Present Tense Technology

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PART THREE

E veryone believes the United States is in the midst of an economic transformation on the order of the Industrial Revolution," *Business Week* noted recently. But this fashionable analogy between today's second and yesterday's first Industrial Revolution is only half complete: the catastrophe has been left out. The prospect of another epoch-making historical leap thus generates simple-minded delight—among those managers who seek to enlarge their authority at the expense of workers; among those equipment vendors whose high-tech hype enchants the unsuspecting; among those manchild technical enthusiasts who are encouraged to indulge their socially irresponsible fantasies at public expense; among those system-building militarists who imagine security through strength through silicon; among those trade unionists who remain handicapped by the hallucinogenic homilies of technological progress; and among those ambitiously neoprogressive politicians whose rosy rhetoric belies their ignorance of that first "great transformation"—"a world turned upside down," contemporaries soberly described it—and the mass insurrection that followed in its wake. For a more complete analogy would shake the spirit not stir it, and give thoughtful people pause. It has been forgotten in the present paeans to progress that the earlier episode was stained in blood as well as grease and that it engendered not only passive immiseration but active rebellion.

"To enter into any detail of the riots would be superfluous," Lord Byron told his colleagues in the House of Lords in 1812 during the height of the Luddite uprising. "The House is already aware that every outrage...has been perpetrated, and that the proprietors of the frames [textile machinery] obnoxious to the rioters, and all persons supposed to be connected with them, have been liable to insult and violence." He continued:

> During the short time I recently passed in Nottinghamshire, not twelve hours elapsed without some fresh act of violence; and on the day I left the county I was informed that forty frames had been broken the previous evening, as usual, without resistance and without detection.
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> Such was then the state of that county, and such I have reason to believe it to be at this moment. But whilst these outrages must be admitted to exist to an alarming extent, it cannot be denied that they have arisen from circumstances of the most unparalleled distress: the perse-

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verance of these miserable men in their proceedings tends to prove that nothing but absolute want could have driven a large, and once honest and industrious, body of the people into the commission of excesses so hazardous to themselves, their families, and the community.

At the time to which I allude, the town and county were burdened with large detachments of the military; the police was in motion, the magistrates assembled; yet all the movements, civil and military, had led to—nothing. Not a single instance had occurred of the apprehension of any real delinquent actually taken in the fact, against whom there existed legal evidence sufficient for conviction. But the police, however useless, were by no means idle: several notorious delinquents had been detected—men, liable to conviction, on the clearest evidence, of the capital crime of poverty; men, who had been nefariously guilty of lawfully begetting several children, whom, thanks to the times! they were unable to maintain.

Considerable injury has been done to the proprietors of the improved frames. These machines were to them an advantage, inasmuch as they superseded the necessity of employing a number of workmen, who were left in consequence to starve. . . . The rejected workmen, in the blindness of their ignorance, instead of rejoicing at these improvements in arts so beneficial to mankind, conceived themselves to be sacrificed to improvements in mechanism. In the foolishness of their hearts, they imagined that the maintenance and well-doing of the industrious poor were objects of greater consequence than the enrichment of a few individuals by any improvement in the implements of trade which threw the workmen out of employment and rendered the labourer unworthy of his hire.

It must be confessed that although the adoption of the enlarged machinery in that state of our commerce which the country once boasted might have been beneficial to the master without being detrimental to the servant; yet in the present situation of our manufactures, rotting in warehouses, without a prospect of exportation, with the demand for work and workmen equally diminished, frames of this description tend materially to aggravate the distress and discontent of the disappointed sufferers.

These men never destroyed their looms till they were become useless, worse than useless; till they were become actual impediments to their exertions in obtaining their daily bread. These men were willing to dig, but the spade was in other hands; they were not ashamed to beg, but there was none to relieve them; their own means of subsistence were cut off, all other employments pre-occupied; and their excesses, however to be deplored and condemned, can hardly be subject of surprise.

One hundred and sixty-three years after Lord Byron's observation, people were still being caught by surprise. In the predawn hours of October 1, 1975, the lone foreman in the pressroom of the *Washington Post* was jumped by several desperate and determined men, one of whom held a screwdriver to his throat. Helpless, the foreman watched silently while, for the next twenty minutes, a team of highly skilled pressmen—whose jobs were threatened by the introduction of computerized "cold type" technology—systematically disabled all seventy-two units of the *Post*'s nine presses. Methodically, they sliced through the cushions on the press cylinders, ripped out the electrical wiring, removed the detachable chucks required to support the one-and-a-half ton reels of newsprint, cut air hoses, and damaged scores of reels. The printing plates were locked in place and the locking keys, inserted in holes on the press cylinders, were broken off and the cylinders jammed. The most serious damage was then inflicted by fire, but only after the automatic fire extinguisher had been duly disabled. Later that morning, the president of the local pressmen's union refused to accept blame for the damage, and insisted that his members had been "frustrated" by management intransigence and, as a consequence, "just went crazy and panicked" in what he described as a moment of "temporary insanity." But the *Post* management knew better. For all their surprise, a *Post* spokesman acknowledged that the attack appeared "to have been executed by people who had preplanned and synchronized their actions. It would be impossible for these kinds of damage to be done in that short a time without a plan, without assigned tasks, and without people who knew precisely what they were doing."

This extraordinary event at the *Washington Post* received considerable media attention for a while (*Time* dubbed the pressmen "the Washington Luddites"), but was too quickly forgotten: the pressmen, the familiar story went, had been rendered obsolete by the new technology; given to "excesses" by the futility of their plight (they were ultimately replaced at the *Post*, their strike broken, and their union destroyed), their extreme action was but a final gesture in a tragic story with an inevitable ending. But it is perhaps more likely that the real significance of this episode belongs to the future rather than to the past, that it signalled not an end but a beginning. In short, the pressmen may have been not behind their times but ahead of them.

