mill's relative success. Salaried employees were made to understand that their career development would hinge to a considerable extent on their enthusiastic compliance with PIP.

Implementation of PIP in this manner imposed three significant characteristics on the initiative, which were apparent at all of the mills except NewTown. First, PIP's focus was centered narrowly on mill performance and production costs. Second, PIP operated under the authority of business unit managers and process engineers, with only weak provisions made for the inclusion of hourly employees. Third, the program had few if any connective links to team initiatives, instead operating as a specialized province dedicated above all to generating enhanced economic returns.

The development of these features can most easily be seen at Pinetown, which was one of the first mills to adopt the corporate variant of PIP. In keeping with corporate directives, the plant established a steering committee composed of the mill's senior business managers. "Breakthrough" teams were commissioned on a variety of tasks, and were led by salaried personnel (mainly superintendents and engineers). Initially, the program met with some enthusiasm; a few teams succeeded in recruiting hourly workers alongside salaried employees. After the initial waves of activity, however, difficulties began to emerge. Salaried employees began to feel overwhelmed by the sheer demands on their time, and the program began to show diminishing returns. Hourly worker participation fell off dramatically. When corporate executives grew dissatisfied with the results, key members of the plant's management were replaced. Their successors managed to infuse the program with a heightened sense of urgency, but also reinforced PIP's hierarchical character, imbuing the program with an efficiency imperative that placed even greater limitations on the involvement of hourly employees.

This point was especially apparent at PIP review sessions, where team leaders came under increasing pressure to show results at the end of each business quarter. In one case, when a team leader's project had failed to produce the expected cost savings, he was subjected to a withering round of public criticism at the hands of the mill's senior managers. In another review session, a team leader suffered similar treatment for omitting a certain trend chart from his formal presentation. When local management's own consultants reported that a "culture of intimidation" had taken root within the PIP, the coordinator of the program at this mill wondered aloud to me: "If the *salaried* people don't feel they have ownership of PIP, how are they gonna convince the *hourly* people to get involved?" That question has proven difficult for Pinetown's managers to address.

Asked why so few hourly workers participated in PIP, managers cited a wide variety of reasons. Some stressed the difficulty of arranging meetings of personnel whose schedules are usually at odds (hourly work-

ers are on rotating shifts, while salaried employees almost always work days). Others pointed to the overtime costs needed to support hourly worker involvement. Still other managers suspected that hourly workers feared that any production knowledge they shared would be used against them—for example, to eliminate jobs. Yet, as many managers themselves admit, these explanations failed to capture the real reasons why hourly worker participation was so poor and how the problem might be addressed. Reflecting this uncertainty, Pinetown's steering committee went so far as to commission a PIP team for the purpose of identifying the barriers to worker participation—*within PIP itself!*

Yet the limits on worker involvement clearly lay far beyond the reach of any "breakthrough" team and reached deep into the very way PIP had been conceived and introduced. By vesting control over the program within the mill's senior business managers and process engineers, focusing its work single-mindedly on efficiency improvements, and pressuring engineers to deliver performance gains timed to coincide with quarterly business reviews, corporate managers had set in motion a set of organizational processes that inevitably reproduced the boundary between salaried and hourly employees. Not surprisingly, even when operators *did* attend PIP meetings, they often came away shaking their heads and resolving never to return.

One instructive example emerged in Mountainmill, where a PIP team was established to reduce the use of starch on the mill's new paper machine. The team leader, a process engineer, began by taking some technical readings and modeling the expected variation in starch consumption on the basis of theoretical assumptions that seemed plausible to him and the other salaried employees on this team. The work unfolded with little involvement from hourly workers until one dissenting engineer made an effort to consult with production crews, eliciting a number of suggestions he felt were highly promising. His counterparts were loathe to pursue the new ideas, however, fearing that a change of direction might delay their progress report. Eventually, the team submitted a favorable report on time, but completely ignored the hourly workers' ideas. Although the team leaders claimed to have achieved significant cost savings, the report was later found to have used erroneous process readings. Although the hourly workers felt vindicated, none of the operators on this machine bothered to participate in PIP from that point on.[12]

AN EXCEPTION. That this corporate-mandated variant of PIP is not the program's only incarnation, however, is suggested by the very different evolution that Continuous Improvement has received at the fourth mill included in this analysis. Analysis of the evolution of PIP at NewTown provides a revealing comparison with the pattern that predominates at the other three mills. A brief narrative is instructive.

