
EXPLORATIONS

Present Tense Technology

DAVID F. NOBLE

PART TWO

Labor's response to the first Industrial Revolution set a pattern that was repeated in the wake of the second. Once again it was the workers immediately affected by the changes who first sounded the alarm, described the dangers, and undertook direct means to try to slow the assault on their jobs and lives. And once again the issue of technological change was expropriated from the workers by those who spoke for them. The issue was removed from the point of production to executive offices and research centers, where it was fitted into ideological and political agendas of future progress. The result was a loss not just of an understanding of the reality confronting workers but of a strategy for dealing with it—in the present.

What mechanization was to the first Industrial Revolution, automation was to the second. The roots of the second Industrial Revolution lay in the state-sponsored technological developments of World War II. Military technologies—control systems for automatic gunfire, computers for ballistics and A-bomb calculations, microelectronics for proximity fuses, radar, computers, aircraft and missile guidance systems, and a host of sensing and measuring devices—gave rise to not only programmable machinery but also “intelligent” or self-correcting machinery. In the postwar years, the promotion of such technologies was fueled by Cold War concerns about “national security,” the enthusiasm of technical people, management's quest for a solution to its growing labor problems, and by a general cultural offensive to restore confidence in scientific salvation and technological deliverance following the twin traumas of depression and global war. Often with state initiative and subsidy, industrial application of these new technologies (as well as an intensification of older forms of fixed automation and mechanization) began to take hold, in steel, auto, petroleum refining, chemical processing (and uranium enrichment), and aircraft, machinery, and electrical equipment manufacture, among others.

The threat to established work rules, working conditions, and job security posed by the introduction of such technological changes sparked strikes, sporadic sabotage, and, during the late 1950s and early 1960s, a wide-ranging debate about social implications of automation. The trials of the longshore-

men facing containerization, the printers facing teletypesetting and computers, and refinery workers confronting computer-based centralized process-control were the focus of attention. Despite the efforts of rank-and-file workers in these industries to prevent or at least slow down the introduction of these technologies (which had been designed, in part, to reduce their power as well as numbers) through the use of strikes and other forms of direct action (as well as demands for veto power over the decision to introduce the new systems—as proposed by the printers), their unions uniformly bowed to the hegemonic ideology of progress. Denying steadfastly that they were against technology, union leaders strove to avoid media charges of Luddism and either conceded the futility of opposition and yielded, or endorsed the notion that such technological changes were the surest route to prosperity.

Union leaders used the same charges of Luddism against more militant union members who refused to comply. While some unions did succeed in gaining a measure of compensation and job protection for some of their members, they all yielded completely—over significant rank-and-file protest—to management's exclusive right to decide on new technology. By 1965, government spokespersons were offering reassurances that fears about automation were unwarranted. These reassurances seemed credible in a period of economic expansion, even though that expansion was largely inspired by the state-sponsored enlargement of the "service sector" and the promise of a Vietnam War boom. Economists revealed that the very idea of technological unemployment was simply a semantic confusion, since technological development invariably created more jobs than it eliminated. In reality, the costs of the changes were concealed in the aggregate by an expanding economy and the temporary absorptive power of the service sector, as well as by the fact that in most cases the new technologies were still in their infancy and their full impact was yet to be felt. But the union leadership prematurely abandoned the struggle, and, echoing the official optimism, reaffirmed the ultimate beneficence of technological progress.

Those who continued to lose their livelihood or watched the steady deterioration of their working conditions and the erosion of their control over their jobs were undoubtedly not amused—neither were they heard. Their plight remained hidden, despite frequent subdued rumblings, while the nascent technology of automation began to reach maturity and find fuller and wider application. Thus, the increasing displacement, deskilling, and disciplining of workers in industry proceeded apace, largely unnoticed except by the workers themselves, until, by the end of the 1960s, the situation exploded in an upsurge of pent-up rank-and-file militancy.