The Luddites, it will be remembered, were not against technology per se. They were contending with the social relations of industrial capitalism and the increasing dominance of the "economy"—and of those who dominated the economy—over society. Society was being reduced in both theory and practice to a mere reservoir of factors of production for enterprise: not only the land and the trees became commodities but people too, to be used and disposed of as economic expediency required, as judged by the cold calculus of accumulation. The introduc-

tion of machinery was but one rather visible and tangible manifestation of this social upheaval, one that reflected the extension of capitalist control beyond commerce to the activities of production itself. Marx was not writing figuratively but literally when he decried the debasement of human beings to mere appendages of machinery, and veritable slaves of those who owned capital. And today, when respectable discourse still requires euphemistic substitutes for "capitalism," it is difficult to remember that this term was itself a euphemism of sorts, a polite and dignified substitute for greed, extortion, coercion, domination, exploitation, plunder, war, and murder. This was the list of grievances compiled by the Luddites in their heroic defense of society. Machine-breaking was simply a strategy and a tactic for correcting these violations of morality and humanity, violations that were later obscured by myths of the market and technological progress.

Today, people are once again having to contend with a major change in social relations, this time occasioned by the multinational extension of corporate capitalism, operating in a global labor market. Once again, the transformation is being facilitated and reinforced (and obscured) by the introduction of new technology: computer-based communication and production systems. These latest devices give capital a new mobility, enabling capitalists to pick and choose from the world's reservoir: societies and peoples played off against one another in search of the cheapest and most servile hands. Moreover, these new technical systems hold out the prospect not simply of making robots out of people, but of substituting robots for people and dispensing with the need for human labor altogether—all in the name of economic and technological progress. No wonder, then, that this second transition, like the first, is marked by social instability and economic crisis, "with the demand for work and workers equally diminished." And, likewise, these conditions are again forcing "once honest and industrious" men and women into opposition in defense of society and their own humanity. In the process, moreover, people of the late twentieth century are beginning to shake loose from their inherited ideology of technological and economic progress that has for so long distanced them from their comrades of an earlier day.

In the mid 1970s, when the pressmen launched their predawn raid at the *Washington Post*, the action was perhaps inevitably isolated and futile. Fragmented unions each worked out their own formal agreements, cooperative programs, and research projects, and the best strategy still seemed to be one of deferred action and deference to authority. In the last few years, however, these conditions have changed dramatically, rendering agreements unenforceable, participation schemes mere collaboration in the administration of immiseration, and research projects less and less relevant. At the same time, these new conditions make other such predawn raids all the more necessary, promising, and likely.

The internationalization of the corporate economy, in manufacturing as well as finance, has given multinational capital unprecedented leverage vis-à-vis national labor movements and organizations. Thus collective bargaining has now become just a polite phrase for extortion as labor has been compelled to yield. The current

recession, with its rising unemployment, has only magnified a more fundamental threat to the future of the labor movement. Capital's quest for greater control and profits, justified in the name of competitiveness and productivity and couched in the disarming rhetoric of technological progress, is being facilitated through the now-mature technology of automation. "If America hopes to match foreign competition," *Time* recently preached, for example, "it may have to rely more heavily on automation." *Business Week*'s Harris Poll captured the true spirit of the age, however, noting that while executives were not interested in financing to rebuild inventory and did not intend to rehire laid-off workers, there was, nevertheless—in the midst of a recession—"heavy backing for capital investment in a variety of laborsaving technologies that are designed to fatten profits without necessarily adding to productive output." *Fortune* simply heralded the "Race to the Automatic Factory," while *Time* substituted for its annual "Man of the Year" a more timely "Machine of the Year": the computer.

Confronted by this technology-based assault, battered by the economic recession, and confounded by its own (derived) commitment to technological progress, labor has been thrown on the defensive. In the process, unions have almost entirely abandoned the crucial struggles over technology and working conditions ignited by the rank-and-file rebellions of the late 1960s. Those workers who have continued to insist upon such shopfloor struggles have been dismissed by union officials intent upon maintaining dues-paying membership and keeping plants open, whatever the price in the present. Meanwhile, as indicated in Part II of this series, the "technology researchers" have abandoned even the pretense of dealing with the technologically-based challenges of the present, and have drifted ever more toward the development of technological alternatives for the future. However valuable all of this effort might some day prove to be, it is of little practical value to those now under immediate assault. Thus, in the face of an intensifying challenge, the capitulation of the unions, and the escapism of the experts, it is no wonder that workers in the shops have once again begun, increasingly, to take matters into their own hands. Having overcome the fatalism of technological determinism, they have now begun to overcome also the futurism of technological progress, and to shift attention back to the present. The resurgence of the rank and file, moreover signals the return as well of direct action at the point of production. As Pierre Dubois predicted in 1975—the year of the *Washington Post* raid and just as the economic crisis began to take hold—"all in all, we may say that unemployment is more likely to favor sabotage than not."

The *Washington Post* action was inescapably doomed, but not because the action itself was inherently wrongheaded or irrational but because the conditions for its effectiveness had not yet materialized. The pressmen were fighting an awesome foe against overwhelming odds, and were compelled by circumstance to do so alone. Since then, however, while changing conditions have in some ways certainly worsened labor's position, they have in other ways rendered such tactics more promising than ever before.

In the first place, the same diffusion of computer-based communications and control technologies and the same internationalization and conglomeratization of enterprise that have increased capital mobility and resourcefulness have also contributed to an increasing homogenization and integration of industry, with the result that workers throughout industry and throughout the world are now increasingly confronting the same problems. These new conditions, therefore, have created a basis for the recognition by workers (and, haltingly, by unions) of an identity of interest across industries and workplaces. In factories, offices, design rooms, warehouses, on the docks, in supermarkets, government bureaus, in aircraft, steel, auto, meatpacking, rubber, textiles, printing, chemical plants—throughout the world of work—people face the same computer-based challenges. Thus, the conditions have emerged that make possible as never before liaison between crafts, technical and manual workers, factories and offices, and otherwise wholly different industries, and between workers in different nations.