The conditions that preceded PIP's introduction at NewTown could not have seemed auspicious in the least. This mill had suffered intense industrial conflict in the mid-1980s and was sold to U.S. Paper under circumstances that provoked considerable bitterness among hourly employees.[13] Given the poor state of labor relations at this mill, corporate executives adopted a policy of benign neglect toward NewTown. Local plant managers tried various means of reestablishing trust with workers, one of which involved a system of employee involvement. By 1991, NewTown's managers elected to adopt a continuous improvement program as a local initiative, reflecting growing interest in the quality movement in U.S. industry generally. Initially, the effort at NewTown aimed solely at enhancing mill performance, but during the formative period of the program two events occurred that deflected PIP down a distinctly different path.

The first such event occurred in the early stages of the program when management named a number of nonunion members to PIP teams. This step constituted a slap in the face to the local unions at NewTown and

[12] Similar patterns obtained at both Pinetown and Bordermill, with some hourly workers simply standing up in team meetings and declaring the meetings to be a waste of their time.

[13] All employees were terminated by the new employer and forced to reapply for their jobs. Several dozen were never rehired—an ongoing source of bitterness for several years.

prompted union representatives to insist on the right to appoint the hourly worker participants on PIP teams. Management gambled and agreed, and the program was reconfigured to allow for union participation. Gradually, each side began to find value in the jointly run program: Union leaders were pleased to find that PIP promoted a sense of personal efficacy among workers that seemed to encourage greater involvement in local union affairs. For its part, management found that PIP's inclusion of hourly workers served to enrich the pool of knowledge at the company's disposal while also serving to rebuild worker trust.

The second formative event occurred during contract talks during the mid-1990s, when negotiations ran into major stumbling blocks, jeopardizing the improved labor relations that NewTown had begun to develop. Protesting the logjam in contract negotiations, 29 workers who had actively participated in PIP threatened to withdraw from the program, prompting corporate management (with local management's prodding) to adopt a new posture at the bargaining table. A key lesson from the union side was that workers' participation in PIP could provide a lever with which to gain benefits in the collective bargaining arena.

Because NewTown's variant of PIP has not been tethered to corporate control, it has been able to adapt to local exigencies, acquiring three important features that have underpinned its success. First, by mutual agreement, it has acquired a structure that is broadly inclusive of all plant employees: Hourly workers account for half of all members on the PIP "action" committee and each of the teams it commissions. Second, while the corporate-driven variant of PIP is concerned solely with enhancing the performance of each business unit, NewTown's version of the program has embraced a wider and more worker-centered set of goals that encompass safety and working conditions as well. PIP teams have been commissioned to enhance the processing of safety work orders, for example, which has helped legitimate the program in the workers' eyes while enabling the plant to post an exemplary safety record as well. Third, and growing out of PIP's widened composition and focus, the program is not a restricted component or element within plant operations, but is instead woven into the structure of mill governance, engendering an important shift in the mill's authority relations as a whole. Hourly worker representatives on the PIP action committee have begun to enjoy powers far beyond those established through collective bargaining, as decisions involving managerial succession, discipline, safety violations, and other operational matters are no longer made without the approval of the local unions' leadership. In effect, members of the local union executive board have assumed co-equal status with plant management at each level of the organizational hierarchy. Training for supervisors and stewards is now conducted jointly, ensuring that both sides share a similar understanding of the collective bargaining agreement and the structures that govern mill operations.

Although such arrangements begin to recall the parallel system of co-management developed at Saturn (Rubinstein 2000; Shaiken et al. 1997), they differ from such approaches in one important respect: certain traditional arrangements have been left unchanged. For one thing, there has been no attempt to uproot the place of supervisors or seniority systems. For another, there are no elaborate designs governing the manner in which PIP must be run, and few formal systems for tracking the work of PIP project teams. In these respects, NewTown's efforts have a great deal in common with the smaller, less formal team initiatives that have succeeded in developing viable systems of governance without relying on formal, consultant-designed programs instituted from on high. Drawing on the traditional sources of moral authority that paper workers have exercised over production crews—that is, on the inherited practices of an indigenous occupational community—such efforts have apparently progressed further than have those constructed in keeping with corporate-defined coordinates.