The late 1960s and early 1970s were marked by an outpouring of worker initiative, cynicism, and rage about union leadership collaboration, and a renewed emphasis upon direct action. In June 1970, the *New York Times* noted "signs of restlessness in the plants of industrial America, and increasing dissatisfaction

and militancy." "At the heart of the new mood," the *Times* observed, "there is a challenge to management's authority to run its plants," as well as a distrust of traditional union and collective bargaining processes: "the older generation would have filed a grievance. The young people have no faith in that. They want it settled right away." There is a feeling of "not wanting to be an IBM number, just part of the machinery," the *Times* added, concluding that "there's a big explosion coming in the industrial unions." The *Wall Street Journal* noted the same month that the number of grievances had grown enormously, primarily against layoffs, the down-grading of workers, and speed-ups. According to the *Journal*, many experienced observers considered the situation "the worst within memory."

Workers such as the teamsters, post office and telephone workers, coal miners, and steelworkers resorted to slowdowns, absenteeism, wildcat strikes and other means of direct struggle, to the extent that *Fortune* had to alert its readers that management was "dealing with a workforce . . . no longer under union discipline." In addition to these traditional forms of protest, there arose new forms of direct action, shopfloor organization, counterplanning strategies against management, rank-and-file caucuses against union leadership, and systematic sabotage. In one automobile engine plant in Detroit, for example, one worker observed "plant-wide rotating sabotage programs": workers took turns sabotaging the production process, routinely producing damaged or defectively assembled products until reject rates of 75 percent forced unscheduled shutdowns of the entire plant. "The biggest issue really comes down to what we working people are going to accept as 'progress,'" declared a leaflet put out by the Longshoremen of San Francisco during their strike of 1971. "We, like many other workers, are faced with a technological revolution of new 'labor saving' devices and methods of operation. This is what our employer means by 'progress.' But, if this 'progress' is left unchecked it will simply mean that our employer will line up at the bank with ever bigger profits, while we line up at the unemployment and welfare office. It is essential for labor," these workers insisted, in defiance of both management and their own International, "to challenge the notion that the employer—in the name of 'progress'—can simply go ahead and slash his workforce or close his factory or, as is being planned in our industry, close an entire port, and to do this without any regard for the people and community involved."

This upsurge in rank-and-file direct action was symbolized by the wildcat strikes and creative sabotage of production at Lordstown, General Motors's most automated assembly plant. There workers openly defied the new production system, and their actions, according to Pierre Dubois, "freed [them] from inhibitions and their fear of management." In addition, it liberated them from traditional taboos and the mindset of technological determinism. In their protest against degraded working conditions, they proclaimed that technological progress was a political rather than an automatic, inevitable, natural process. Thus, their protest

gave rise to a radical critique of the neutrality of science and technology. Moreover, as Dubois observed, they "had the satisfaction of having dared to maltreat their equipment." Such direct action at the point of production was by no means limited to the United States; it erupted with equal or greater force in France, Italy, Germany, Scandinavia, and elsewhere. There too it signaled a rise of rank-and-file power within the unions and thus a return to the challenge of the second Revolution in the concrete and in the present.

Dubois observed in 1975:

The spread of sabotage indicates a determination by the rank and file to make their own decisions. The waves of strikes in the late 1960s resulted in giving the rank and file far more power [and] the spread of various forms of sabotage . . . is due to workers on the shopfloor having a greater say over what forms of struggle they will adopt. The fact that some unions now leave their membership free in this respect is directly due to shopfloor pressure. People can decide on the most appropriate form of action in relation to their own particular situation, and may well decide on sabotage if it seems advantageous. It is largely the increasing role played by workers as a whole in running their own struggles that explains the increase in sabotage.

As workers fought to overcome their political subordination within their own organizations, their plight became more visible. And as they began to achieve their aim, the struggle against capital became less ideologically constrained and thus more direct and effective. As workers became sophisticated about the ways that the new integrated automation systems rendered management even more vulnerable to sabotage than before, new forms of direct action emerged and spread throughout the workforce, to the skilled and unskilled alike, young and old, unionized and nonunionized, men and women, veterans and new industrial workers, in all industries.