Second, the same technology that has extended capital's reach and range of control has also rendered it more dependent upon highly complex, expensive, and precarious systems and thus more vulnerable to worker resistance and especially to disruption through direct action. Increasingly, if belatedly, workers have begun to recognize the precarious position of management too during a period of rapid organizational and technical change.

Third and last, it is becoming increasingly apparent that this "window of vulnerability" of capital will not stay open forever. At some point, the situation will become stabilized, the new systems will be sufficiently debugged, and the opportunities for opposition will be foreclosed. Moreover, in light of the current trend toward an ever-weaker labor movement, more people are beginning to understand that, however weak it might be now, labor is at present more powerful than it is likely to be in the future. Therefore, as one electrical worker at G.E.'s Lynn, Massachusetts plant put it recently, "you have to strike while the iron is hot." In short, the new conditions, while in some ways throwing labor on the defensive, have at the same time laid the basis for a rank-and-file resurgence across industries, with its accompanying emphasis upon the concrete situation, its orientation toward direct action at the point of production, and its preoccupation with the present. Already there are reminders of Ludd's warning: "Danger Looms."

> We will never lay down our arms till the
> House of Commons passes an Act to put down
> all machinery hurtful to the community—
> But we, we petition no more.
> That won't do—fighting must.

> — Signed by the General of the Army of Redressers
> Ned Ludd, Clerk

I n Norway, birthplace of technology agreements and a model for progressive
unions throughout the world—where, as Leslie Schneider of Harvard Business
School says, "more than any other country in the world unions, employers, and the
state have tried to shape the direction of technological change at work"—workers
have begun a search for new ways to deal with technology. In the face of the
economic crisis, the issue of technology has been put on the back burner by the
unions: "these matters of new technology are now in the background," one staffer
for the Norwegian Chemical Workers Union noted recently. Kristen Nygaard,
Norwegian Computer Center scientist and pioneer of the path-breaking Iron and
Metal Workers Union technology agreements, observed also "a spreading senti-
ment of the irrelevance of the old participation strategy in the face of current needs."
The ineffectiveness of such a strategy has also become more than apparent. At
Kongsberg Vapenfabrik, for example, the local Iron and Metal Workers Union has
demanded that "all changes in working conditions, past practices, job content,
qualification, and skills due to the introduction and use of new machines be dis-
cussed and negotiated in advance." These demands have been rejected by manage-
ment, while workers face the prospect of massive layoffs. At other sites, however,
such ineffectiveness has given rise to new rank-and-file initiatives.

At Borregaard Industries (paper and pulp products) in Sarpsborg, for example,
where formal agreements have proved similarly ineffective, a splinter group of iron
and metal workers (unaffiliated with the national union) has begun "struggling
toward a 'before the fact' approach to technological bargaining." According to
Leslie Schneider, who in 1983 produced an important study of technology agree-
ments in Norway, these workers "stopped" one system design project twice
"when they felt they had no power or real voice." In response to management plans
to introduce a computer-based maintenance system that would have entailed a
reduction in manning and tighter management control over those who remained,
the workers countered with an alternative proposal that included group planning of
work and job rotation of supervisors. Management rejected their proposal and the
workers have decided to "block" the new system altogether until their alternative
is accepted. "So far," Schneider reports, the iron and metal workers "have relied
heavily on the strength of the local union to block systems or project work that does
not meet their demands." Meanwhile, in the city of Bergen, city government
workers, frustrated by the ineffectiveness of technology agreements, have
demanded and won a moratorium on the development of all new technological
systems until management submits to them a long-term plan for technological
change. The success of the moratorium was based upon an alliance between the city
government union and the technical specialists who design the computer systems
for the city, an alliance grounded upon a shared commitment to local control. The
moratorium has given the unions and workers time to draw up their own "Policy on
Technological Change" which has been critical for clarifying the union's ideas and
goals internally and for refining their effort on the strategic level for their negotia-

tions with management. Here, then, as at Borregaard, alternative plans for the future have been coupled with decisive action in the present. It is understood that just as it is not enough to engage in immediate action without longer-range objectives and visions, so it is not sufficient to have the goals without the active means for attaining them.

In Denmark, where unions have also had extensive experience with technology agreements and technology researchers, workers have begun looking for more effective mechanisms. For some years now, workers throughout Denmark have been demanding a veto right in all agreements on new technology, but have thus far been opposed by the central unions. Existing agreements, therefore, contain no provisions that allow the workers to veto, or reject, any new technology. In the view of many workers, agreements without veto power have no "teeth" and serve merely to facilitate the introduction of new technology. "If you go out to the members," LO (Danish trade union federation) research director Henning Tjornehoj observed in December 1982, you discover that "workers want to fight for the veto since agreements without it are useless." The central unions have dismissed such demands as the work of left-wing agitators and have argued that the approach would stop technology, undermine competitiveness, and therefore result in the loss of more jobs. But, Tjornehoj insists, the demands for the veto are not restricted to leftists but come from workers, regardless of political views. Without the veto power, he agrees, "workers are faced with the choice of being hanged or being shot." Although he himself oversaw the Danish trade union sponsored action research projects (such as DUE and PUMA), Tjornehoj now concedes that "it is unrealistic to be effective in shaping technology," and warns the unions that if they do not take the lead in formulating a more effective approach to the challenge of new technology, the workers will begin to "take their fate into their own hands."