The contrast between Pinetown and NewTown is especially instructive. Both mills suffered adversarial labor relations as the legacy of industrial conflict during the mid-1980s. Both mills adopted a continuous improvement initiative as a means of enhancing mill performance. Yet at NewTown, where plant management enjoyed important

elements of flexibility and autonomy, the "same" continuous improvement program engendered a far more favorable, mutually beneficial system of plant governance than where these conditions did not exist. At Pinetown, where plant management was firmly embedded within a structure of corporate control, the continuous improvement program remained rigidly bound to the efficiency imperative, impeding the development of a normatively grounded system of governance like that which NewTown has built. While the NewTown plant hardly provides a universally applicable set of solutions for troubled labor relations, its experience suggests that plants that stand removed from centralized corporate control may more easily achieve the normative integration that new work practices require.

CONCLUSION

I have set out to achieve two goals: To characterize the process of workplace change at four manufacturing plants during the 1990s, and to identify the major social and organizational conditions that have affected the course of workplace transformation. Using qualitative methods, this study contributes a number of findings that hold significance for both the theory and the practice of workplace change.

First, and at the most general level, the study provides an image of workplace change that is at odds with the idealized conception of team systems found among both advocates and critics of the new work systems alike. Rather than articulating a heavily normative or moral rhetoric, the firm studied here generally exhibited little inclination to develop an overarching normative orientation that might elicit the commitment of its hourly employees. Indeed, it was precisely management's inattention to such normative matters that left the firm's work systems vulnerable to both anomic tendencies and to inherited status distinctions among hourly workers, both of which limited the functioning of team initiatives. Such normative deficiencies also compelled plant managers to rely on their own personal resources, invoking charismatic patterns of authority in lieu of broader organizational symbols and ideals. Such person-centered efforts ultimately proved highly volatile and unstable, inviting conflicts that proved difficult for management to contain.

A second set of obstacles to workplace transformation stemmed from the rhetorical constructs that *were* apparent in these mills. Most salient in this respect was a heavily rationalist, quantitatively based conception of production that was favored by process engineers at various levels within the firm. This approach was especially manifest in the company's implementation of best practices and continuous improvement processes, both of which emphasized the need to standardize machine operations, using scientific expertise as the basis for process control. Although this expert-centered orientation enabled engineers to claim positions of increased centrality within most of these mills, it imposed sharp constraints on the discursive legitimation of the new work practices. The result introduced salient contradictions into the company's production areas, limiting the degree to which workplace change might effectively proceed.

These findings hold a number of implications for previous efforts to explain the limits of workplace change. Labor relations researchers might argue that these findings stem from the inherent character of lean production itself. From this point of view, the firm's stress on best practices and the standardization of production methods, coupled with its relatively weak emphasis on the normative or integrative aspects of organizational life, represent signature expressions of the quality movement and its overly quantitative, Deming-based outlook. Although this interpretation has some merit—studies of Total Quality Management in particular *do* resonate with the present study's results (cf. Klein 1994; Prechel 1994; Vallas and Beck 1996)—such an approach overlooks the variations that emerged even where the same form of workplace change was involved.

Recall that all four of the mills in this study made a determined effort to introduce continuous improvement initiatives throughout their production areas, and they did so with an eye toward enhancing the performance of mill operations. Yet, as this study has shown, *the same initiative unfolded in very different ways*: Under conditions of

centralized corporate control, plant managers had little capacity to adapt the program to suit local needs, generating a palpably hierarchical outcome that only reproduced the boundary between salaried and hourly employees. By contrast, under conditions of local autonomy, the same initiative seemed far more malleable, evolving in ways that generated significantly higher levels of normative integration across the salaried/hourly divide. Thus, rather than viewing the outcome of particular work practices as unmediated reflections of their essential traits (Hunter et al. 2002), we need to acknowledge that even similar managerial practices are likely to manifest highly variable features, in keeping with the conditions under which they are introduced (Katz 1985).

These findings also hold implications for approaches toward workplace change that are steeped in the concept of organizational inertia (Hannan and Freeman 1984; Pettigrew 1979; Schoenberger 1997). Interestingly, the concept of inertia is not solely the property of academic theorists: This industry's managers often attributed the failure of team initiatives to the traditional inclinations of the hourly workers, who are said to resist changes of any kind (Vallas and Beck 1996). The problems with this view, whether in its academic or its lay formulations, are several: It unfairly characterizes traditional cultural forms as rigid or irrational, it forecloses the possibility of a genuine dialogue concerning workplace change, and it overlooks the role played by new and decidedly *non*traditional impediments to organizational change, such as management's growing reliance on scientific and engineering expertise.