In searching for new forms of struggle, and encouraged by an expansive economy, workers regained their confidence and asserted their own power—over technology, progress, historical necessity, capital, management, expertise, and union leadership. Acting upon their own experience they took their fate into their own hands and, for a moment at least, shook the world. As historian Jeremy Brecher wrote at the time, "Today, there is an enormous cynicism about leaders and organizations of all sorts. This cynicism often looks like apathy, especially to aspiring leadership groups like various insurgents and leftist parties. . . . But it also means that if and when large numbers of workers again move into action, they will be better inoculated against the appeals of 'leaders' and may try to keep control of the struggle in their own hands." Brecher was correct, and he was not alone with this understanding. Almost immediately, recognizing the danger to the established institutions, unions, managements, and governments strove to recapture the ini-

tiative, regain control, and quiet the rebellious ranks. Among other things, this effort once again removed the issue of technology from the shopfloor, from the workers, and from the present.

As with the Luddite revolts of the first Industrial Revolution, resistance to the second Industrial Revolution was met with repression. People were disciplined, jailed, isolated, and otherwise intimidated. In 1970, for example, France passed a new law against "all instigators, organizers, or deliberate participants in sabotage." While using the upsurge to advantage at the bargaining table, the unions—liberal, social democratic, and communist alike—condemned much of the direct action and publicly distanced themselves from it.

Management responded to the wave of rank-and-file militancy with disciplinary measures, lock-outs, and legal devices, as well as by designing and introducing new technology that, it was hoped, would diminish the possibility of worker intervention in production or eliminate the need for workers altogether. In addition to these traditional responses, the managers of some companies experimented with new methods—so-called job enrichment, job enlargement, and quality-of-worklife schemes—designed to absorb discontent and redirect energies along more productive paths. Sweden was a center for such experimentation and became a model throughout the industrialized world.

"Far from being motivated by a new cooperative attitude between labor and capital in Sweden," however, as auto-industry historian David Gartmann has noted, "these changes in technology and work [were] the results of renewed class struggle." Sweden too had been struck by an epidemic of worker rebellion and resistance even more severe than in the United States; absenteeism, labor turnover, and wildcat strikes had escalated dramatically. At Volvo, daily absenteeism had reached over 15 percent and annual labor turnover peaked at over 50 percent. "The main reason for such resistance," Gartmann noted, was "discontent with the stultifying, monotonous, and intense nature of the work itself," which was reinforced by the introduction of automation. P.G. Gyllenhammer, Volvo president at the time, acknowledged that "labor unrest that became visible in 1969 made it necessary to adapt production control to changing attitudes in the work force."

In the United States, many companies also initiated job-enrichment schemes to try to regain the loyalty and cooperation of the workforce as well as to insure the fullest utilization of expensive new equipment. Most of these experiments succeeded in terms of increasing productivity, output, and quality, and reducing absenteeism and turnover, but they were terminated once the work force began to use their expanded responsibilities to try to extend further their control over production. Nevertheless, for a time at least, the so-called humanistic approach to management held sway, and became official gospel with the publication in 1973 of *Work in America*. This study was the product of a special task force commis-

sioned by HEW Secretary Elliott Richardson in 1971 in response to the emergence of what he condescendingly referred to as the "blue collar blues" and the "white collar woes."

"Great care must be taken to interpret wisely the signs of discontent among workers," the commission advised. "Increased industrial sabotage and sudden wildcat strikes, like the one at Lordstown, portend something more fundamental than the desire for more money. . . . The impact of technology has been acutely felt by the blue-collar worker—not necessarily because it puts him out of a job but because it lowers his status and satisfaction from the job. . . . While many industrial engineers feel that gains in productivity will come about mainly through the introduction of new technology," the commission pointed out—and this was the attitude behind the design of Lordstown—the result has been collective resistance, wildcat strikes over the pace of production, and opposition to "robot-like tasks." In general, it has given rise to a growing hostility to the traditional forms of management, the "anachronistic authoritarianism of the workplace." Thus, in the wake of the second Industrial Revolution, the commission found that "the productivity of the worker is low—as measured by absenteeism, turnover rates, wildcat strikes, sabotage, poor quality products and a reluctance of workers to commit themselves to their work tasks."