This has already begun. In 1982, municipal workers in the city of Farum, near Copenhagen, went on strike to demand veto power over the new technology, in opposition not only against local management but also against the central union and the central government. They backed down only after the central union and the social democratic government threatened to cut off funds to the city. In one place, however, workers have actually succeeded in obtaining the veto. Ironically, this victory has been achieved by clerical workers in the state-run Business School in Copenhagen. There the workers discovered to their surprise that the management knew as little about the new office automation technology as they did. Taking the initiative, the local union forced the management into an agreement that permits the union to reject any new systems after a three-month trial period. So far, the union has succeeded in preventing the permanent introduction of any new equipment, on the grounds that the new technology deskills and displaces members of the work-force. Thus, while the professors at the Business School daily spread the gospel of salvation through automation, the workers at the Business School have taken the lead (in Denmark) by creatively responding to this threat and so far have prevented these missionaries from practicing what they preach.

E ngland's loss was our gain," John Baker, former general secretary of one of Australia's postal-telecom unions, has observed, referring to the fact that many of the convicted Luddites were "transported" to Australia and thereafter had a considerable influence upon the development of Australian trade unionism. "Where the worker responses were active, positive, and assertive on their own immediate interests," Baker noted, "these attitudes flowed through the rest of society with rather positive consequences for most institutions of society" (Australia led Europe and the United States in mass unionism, the eight-hour day, social security, and social democracy). This heritage is still alive in Australia. In 1954, for example, the postal-telecom unions refused a continent-wide automated telegraph system until the union had a chance to scrutinize it in terms of efficiency, social necessity, and consequences for those in the industry. In 1977, the Australian Labor Party called for a moratorium on uranium mining and treatment in Australia (following a nationwide strike a decade earlier by railway and transport workers over that issue). That same year saw another series of strikes by the postal-telecom unions over the introduction of a new system. "We won't permit the introduction of electronic telecommunications network," they declared. "Our members will not move over for a computer." In their refusal to accept the new system, the union employed various forms of industrial action including one which captured the popular imagination: "during the dispute, which the technicians conducted from inside the telecom systems, they cut-over the local-call system to the nation-wide long distance system and enabled subscribers to make unlimited long-distance calls for the price of a local call." Finally, in 1979, the Australian Council of Trade Unions voted to request the International Confederation of Free Trade Unions and the International Labor Organization to invite labor unions of all affected countries to "consider placing a five-year moratorium on all technological change." "A little bit of creative Luddism might not be amiss until we sort things out," Baker recommended, observing that:

> The developing consciousness of the Australian trade unionist illustrates the old challenge of the Luddites to the factory-owners: "you haven't any right to take over my tools and skills and build them into a machine [that] you, alone, own and whose products you, alone, sell in the marketplace." This old objection is being resurrected again as owners of technology and capital build the skills, experience, and knowledge of millions of office and factory workers into the micro-machine processes that make them unemployed.
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> Like John Brown's Body, that spectre, that special understanding of the Luddite Martyrs marches on, coming back to haunt the heirs of those who transported them in irons to the shores of Botany Bay, coming back to haunt Westminster until, perhaps, some Labor MP dares to rise, as once did Lord Byron in the House of Lords, to honour the Luddite Martyrs in the way their consciousness and sacrifices still warrants.

Last year, strikers in Australia began distributing stickers that read:
                              "SMASH THIS MACHINE."
      In England, design engineer Mike Cooley, one of the most active members of
the Lucas Aerospace Workers Combine Shop Stewards Committee until he was
sacked in 1980, has seconded John Baker's appeal for "a little creative Luddism."
"The real tragedy," Cooley noted, "is that with the frantic drive forward of the new
technology, we lack the time to examine the cultural, political, and social implica-
tions before infrastructures are established which will effectively preclude any
examination of alternatives." Cooley has also welcomed a moratorium on new
technology as being consistent with the efforts of the Lucas workers' strategy. This
might come as something of a surprise to many of those in the United States who
have been inspired by the creative initiatives of the Lucas workers, in particular
their alternative corporate plan, their development of alternative products and
processes, and their programs for military conversion of industry. The emphasis, it
might appear, has been upon developing alternatives to corporate technological
development, not rejection of new technologies. But observers in this country and
elsewhere have concentrated only on one half of the Lucas story and ignored the
other. Throughout the development of the Combine Committee, the formulation of
the alternative plan, and the endless campaigning, there has been consistent and
determined industrial action at the point of production. All along, the more visible
parts of the Lucas strategy were rooted in and undergirded by strikes, occupations,
slowdowns, and other forms of industrial action for which British workers are
renowned and respected.
      One of the most significant achievements of the Combine Committee, for
example, barely known outside Lucas, was a successful moratorium on the intro-
duction of new technology. In the only reference to it in all of the extensive
Lucas-related literature, Hillary Wainwright and Dave Elliott have described how
in 1980–81, the Combine Committee "succeeded in coordinating a moratorium
on the introduction of new machinery at a time when Lucas Aerospace management
was hoping to move rapidly into computer-aided design and computer-aided man-
ufacturing systems at major sites." The moratorium had two objectives. First, it
was a way of getting management to negotiate centrally on new technology with
representatives from all sites and all unions rather than with particular unions at
each individual site as management intended. The Combine Committee understood
that a piecemeal introduction of the machinery would weaken the ability of the
unions to develop a truly effective strategy for controlling the pace and the terms on
which the new technology would be introduced. The Combine Committee reflected
the interests of both production and technical workers at all sites and the
moratorium was a practical means of maintaining this unprecedented solidarity and
strength. Second, the Combine Committee intended to use the time made possible
by the moratorium to involve all of the shop stewards committees in the formulation
of policies that would be the basis for central negotiations. According to
Wainwright and Elliott,

the moratorium lasted for nearly a year in some sites and longer in others (at Burnley it held for eighteen months). During this period the Combine Committee and CAITS (the Centre for Alternative Industrial Systems set up by the Lucas workers at the North London Polytechnic) carried out an extensive investigation and debate on the consequences of new technology for workers in Lucas Aerospace and the policies through which the benefits of new technology could be controlled by those who manufacture it, use it, and consume its products, rather than by those who own it. The moratorium did not hold consistently enough to force management to conduct central negotiations, but it did lead to several good site-level agreements.