To be sure, the traditional culture of hourly employees can at times impede organizational change—a point that is especially clear in the status distinctions drawn among hourly employees. Yet to view workers' culture *only,* or even *predominantly* in these terms is to distort its actual characteristics. Recall that the most successful efforts at introducing team initiatives (Cases 3, 4, 6, and 8 in Table 1) were those that relied on the informal or customary practices operators had established among their own ranks. These practices drew on cultural patterns that were indigenous to production crews, in effect providing the functional equivalent of self-directed work teams. Much the same seems to have occurred on a much larger scale within NewTown as a whole: Here, managers and workers developed a new system of mill governance that rejected the highly formalized, consultant-designed work system introduced at the firm's other mills, instead drawing on normative elements inherited from the past. These cases begin to suggest that "traditional" cultural patterns can provide important resources for the production of innovative work practices, assuming a role that is rather different and more dynamic than theories of inertia allow. Rather than looking to management consultant firms, or to the canon established within leading business schools, managers might more effectively tap cultural forms indigenous to the occupational community that hourly workers have long sustained.[14]

These findings also have bearing on approaches toward workplace change that view middle managers as a key source of resistance to workplace transformation. This approach, most powerfully articulated in Zuboff's (1988) own study of the paper industry, rests on a two-fold characterization of management: It views middle managers as motivated by a parochial defense of their own status and authority, while representing corporate executives as the bearers of a cosmopolitan outlook that favors the empowerment of subordinate employees. As should by now be clear, my findings support a very different view from that which Zuboff advanced. For one thing, mid-level managerial and engineering employees did not merely *resist* organizational change or *defend* their traditional authority; rather, they used selective features of the new work practices to *expand* their authority in ways they had not previously enjoyed. More important, corporate executives showed little support for the egalitarian, "post-hierarchical" conception of production that Zuboff describes. Indeed,

[14] Said a supervisor at Mountainmill: "I don't care who I work for, or what the sign on the smoke stack says. This is *our* mill. *We* got to run it and make money for our families. . . . It'd be a whole lot easier if management would just get the hell out of our way." So intense a pattern of commitment might easily provide the basis for self-direction, though in far less corporate a form.

by imposing a standardized, centralized approach on plant operations, corporate executives set in motion processes that reproduced the very hierarchies that workplace change sought to transcend. Ironically, successful implementation of workplace change may hinge on the ability of corporate executives to demonstrate the very capacity for flexibility that they so often demand of their hourly employees.

These findings also speak to the power-process model that Thomas (1994) has advanced. In keeping with Thomas's case studies, my own analysis suggests that the outcome of workplace change initiatives tends to reflect the distribution of control over the implementation process itself. Where continuous improvement and best practices initiatives were embedded within a corporate-wide thrust for efficiency, the outcome tended to exclude hourly workers, fostering an increasing standardization of their work and allowing process engineers to claim increasingly central roles within the firm. Where conditions acted to disrupt the predominant pattern of centralized corporate control, however, the reproduction of Fordist hierarchies tended to be subverted. These points of convergence between Thomas's findings and my own underscore the need for research focused on the structure of the innovation process itself. They also suggest that, unless large firms can find ways of building local autonomy into the process of workplace change, the results are likely only to reproduce the very hierarchies the new work practices seek to uproot.

There is, however, an important point of divergence between Thomas's case studies and my own, involving the role of organizational contradictions. Thomas (1994:247–48) identifies two distinct organizing principles that inform the restructuring of work—"integrative" and "zero-sum propositions"—but conceives of them as mutually exclusive logics that cannot coincide. In this respect, he mirrors the wider tendency, evident in labor process theory in particular, to attribute a uniformity or internal consistency to systems of managerial control, as if the latter were contradiction-free (Storey 1985; cf. Cockburn 1983:10–11; Fantasia 1988). Yet my research begins to suggest that *organizations undergoing change often combine distinct and conflicting logics at one and the same time, giving rise to inherently contradictory regimes* (Stark 2001). As I have shown, two of U.S. Paper's new paper machines exhibited two incompatible logics (one based on participation and a second premised on standardization). Indeed, it was precisely such contradictions that seemed to produce the cynicism and distrust that workers voiced concerning management's *real* priorities. Ironically, the new paper machine that displayed the lowest incidence of discontent and distrust was one that refrained from implementing team systems in any form.