The commission was concerned that such dissatisfaction could have serious consequences beyond the workplace as well as within it. If industry was suffering from low productivity and high rates of sabotage, absenteeism, and turnover, the unions were paying a price through "the faltering loyalty of a young membership that is increasingly concerned about the apparent disinterest of its leadership in problems of job satisfaction." For the nation as a whole, the commission warned, the discontent was resulting in staggering health bills and mounting crime and delinquency. "Most important" were the political consequences: "the discontent of women, minorities, blue-collar workers, youth and older adults would be considerably less were these Americans to have an active voice in the decisions in the workplace that most directly affect their lives."

To stem this growing threat of rebellion, increase productivity, and reinforce the stability of existing institutions, the commission proposed greater "participation": "several dozen well-documented experiments show that productivity increases and social problems decrease when workers participate in the work decisions affecting their lives." The commission thus reflected and reinforced the effort to substitute participation for power, experiments orchestrated from above for resistance and "counter-planning" organized from below.

Throughout the country, many unions entered into such cooperative participation relationships with management, with government encouragement, and, as a result, enlarged the scope of bargaining and their involvement in management activities. For the unions, then, the upsurge in rank-and-file militancy led to some victories vis-à-vis management. But for the workers themselves, whose lives were

temporarily enlarged as a result, such victories proved short-lived and severely limited. More important, in the wake of these limited gains, the rebellious energies that had brought them about dissipated and all but disappeared. In their place arose committees, rules, agreements, and other formal devices for dealing with the new challenges at the workplace, including the challenge of new technology.

While the upsurge of rank-and-file militancy revived interest in the workplace among social critics and gave rise to a penetrating critique of the modern science and technology of production, the defensive response to that upsurge gave rise also to a formalization of the technology issue. As critics reexamined the social, political, and cultural dimensions of "progress," corporations, governments, and trade unions (especially in Europe) established new bureaus, programs, research projects, and centers intended to coopt the rebellion by institutionalizing it. It worked. Before long, new academic disciplines in "technology and work" had gained respectability, generating a new form of professional career. The new professionals were called "technology researchers" in Scandinavia and elsewhere; the more politically motivated became known as proponents of "action research." Whatever their motivation, sympathies, political commitments, or intellectual interests, they all made a career of the problem above and apart from (and, in some cases, substituted for) the practical challenges facing workers. As a result of this vested interest, and regardless of their other purposes, they sustained and pushed forward the formalization of the technology issue.

Still building upon the energies unleashed by the workers themselves, the professionals soon produced a plethora of publications, conferences, and research, and assisted the trade unions in formulating new contract language and, ultimately, new agreements on the introduction of new technology. Whatever these gains, however, they were achieved at the expense of removing the technology issue from the shopfloor and thus from the realm of direct action available to the workers themselves. "With increasing formalization," Dubois observed in 1975, "the spread of sabotage could once again be held in check by pressure from trade union organizations opposed to it." At the same time, as a consequence of its removal from the point of production, discussions of the technology question became increasingly abstract and future-oriented—abandoning the present as a realm of the struggle.

The so-called new technology agreements originated in Norway, the product of an unprecedented "action" research collaboration between the Iron and Metal Workers Union and the Norwegian Computing Center. Launched in 1969 as a direct result of the rank-and-file upsurge, the Norwegian project gave rise to both local and national agreements over the introduction of new technology, "data" shop stewards (specifically charged with policing the new technology), and formal trade-union participation in decisions about the introduction and use of new

technologies. The agreements, grounded upon social democratic legislation for protection of the work environment, in principle went beyond previous agreements over technology such as those pioneered by the Longshoreman and Warehouseman Union and the International Typographers' Union in the United States. They were not confined to the post hoc protection of workers from the consequences of progress but were intended to give unions a say in what the progress itself would look like. Following upon the pioneering Norwegian experience, similar projects and agreements were formulated in Sweden and Denmark while, around the same time, parallel formal processes were established in Holland, West Germany, and Italy—all, again, in response to the general climate created by the wave of rank-and-file militancy. In principle, these agreements constituted a significant advance for the trade unions and a potential challenge to traditional management prerogatives. In practice, however, they were rarely used to prevent the introduction of new technologies. Indeed, the agreements often served to circumvent worker opposition to the introduction of new technology.