Since the moratorium, some Lucas workers have devised other forms of industrial action that they find more effective than the refusal to allow the introduction of new equipment. At Birmingham, for example, workers realized that the forcible rejection of new technology at their site, in the absence of total rejection at all sites, simply meant that the company would place the equipment elsewhere, at their expense. Therefore, they have adopted another approach. They allow the company to bring in the new equipment, install it in concrete on the factory floor, test it, and work out the "bugs." Then they take it over, to prevent anyone from using it and to prevent the company from removing it. As long as the equipment is outside, the workers reason, the company can control it, whereas once it is in the factory, the workers can control it. The objective of this strategy is to reduce the flexibility and mobility of corporate management and, at the same time, to idle expensive equipment and thus force plant management to negotiate reasonably. The effectiveness of the strategy depends upon a full understanding of the company program for introducing new equipment. The workers must determine the "point of no return" for the company, at which time management must either move forward with new equipment or sacrifice the cost effectiveness of existing equipment. Most systems are introduced in successive phases of system integration, where the efficiency of one phase is ultimately dependent upon the completion of the following phase. Given the enormous expense of new computer-based manufacturing equipment, interruption of this program at critical points can prove extremely costly to the company and thus helpful to workers in their negotiations. (In addition to this overt strategy, the workers here as elsewhere routinely feed irrelevant information into the company's central computer and otherwise forestall cost-effective utilization of the expensive equipment, alert to the fact that automation renders management more dependent upon the workforce, not less, and therefore more vulnerable to worker resistance.)

Of course in England too workers are daily confronted with management threats to close or move plants in the event of opposition to company modernization plans. But the workers at Birmingham and elsewhere figure that they lose either way—through rationalization and automation or plant shutdowns and capital

sabotage was sparked by the case of Ulrich Briefs. Briefs is a computer scientist who has for many years served as an adviser on technical matters to the metalworkers union (I.G. Metall) and, more recently, the DGB. He has also been unusually close to rank-and-file groups throughout Germany, traveling widely to engage in plant-level discussions and to help devise strategies for dealing with the new technologies.

In December 1981, as companies in Germany accelerated the pace of technological change, Briefs gave a speech publicly criticizing the DGB for having done too little too late. Speaking to a local union audience, Briefs noted, however, that all was not yet lost. He pointed out that computer systems do not make the company invincible; indeed, they intensify management's need for access to and control over data and they increase management's dependence upon the reliability of hardware and cooperation of the workforce. Thus, Briefs suggested that strategies might include two forms of sabotage: "soft sabotage" and "hard sabotage." By "soft sabotage" Briefs meant anything that obstructs and distorts the information-processing system. Briefs urged that workers should try to clog the system with extraneous information (as the Lucas workers were aleady doing) or overload it by making excessive simultaneous demands on it (such as everyone complaining about his paycheck at once). He emphasized what he considered to be the gravest danger of computer systems, the trend toward total integration, and recommended that workers should insist upon interrupting such integration in any way possible (such as demanding that nonautomated processes be inserted between automated ones). As for "hard sabotage," Briefs explained in an understated way that computers do not like tea, coffee, Coke, or iron powder.

Almost immediately after his speech, Briefs was fired by the DGB. Although the DGB action was presumably prompted by Briefs's public criticism of the trade union confederation, the charge against him was "Luddism," the advocacy of allegedly "anticonstitutional" criminal acts judged in violation of the principles upon which trade unionism was grounded. In response to these charges, Briefs argued that first, capitalists are the real saboteurs because they routinely destroy billions of dollars in equipment when they "retool" or close plants, and second, that sabotage can be a very human act if it is directed against such antihuman devices as neutron bombs and other military hardware. More important than Briefs's arguments in his own defense, however, was the widespread support for him among trade union members. After only two months, during which time tremendous pressure was placed upon the DGB by local and district level union delegates (especially from the metalworkers), Briefs was reinstated. Some were expressing support for free speech and democracy in general rather than any particular sympathy with his remarks. Many, however, either agreed with Briefs's approach or recognized that it was time to broaden the discussion and entertain seriously the possibility of new and bolder strategies.

Over the Easter weekend in 1980, in the French city of Toulouse, there were unprecedented raids on the computer centers of both Philips Data Systems Corporation and Honeywell-Bull. The damage was extensive and the *New York Times* reported that "officials said the damage was done by experts." The *Times* quoted a police inspector: "They knew exactly how to erase programs from tapes, how to destroy the electronic filing systems." *Newsweek* reported that one technician (reflecting the peculiar logic of our times) exclaimed, "When they attack men, that I can understand, but machines—No!" The group taking responsibility for the raids, which called itself the Committee for the Liquidation and Misappropriation of Computers, explained themselves in a letter to the Paris daily *Liberation*: "We are computer workers and therefore well placed to know the present and future dangers of computer systems. Computers are the favorite instrument of the powerful. They are used to classify, control, and to repress. We do not want to be shut up in the ghettos of programs and organizational patterns." "As proof of their involvement," the *Times* reported, "the group described the contents of (one) manager's desk, including a copy of a Rolls-Royce catalog." Meanwhile, in the Netherlands, according to a recent report in a Detroit newspaper, a professor of industrial robotics has concluded a study in which he found that sabotage of robots has become widespread and has assumed several ingenious forms. Workers routinely slow down the machines by feeding them parts in the wrong order, "repairing" the machines incorrectly, mislaying essential spare parts, or putting sand into the robot's lubricating oil. In one metal construction plant, the professor reported, production was reduced for more than six months because of worker resistance to the use of robots.