Contradictions were also apparent at a broader level, running between distinct strands of workplace innovation: self-directed team systems and continuous improvement initiatives (PIP). In *theory*, these two strands would be woven into a single, integrated process of organizational innovation. On-line production teams would be organically linked to the work of continuous improvement, providing a normative or moral framework within which innovation might proceed. In *practice*, however, the two strands of organizational change developed independently and in conflicting ways: PIP unfolded with no connection to team initiatives and implicitly contradicted the latter's rhetoric of worker participation. Though my own data are limited on this point, the reason for this segregation of the two forms of innovation may lie within the organizational structures in which corporate executives were embedded. Interviews with corporate managers unearthed significant organizational divisions between production executives and human resource personnel. The former were far more powerful than the latter, tended to advocate the more heavily quantitative program that sought to standardize machine operations, and favored imposing a tight regimen of best practices. Although human resources executives did manifest a distinct outlook (one that was more concerned with cultivating worker participation), they and their small bevy of industrial psychologists were simply overwhelmed by their more potent counterparts within the firm. This point, which resonates with strategic choice theory (Child 1972; cf. Fligstein 1987, 1990), suggests that political

divisions among elite managers may have had significant consequences at the point of production itself, lending a contradictory quality to the work systems the firm eventually pursued (Jacoby 1985; Prechel 1994).

These observations regarding organizational contradictions begin to raise important questions as to whether or how conflicting logics at the level of the plant might be reconciled or resolved. As noted above, some organizational theorists envision a strong program of change that seeks to synthesize, or fuse, the "rational" and the "normative" elements I have described (Adler 1991; Kern and Schumann 1992). A second, less ambitious approach is agnostic about such syntheses, and instead suggests that firms seek to find advantage in the continued coexistence of disparate orientations toward production. The latter approach is developed by Stark (2001), who uses the concept of "heterarchy" to refer to organizations that manage to "interweave a multiplicity of organizing principles" in ways that engender the "asset of ambiguity"—that is, a deeper understanding of production methods than would otherwise be possible (Stark 2001:74, 78). Either way, the implication is that the pursuit of workplace change is most likely to advance when the presuppositions that underlie production knowledge and expertise can be subjected to open and unconstrained debate, rather than simply imposed in the name of scientific expertise (Kuhlman and Schumann 2001).

The feasibility of such possibilities within U.S. manufacturing may partly hinge on the role that labor unions play within the process of workplace change. The evidence reported above, while limited in important respects, begins to suggest that a positive relation exists between local union involvement and the success of workplace change. The difficulty in the present study is that the effects of centralized corporate control are too closely entangled with the level of union involvement to permit robust causal inferences. Still, the pattern reported here is suggestive: Expert-centered forms of work organization developed their deepest roots in the three mills where local unions were weakly involved in the process of workplace change. The implication is that it may not be the mere *presence* of union representation—a constant factor at all four of these mills—but rather active union *involvement* that helps to drive the outcome of workplace change. If so, then industry-wide agreements reached between corporate executives and International union officers (as in the steel and auto industries; see Hunter et al. 2002; Shaiken et al. 1997) will have little transformative effect unless local union leaders gain the capacity to shape team systems from below in accordance with the members' own culture and traditions (Frost 2000; Shaiken et al. 1997). Needed are carefully designed studies that can disentangle the effects of labor union involvement and corporate control, using more sophisticated measures than the typical union "presence/absence" dummy variable.

Yet the difficulties that labor unions face may be more broadly rooted than deeply entrenched and rigid corporate dispositions: Additional difficulties may exist deep within the institutional environments that surround the firm, constraining workplace change in various ways. Twice during data collection, interviews with senior corporate executives were interrupted when financial analysts released reports concerning U.S. Paper's performance and strategic initiatives. Clearly, such financial reporting had material effects on the firm's standing and exerted considerable pressure on executives to maintain close control over mill operations. This suggests that the dominance of a quantitative logic that stressed scientific and technical rationality and standardized forms of mill operations may reflect the growing power of institutional investors, financial analysts, and standards-establishing groups such as the International Standards Organization (Fligstein 1987, 1990; Useem 1996). Such institutional pressures may very well have gathered force during the 1990s, combining with various sources of uncertainty (e.g., layoffs, mergers and acquisitions, the outsourcing of work to temporary help firms) to increase the contradictory nature of the innovations that workers encounter in their jobs (V. Smith 2001). Conceivably, such institutional pressures may lead executives to pursue the *external* legitimacy of the firm, adopting orientations and practices that in the end actually undermine the *internal* legitimacy new work practices enjoy in the eyes of the firms'

employees. The bearing of multiple institutional pressures on the process of workplace change constitutes an important and largely unexplored terrain for future research.

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