In Denmark, for example, the central federation of trade unions successfully opposed widespread worker insistence on the right to veto new technology. In England, Barry Wilkinson found that agreements were reached only after the technological changes in question had been implemented and remained concerned solely with post hoc matters of payment, redundancy, and retraining. Wilkinson concluded from his study of the politics of new technology that "traditional methods of bargaining are wholly inadequate for technological change" and, more important, that "despite the current popularity of new technology agreements," and "the flurry of publications on 'the new technology' . . . bargaining over skills and the organization of work remains at an unofficial, often covert level." In other words, the real struggle over the new technology has continued to take place on the shopfloor itself (in outright resistance, ad hoc negotiations, and sabotage), regardless of and sometimes in spite of the formal agreements. Workers have increasingly learned not to rely too heavily upon formal agreements for the protection of their jobs and working conditions.

While the new technology agreements have perhaps provided some post hoc protection for workers, they have had little or no impact upon the actual design and implementation of technological changes. Indeed, it has been suggested that, if anything, the agreements have probably facilitated the introduction of the Trojan horse of new technology within the shops, that the trade unions with their formal agreements have—in the words of Stan Weir, one rank-and-file opponent of the ILWU "Mechanization and Modernization" Agreement of 1960—"run interference for the new technology" by weakening workers' resolve and ability to resist. Removed from the shopfloor, the issue of technology has been formalized and packaged and then returned, from above, in a form that generates both false security and confusion and eliminates the possibility of direct action. Thus, the formal agreements, while in principle signifying a challenge to es-

established management rights, in practice have perhaps taken the teeth out of such a challenge. And, despite their formal stance against the harsh consequences of technological change, trade union leaders have continued to echo the proud pronouncements of the past that they are not, after all, against progress.

At the same time, reacting to the accelerating technological agenda of management—which has always used change as a tactic to disorient its opposition—the unions have been forced onto the defensive. Trying to hold on and keep track of (if not pace with) new developments, the unions have been forced to focus upon what is changing (technology) and to ignore what is not (the dominant relations of power). While this exercise in frenetic futility has done little to help the unions and their members find a way out of their predicament, it has provided a great deal of full-time work for researchers. Seduced into the details of the technology and endlessly documenting the horrors, they have intensified the trade-union obsession with professional rather than worker competence and even lent a degree of polite respectability to the unions' futile efforts. Most important, they have reinforced a fundamental confusion about the social realities of technological development.

The recognition that technology is political constituted an important ideological breakthrough since it overcame the fatalism of technological determinism, long a staple of capitalist apologetics. But there are at least two possible conclusions that could be drawn from this belated insight. First, the understanding that technology reflects power relations in society could imply that those with more power would continue to determine the shape and direction of technology for the foreseeable future. Therefore, the conclusion to be drawn would be twofold: in the long run to try to shift the balance of power, and in the short run to do everything possible to prevent the introduction of the present technology, since it reflects the interests of those in command. Those few who have experimented with this position have invariably stumbled upon the taboos against Luddism, the cultural compulsions of progress, and economic deterministic arguments about efficiency, productivity, and competitiveness. Thus, they have always opted for a formalistic approach and settled for bargaining over technology post hoc and from a position of weakness. There has been little evidence of any unions actually mobilizing workers to try to increase their power vis-à-vis management and even less of any concerted attempt to organize opposition to the introduction of new technology.