Finally, in the United States, people are only belatedly coming to realize that their society has become just another reservoir of factors of production for multinational capital. Here resistance to the technological assault has only begun to surface in unorganized, fragmented, and covert ways. But there are signs that the ideological fiction of "labor resistance to change" is now becoming a defiant reality as workers learn the hard way that formal agreements about technology (such as those of the Auto and Communications Workers, and those proposed by the Machinists) are barely worth the paper they are written on. In 1979, for example, in opposition to their own International, UAW local 600 auto workers at the Ford River Rouge plant in Detroit declared that it was time to make "new technology a strikeable issue." In Lynn, Massachusetts, members of International Union of Electricians, Local 201 have begun to join together with their counterparts in locals of their own and other unions (such as the IUE and the IAM) from Schenectady, Evendale, Erie, and elsewhere collectively to confront the technological assault underway in one of this country's most automation-obsessed companies, G.E. Whether or not this is an incipient Combine Committee, along the lines pioneered at Lucas Aerospace, remains to be seen, but there is little doubt that, whatever ultimate form the

resistance takes, the battle-lines are being drawn. "I sweep up robot doo-doo," was the way one skilled machinist at G.E.'s Erie locomotive works described his recently deskilled job at a conference on the new technology in Lynn. The same technology that was being used to degrade his working life, he explained, was also enabling the company to move jobs elsewhere or eliminate them completely. "When they closed the division," he told his fellow G.E. workers, we realized too late that "we should have acted earlier and destroyed it ourselves." "Technology does not benefit the workers one bit," a recently displaced Baltimore steelworker insisted, pointing out how it is used to degrade and destroy jobs and produce things that most workers, as consumers, will never be able to buy. He went on to describe in some detail how workers in his plant were turning to more direct ways of protecting themselves against the introduction of new technology.

With the new computer technology, "you can undermine some resistance but they can still beat you," one manager at a large United Technologies plant (Hamilton Standard) in Hartford conceded. "They'll always find a way to beat you. They're smart!" As every manager in the United States knows, but few are willing to tell, sabotage is on the rise. "The workers out there don't have the luxury of fantasizing about the future," the same manager reminded two academic researchers recently. "They don't think like you guys do. They don't see any inexorable technology. Survival is the thing. They think immediate." One of the more innovative, and symbolic, acts of displeasure with new technology surfaced recently in reports of an incident in the U.S. Justice Department. In May of this year, a manager noticed that a word processor was not functioning properly. Upon closer inspection, he discovered that the screen and keyboard of the machine were saturated with urine. (Apparently, this readily available substance has the same effect upon computer equipment as tea, coffee, Coke, and iron powder.) With characteristic paranoia, the Justice Department management collected a sample of the offending fluid and dispatched it at once to the Center for Disease Control in Atlanta, presumably in an effort to track down the resourceful operator. All they were able to learn, however, was that the subject was female and free of social diseases. Meanwhile, that same month, a Detroit newspaper responded to *Time* magazine's "Machine of the Year" (the computer) with an announcement of its own "Tool of the Year": the sledgehammer. And, elsewhere, a new (old) phrase was coined to capture the spirit of the times: "SMASH MACHINES, NOT PEOPLE."

H as Ned Ludd returned? While it is not yet possible to assess the full siginficance of this mounting worker resistance to so-called progress, there certainly are signs of it everywhere. Likewise, there is abundant evidence of latent popular support for such resistance. The popularity of such recent movies as *Return of the Jedi* or *WarGames*, for example, stems less from their celebration of technological prowess than from their mockery of technological extravagance,

hubris, and vulnerability. Audiences are most animated when the kid in *WarGames* uses his rudimentary knowledge about electronics and computers to outwit Pentagon technocrats and, of course, the phone company. Similarly, audiences respond to *Return of the Jedi* with the greatest delight when the supersophisticated Death Star warriors are undone, not by the equally sophisticated (and vacuous) heroes, but by the sticks and stones—and laughter—of the "primitive" (and most human) Ewoks. The producers of these films exploit not only the widespread resentment and anxiety about high technology (and the alienated lives and horrible dangers that accompany it) but also the genuine pleasure, the recovered sense of dignity, and the surge of power (albeit vicarious) when all the fancy gadgetry of those in command is so simply put in its proper, diminished, place.

How one might finally interpret all of this is less important than how one ought to respond to it in the present, to seize and enlarge upon the opportunities it creates. It would be presumptuous and, indeed, contradictory to the main thrust of these articles, to try to suggest here a full-blown program for labor. As has been emphasized from the outset, much of our confusion and paralysis in the face of the current corporate-sponsored technological assault has resulted from just such a removal of the technology question from the point of production, a substitution of futuristic and programmatic vision for workers' present tense tactics and strategies. If any recommendations might be made, then, they must of necessity be restricted to the typical readers of journals such as *democracy*: "intellectuals," those with the luxury of reflection and access to the media. What might these people do on the ideological battlefield that would complement and enhance rather than supplant and stifle worker resistance to an alien and devastating progress?

In essence, if workers have begun to smash the physical machinery of domination, so responsible intellectuals must begin deliberately to smash the mental machinery of domination. They must strive to overcome—in themselves as well as in others—the collective fear of being human and free now reified and ratified in fixed ideas and solid-state circuitry. To do this, they must champion a new common sense that insists without compromise upon the primacy of people's lives over the strange and estranging myths of automatic destiny. The intellectual task is one of recovery, reclamation, and reminders: of who and what we are and of what is being lost. If people are to be encouraged in what they already partially see (as evidenced by their joyful identification with the Ewoks and the *WarGames* hero), intellectuals must affirm outright, without qualification or hesitation: progress is a lie. Only then will more people be able to think, say, and act upon what they already know, without fear of isolation, ridicule, or repression. Responsible intellectuals, in short, must struggle in their own realm to gain legitimacy for worker resistance to progress. They must change the terms of debate and extend the range of respectable discourse in order to insure that those who choose to resist need never act alone.