The second inference from the insight that technology is political is seemingly less sobering and more liberating. Since politics is the art of the possible, and technology is understood to be political, with technology too, then, anything is possible. This more optimistic interpretation has generated a great deal of enthusiasm about possibilities and led to a fetish for and fantasies about alterna-

tives. At the core of this interpretation, it must be emphasized, was an important advance beyond the technological determinism of both liberal and Marxist notions of technological progress. It signalled a rejection of the perception of technological development as unilinear, inevitable, and automatic, and a recognition that political and social change would require a change in the forms of scientific and technological theory and practice. This new, expansive view of technology offered hope of transcending the mere defensive posture of labor. Rather than reacting endlessly, off balance, to management's technological agenda, labor could now go on the offensive itself by formulating its own alternative technological agenda.

But this insight about the wide range of technological possibilities, only narrowly reflected in the existing social context, gave rise inevitably to confusion and false promises. Some proponents of this interpretation of technological politics assumed that alternatives could be created without a change in power and even that such alternatives would of themselves bring about a change of power. This way of thinking, most common among technical people still imbued with ideas of technological deliverance (and hoping to change things without having to change careers), followed from a logical fallacy: technology reflects politics, therefore change the technology and this will change the politics. In essence, this new (old) habit merely reintroduced technological determinism in a different form.

More sophisticated proponents of this interpretation of technology as politics, while less enthusiastic about technological solutions per se, nevertheless have emphasized the need to develop independent knowledge and competence about technological possibilities. In this view, the effort to develop alternatives gives confidence and direction to an otherwise defeatist and fatalistic cadre. As an organizing device, moreover, it is held that alternatives serve to inspire, embolden, raise consciousness about political realities, and provide something to fight for rather than merely against, something to believe in. Finally, the proponents contend, correctly, that while alternatives are possible in theory, for the most part they do not exist, and must somehow be invented. Only then will the possibilities be rendered concrete, a visible demonstration of another route of progress.

But this interpretation of technology as politics has ignored some basic realities. The existing technologies reflect centuries of continuous development along a particular path, and the development of alternatives will similarly require years of reflection, research, and practical experimentation. It will not be possible to turn around the legacy of the Industrial and Scientific Revolutions overnight. Such fundamental changes are a vital political task, but what is to be done *now*? What good is a strategy for the future without a strategy for survival in the present? Even if the unions devoted all available resources to the development of alternatives, it would still be years before anything emerged reflecting labor's interests. Moreover, at present, no unions have sufficient power at the bargaining

table or anywhere else to demand and enforce a fundamental redirection of technological development and, thus far, organizing efforts reflecting this approach have aroused little interest among workers. Even if unions devoted all available resources to this organizing effort, and succeeded, it would still be years before they could marshal the power sufficient to influence the shape of technology. And, meanwhile, the present technology continues to enter the shops, and to erode the potential of labor power. Will the unions survive long enough to be able to redirect the development of technology?

The Luddites had some effect in slowing down the advance of the first Industrial Revolution and thereby bought themselves some time, some space—precisely what the unions now have so little of. But the Luddite effort entailed a massive insurrection—organized by the workers themselves and including direct opposition to technology in the present tense—that took the British army decades to quell completely. Thus far, no unions have given any indication that they imagine the need for, much less that they are prepared for, such a struggle.

The appeal to alternatives thus diverts attention from the realities of power and technological development, holds out facile and false promises, and reinforces the cultural fetish for technological transcendence. In short, having overcome the ideology of technological determinism, the fatalism of the past, it flips immediately into fantasies of the future. Not only does this reinforce the hegemonic ideology of technological progress, but it still leaves the present essentially untouched.

Throughout the industrialized world, unions have succumbed to this tendency, abandoning the present in quest of a different future. In Norway, Denmark, and Sweden, where the new technology agreements first took hold, there has been a notable shift in this direction. In Norway, computer scientists have secured the support of unions to develop long-range labor-oriented research projects on the “office of the future” and the “shop of the future.” In Sweden, one union has embarked upon a project to redesign video-display terminals. Researchers and unions throughout Europe have been contemplating the joint development of a union-controlled communications computer net. And action research veterans in Denmark and Sweden have embarked upon a long-term effort with unions and manufacturers to develop a worker-friendly computer-based printing system, in a project appropriately entitled *UTOPIA*. As Anders Hingel of the EEC, a long-time consultant on technology to Scandinavian trade unions, has recently noted, “there exists a definite inclination to present alternatives to the development of the *laissez-faire* technology.”

In the United States the International Association of Machinists (IAM) has recently formulated a “technology bill of rights” program¹ that belatedly embraces the European “technology agreement” strategy as well as the subsequent enthu-

¹ *democracy* 3, no. 2 (Spring 1983): 25–27.

siasm for alternatives. Explicitly modelled after the experience of the Norwegian Iron and Metalworkers, the IAM program is a perfect example of the latest, most sophisticated trade-union response to the challenge of new technology. The union is not against progress; it just wants to participate in the decision-making and thereby steer progress in a more humane direction. We "seek full participation in the decisions that govern the design, deployment, and use of new technology," IAM President William Wimpisinger explained to a Congressional subcommittee. "The objective," the IAM emphasizes, "is not to block the new technology but to control its rate and the manner of its introduction, in order that it is adapted to labor's needs and serves people, rather than being servile to it or its victim." "It can go either way," the union has insisted, reflecting the fertile faith in alternatives, but "it's headed the wrong way now."

Recently, the union has embarked upon a campaign to get the message down to the membership while at the same time it has collaborated with technical people from universities in an effort to develop its own technical and managerial competence, to try to prepare itself for its new, innovative role. It has also formulated a set of basic demands to be used in future contract negotiations and formal agreements. But meanwhile, design and deployment of the new technology has continued without IAM participation, enabling management to reduce drastically union ranks and power. Thus far, there has been no indication that the union is doing anything in a practical and immediate way, or in a way that is accessible to workers on the shop floor, to try to stop this technological assault. While the preamble to the IAM Technology Bill of Rights declares that "uses of technology that violate the rights of workers and the society will be opposed," there is no indication that this is anything more than rhetoric. There is no hint as to what form such opposition might take. Thus, while rhetorically a challenge to management rights and a bold initiative in a new direction, the approach offers merely more of the same: the appearance of struggle without its substance, allowing unions to bemoan "progress" without actually having to stand in its way.

Whether or not this union strategy serves the interests of workers in the present, it does preserve the progressive respectability of union leaders and provides a veritable field day for researchers. The prospects for futuristic research are, after all, infinite. Also, trying to develop technically and economically viable alternatives is a never-ending enterprise insofar as it ignores the fact that these are not really technical or economic categories at all, but political and cultural ones. No existing technologies have ever had to pass such tests of viability until (if ever) after the politically determined and culturally sanctioned decisions to invest in them had already been made, on other grounds. Thus, the effort to render new alternatives realistic in economic or technical terms, already underway in several projects, is a Sisyphean task, consuming scarce resources and likely to end in frustration and cynicism. For without the requisite social power that could *deem* labor's alternatives viable—whether economic in present terms or

not—whatever the researchers and unions come up with will be dismissed on economic and technical grounds, but for political reasons. Nevertheless, the research proceeds apace.

Roy Moore and Hugo Levie of Ruskin College, for example, have been engaged over the last several years in a project on “the impact of new technology on trade unions in England.” They have recognized that “a struggle for some control over technological change and any related work organization will, in the coming period, be one of the most important tasks for trade unions,” and they warn that, if unions fail to heed this challenge, “the penalties will be high in terms of unemployment and social dislocation as well as industrial relations disruptions” (initiated by rank-and-file workers). To avoid these disasters, they argue, the unions must, above all, invest in more research.

Although they concede that their studies to date “have inevitably fallen short of actually helping the trade union representatives to influence technological change,” they still call for “further, longer-term research on a wider basis,” and point out that “it will cost money—a lot of money.” Unabashedly unreflective about their own interests in sustaining such an expensive enterprise, the two researchers insist that this is the key to union and worker salvation in the wake of the second Industrial Revolution. Meanwhile, offered such costly future-oriented strategies and confronted in the present by an intensifying technological assault, at least some workers are beginning once again to have their doubts, and to take their fate into their own hands.

NOTE ON SOURCES:

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(This is the second part of a three-part article. The conclusion will appear in the next issue of *democracy*.)