It is an awesome challenge. When confronted with an identical task at an earlier time, Lord Byron too had second thoughts. He worried about his own

reputation and dreaded that he might appear to his friends as a "sentimentalist" or, worse, as "half a frame-breaker" himself. "However we may rejoice in any improvement in the arts which may be beneficial to mankind," he wrote in a letter to Lord Holland shortly before his maiden speech, "we must not allow mankind to be sacrificed to improvements in mechanism" especially when these result merely in "the enrichment of a few monopolists." But the young Byron toned down his speech in the House of Lords, yielding to parliamentary restraint and gentility. His finely-crafted, moderated oration was well received by his peers in that polite assembly, but the frame bill passed overwhelmingly in spite of it. Only then did the poet turn to his ultimate weapon, verse, to champion the Luddites' and humanity's cause. His defiant challenge to the masters of markets and machinery appeared anonymously in the next day's *Morning Chronicle*, as the bitterly ironic "Ode to the Framers of the Frame Bill":

> Oh well done, Lord Eldon! and better done Ryder!
>   Britannia must prosper with counsels like yours;
> Hawkesby, Harrowby, help you to guide her,
>   Whose remedy only must kill ere it cures.
> Those villains; the Weavers, are all grown refractory,
>   Asking some succour for Charity's sake—
> So hang them in clusters round each Manufactory,
>   That will at once put an end to *mistake*.
>
> The rascals, perhaps, may betake them to robbing,
>   The dogs to be sure have got nothing to eat—
> So if we can hang them for breaking a bobbin,
>   'Twill save all the Government's money and meat.
> Men are more easily made than machinery—
>   Stockings fetch better prices than lives—
> Gibbets on Sherwood will heighten the scenery,
>   Showing how Commerce, how Liberty thrives.

As we approach the calamity of the second Industrial Revolution, intellectuals have again to take up the vital struggle begun by Byron amidst the calamity of the first. As witness to the birth of industrial capitalism, Byron defied the nascent laissez-faire ideology that perverted liberty and invention and turned them against society. Today, we witness the final maturation of a still antisocial capitalist system in which liberty and invention have hardened into a monopoly of power sanctioned by shibboleths of automatic progress. A century and a half of obeisance to progress has dimmed our memory, impoverished our imagination, and dulled our sense of outrage and violation. It is thus more difficult than ever (and more urgent) to regain the courage and composure to speak candidly about what is happening, and about what must be done to stop it. At least five tasks await the committed intellectual: to

shift the burden of proof; to create the space to say no; to develop the means of resistance; to invent an alternative future that is moored in the present; and to transcend the myth of the machine, the fetish for technological transcendence, in order to make way for political opposition.

• The distinguishing characteristic of hegemonic ideologies is that they require no proof or argument; their validity is assumed, understood, and ratified by convention, norms, and accepted bounds of respectable discourse. Thus, those who challenge this dominant set of ideas are typically the ones who must bear the burden of proof, a burden that, in this setting, actually defies argumentation and evidence. What is required, therefore, is somehow to shift the burden of proof to those who subscribe to, promote, and profit from, this ideology. If they can be forced to prove the validity of their ideas, their very attempt would be doubly defeating: first, because assuming the burden of proof would undermine the automatic acceptance of their position and, second, because, not having had to prove themselves before, they would invariably demonstrate the weakness of their reasoning and the fact that, given the available evidence, their assumptions cannot compellingly be defended. Ideologies are habits of thought that defy thought and enable people to avoid thought. Forcing that burden upon them (and upon ourselves) brings blindly accepted assumptions to consciousness, and breaks the habit.

It is not necessary to demonstrate that accepted assumptions are wrong but merely that they are ambiguous. Once the ambiguity has been established, further evidence or argument becomes necessary for both sides. Intellectuals need to raise questions about technological development: about its design, its deployment, the reasons for its introduction, its technical and economic viability, and the causal connections between investment, innovation, productivity, competitiveness, and social welfare. Any serious present-tense assessment of new technologies would readily reveal the fragility of assumed justifications.[1] Contrast this with the clear-cut social costs entailed in corporate-sponsored application of new technology, including structural unemployment, social dislocation, job degradation, worker deskilling, and political instability. It must fall to the ideologues of progress to prove, rather than simply assume, the benefits *before* they are allowed to proceed.

• The first Industrial Revolution was recognized as such only in retrospect (the term was not coined until the transformation itself had been completed). The second Industrial Revolution, in contrast, has already been identified in anticipation of the event. Thus, we have a luxury, denied our predecessors, of entering the transition with our eyes open and with the advantage of a precedent. Whatever blindness remains is self-induced.

Among our inherited blinders is the identification of simple technological advance with social progress, an idea espoused by liberals and socialists alike.

1 For an example of how this might be done, see my *Forces of Production: A Social History of Machine Tool Automation* (New York: Alfred A. Knopf, 1984).

Late-twentieth-century Americans need not be reminded that this belief is suspect and invites a fundamental reevaluation. Given the all-too-important social costs, military, ecological, and socioeconomic, it would be wise to call a halt to rapid, undirected technological advance, if only temporarily until we regain our bearings. But we are confronted immediately with another inherited blindspot, the conviction that technological advance cannot be stopped because "You can't stop progress." In reality, this is a bizarre and relatively recent western notion, invented to disarm critics of capitalism, and is readily refuted by reference to centuries of socially interrupted technological development. "Protective" regulations of one sort or another have long served to buffer society from disruptive changes; the Luddities themselves appealed to this time-honored tradition, which assumed the supremacy of society over mere economic activity and technological contrivance. This consistent characteristic of human society was eradicated only within the last few centuries by the rapacious champions of laissez-faire who succeeded in putting "things" in the saddle, to ride mankind. It is necessary now to remind ourselves of this lost tradition and confidently to reassert it. To the dictum, you can't stop progress, we must learn to respond: of course you can.

There are those who have tried to undo our modern fatalism, with little success. Norbert Wiener, the father of cybernetics, appealed in the 1940s and 1950s for some slowing down of the pace of automation and warned against an impending catastrophe for labor (he erred in his prediction, but only in terms of time: he was off by a decade or two). John Parsons, inventor of numerical control and the acknowledged (by the Society of Manufacturing Engineers) "father of the second Industrial Revolution," called also for a "moratorium on technological advance, to provide time for reflection and a search for socially responsible ways to proceed." Both protests were dismissed without a hearing. It is now urgent to revive their efforts and extend them.

One possible strategy might be to illustrate that, despite our espoused deference to technological advance and economic ends, our society routinely accepts certain limits on both. For example, we are learning to live with environmental constraints on both economic and technological activities. We also now would reject the reinstitutionalization of slavery even if it could be shown to enhance our international competitiveness. Yet if undue environmental degradation and the institution of slavery are today unacceptable, social dislocation caused by capital flight and technological displacement are not. How might they become so? We have environmental impact statements, why do we not have employee impact statements? Required by all employers who wish to introduce new methods, these would demand an assessment of *and solutions to* likely problems before implementation. "We protect the fish," one electrical worker at G.E. Lynn observed, "why not the people?" In April 1983, the United States Supreme Court ruled that states have the right to "allow the development of nuclear power to be slowed down or even stopped for economic reasons" and, in a minority opinion, two Justices went a

step further and argued that "a ban on construction of nuclear power plants would be valid even if its authors were motivated by fear of a core meltdown or other nuclear catastrophe" (e.g., nuclear waste hazards). Might this decision serve as a precedent for banning the use of robots pending the solution of the problem of unemployment? In recent years the California Rural Legal Assistance (CRLA) has sued the University of California, on behalf of farmworkers and small growers, in an attempt to prevent further publicly-funded development of agricultural mechanization that serves only agribusiness at the expense of those workers and smaller farmers. The suit, still pending, has been derided as an attempt to halt progress and the CRLA lawyers have been denounced as Luddites. Ways must now be found to follow their lead. Saying no to such technological innovation serves two purposes at once. First, the call to stop progress reminds us that we have been caught up in something moving, something we never started or ever decided to participate in. On the intellectual level, then, saying no brings our collective compulsion to consciousness and permits us to begin to proceed on a rational basis, with our eyes open. Second, saying no does not so much arrest human history as call into question the current form of development and change the rules of the game in the present.

• In line with the smashing of mental machinery, intellectuals must strive to overcome their own and others undue reverence for, and deference to, physical machinery, in order to develop criteria, defenses, and devices for effective resistance to technological change. No one is against "technology," despite the frequently heard charge, because technology as such does not exist. Technology exists only in the particular, as particular pieces of equipment in particular settings. Therefore, if opposition to technological progress is to be meaningful, if lost options are to be reassessed in the light of new conditions, criteria must be developed for selecting which technologies ought to be stopped. Technologies might be opposed, for example: if they degrade people and diminish their freedom and control without any apparent economic or other compensating benefit; if their technical and economic viability is ambiguous but they pose serious social problems; or if they are clearly viable in the narrow technical or economic sense but are nevertheless destructive for society as a whole. Similarly, a technology might be selected for opposition if management depends on it heavily. Such opposition to technologies must be defended in the public sphere and intellectuals might helpfully formulate persuasive defenses. These might include a moratorium in order to buy time in which to develop socially responsible procedures for their introduction, the protection of existing organizations, the guarantee of livelihoods, or the preservation of communities.

• Reclaiming the present must not necessarily entail an abandonment of the future. It remains an essential task to develop alternative social and political visions, rediscover roads not taken, and recast science and technology according to life-enhancing criteria. This has always been and remains a central challenge for intellectuals. But care must be taken to ensure that such projections never *substitute*

for present strategies, but serve rather to complement, inspire, and perhaps guide them. The danger is not utopianism—we still need utopia— but the confusion of the future with the present. If we cannot afford to abandon the future in our preoccupation with the immediate, neither can we afford any longer to concentrate upon the future and surrender the present. The two must be joined. One illustration of how this might be done has been offered by Mike Cooley in England. He suggests that the development of "human-centered systems" for production, such as those projects now underway at the University of Manchester, must be coupled with shopfloor organizing and struggle. According to Cooley, the new technological systems are meaningful politically only if workers can be inspired to demand that they be substituted in the present for management-designed systems, and to strike or take other direct action in support of this demand. Without such action, research projects are doomed to academic irrelevance.

• If opposition to technological progress helps us overcome our infantile dreams of technological salvation, it enables us also to transcend the technological mystification of power in our society. For technology has never really been the problem, nor will it ever be the solution. Technology does not by itself destroy democracy and neither does it bring democracy into being. If we have become a politiclly regressive society, as Sheldon S. Wolin suggested in the first issue of this journal, it is not because of the politics of technology but because, "hypnotized" by ideologies of progress, we have substituted technology for politics. Ultimately, therefore, the real challenge posed by the current technological assault is for us to become able to put technology not simply in perspective but aside, to make way for politics. The goal must not be a human-centered technology but a human-centered society. And this demands, as it always has, a confrontation with power and domination. If the lessons of the Luddites are instructive in this regard, so too is the observation of that English radical who, in 1835, summed up the matter parsimoniously, and in a manner still appropriate today:

> The real grievance is neither more nor less than the subjection of the labouring to the monied classes, in consequence of the latter having usurped the exclusive making of the laws. Rents, tithes, taxes, tolls, but above all profits. Here is our distress explained in five words, or to comprise all in one, it lies in the word Robbery. . . . Machines indeed.

(This is the third part of a three-part article. Part one appeared in the Spring 1983 issue of *democracy*, and part two in the Summer 1983 issue.)

NOTE ON SOURCES:

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