

The Political Economy of Information

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3. Cybernetic Capitalism: Information, Technology, Everyday Life

Kevin Robins and Frank Webster

There are some who still fondly imagine that knowledge, casting the clear light of awareness, inspires and contains goodness within itself.

—Dora Russell, *The Religion of the Machine Age*

BEYOND THE ESTABLISHED PARADIGMS

How are scholars interested in communications to make sense of the sea-changes currently taking place there consequent on the arrival of cable, satellite, and other computer-communications technologies? Not unexpectedly, the established paradigms have been drawn upon. Thus Nicholas Garnham, approaching from a perspective of political economy, raised many important points about the historical transformation and the growth of new media/information markets. Emphasizing the strategies of transnational corporations, the current crisis and recession as the contexts within which the new media technologies are being born, the industrialization of culture, and the colonization of leisure, Garnham's approach is conceptually familiar. To the fore is a stress on the economic underpinnings of recent developments and the significance of market principles for shaping the "communications revolution." The function of new technologies is "to develop the market for so-called information goods and services as a new growth sector" that expresses both "the needs of the corporate sector for enhanced communications facilities and the increasingly desperate national search for a share of the international market in high technology products." At the core of analysis and explanation of developments is "the expansion of price and profit" (Garnham, 1983, pp. 11, 14). To Garnham, the economic factor is primary, and it is evidently shaping and indeed intruding deep into the culture and polity.

Perhaps predictably, Garnham's account was soon criticized by someone unsympathetic to his economic reductionism. Ian Connell (1983), insisting on the relative autonomy of the cultural, lays stress on the ideological dimensions and possibilities of the "communications revolution." Starting from the principle that communications are essentially matters of interpretation and that there are limits to the ability of economic forces to shape consciousness, Connell re-

gards Garnham's analysis as an "irrelevance." He is prepared to forego Garnham's structural account, deal "with the potential of things as they are and as they will soon become," and to welcome the potential diversity of programming heralded by new technologies. Taking as given the new technologies and the economic influences bearing upon them, Connell's interest is at an altogether different level, the sphere of consumption, of responses and attitudes toward programs, rather than the sphere of production.

This is an altogether familiar terrain—the ideological versus the political-economic perspective. It is one that we contend is conceptually and empirically inadequate to appreciate present developments. Therefore, this chapter is an attempt at once to criticize and go beyond the presently dominant paradigms by which communications are theorized and at the same time to draw attention to important dimensions of the "communications revolution" that are overlooked by both political economy and textual accounts.

It should be admitted that we are not agnostic as regards the two approaches. We are skeptical about the relevance of Connell's ideological focus on the media to an analysis of the upheavals that we are now experiencing. Indeed, we find naive his faith that the expansion of productive forces (the new technologies) by corporate capital is in some way aloof from social values yet able to proclaim an era that will celebrate the values of abundance and diversity. To some extent, then, this article is intended as a defense and support of Garnham's analysis and argument. Like him, we believe that the "communications revolution" can best be theoretically understood from the perspective of political economy. But having said this, we do not want entirely to align ourselves with Garnham's position. At the heart of our differences with him is the question of what actually constitutes a political economy of the media. For all its value, Garnham's approach comes, in our view, close to being a purely economic analysis of the new technologies. Although it identifies much in the dynamics of the process whereby the "information revolution" is being manufactured, it does not in fact constitute a *political* economy. Garnham's interpretation does not fully explain the transformation we are currently witnessing, and his argument should be pushed further. In the following discussion we seek to sketch some of the elements that are absent in Garnham's analysis in an attempt to offer a more adequate political economy of the new information and communications technologies.

Our hope is that doing this will make it possible to move the argument beyond what has become a sterile debate within, especially, British media studies: the standoff between the advocates of textual/

ideological analysis, on the one hand, and the camp of political economy, on the other. Thus Connell's critique of Garnham—which extends his earlier criticism of the work of Graham Murdock and Peter Golding (Connell, 1978)—grows out of, and reinforces, this theoretical schism. The same polarization is insistently present in Carl Gardner's criticism of Garnham's "reliance on a grossly overdetermining economic analysis"; Garnham, it is suggested, is guilty of "privileging the moment of production and the commercial intentions of the producers." Against this is counterposed a "politics of representation," a consideration of "struggles around meaning" (Gardner, 1984, p. 45). Thus we have two distinct theoretical approaches and emphases glaring at each other across the chasm of the base/superstructure divide (Robins and Webster, 1979; 1987b). Each undoubtedly has its own important insights and truths, and each identifies real weaknesses in the other "school." In our view, however, this theoretical rift has become an obstruction to theoretical bearings. Is there really only a choice between economic analysis (ownership, control) and the "politics of representation"? We believe that both a narrowly economic perspective and a reliance upon ideological/textual analysis fail to bring out some of the most salient aspects of the communications "revolution."

How, then, can we move the debate on? First, and most generally, it is necessary to reject the idea that the current transformation is *simply* an economic/technological process, that it is *simply* a struggle to establish new products and markets in the face of recession. Our approach suggests, against this, that the upheaval we are undergoing is very much a social and political matter: that is to say, the "communications revolution" represents a profound restructuring of social, political, and cultural relationships in the face of a crisis that is very much more than an economic recession. Second, and more particularly, we believe that this approach allows us to identify significant patterns of social change that are inaccessible to textual/ideological theory and to economic analysis in terms of price and profit. There is an important social space that is invisible to any simple base/superstructure conceptions of society, a space hardly explored in British media theory. There is a sphere in which capital seeks to influence, not ideas or profits, but the very rhythms, patterns, pace, texture, and disciplines of everyday life. Within our wider focus upon power relations in society, this represents—to use Foucault's term—the terrain upon which operate the "systems of micro-power." For us, the "communications revolution" is socially significant insofar as it represents a recomposition of the microstructures—and of the experiences—of everyday

life. And crucially important here is a consideration of how technologies invest and inform the patterns of culture, of the whole way of life.

In the following discussion we seek to explore some aspects of this approach to the new media/information industries. The analysis is by no means exhaustive; it remains a sketch of some of the crucial issues that are neglected in the articles of Garnham, Connell, and Gardner—issues that center upon the relations between information, technology, and everyday life.

MOBILIZATION, TECHNOLOGY, EVERYDAY LIFE

The present mutation of the culture industries cannot be understood in isolation. We can only develop an adequate political economy if we situate these industries within a wider social and historical context. We seek, therefore, to understand the more momentous changes that are now reverberating through society by reinstating the concept of totality (cf. Jay, 1984) as essential to grasp their significance, scale, and meaning, and we situate these changes within the historical trajectory of the search for capital accumulation and obstacles placed in the way of this endeavor.

The first thing that ought to be emphasized is that the transformation of broadcasting and the mass media is just part of a far wider restructuring of society and social relations, one that has been occasioned by the strategic exploitation of microelectronics (and, to some extent, other new technologies) as an economic and political escape route out of the present crisis. We are witnessing not just the convergence of various new media/information technologies (video, cable, satellite, videotex, personal computers), but also, and more importantly, the convergence and integration of broader, and hitherto discrete, sectors of the electronics industry (particularly data processing and telecommunications). Along with this comes a collision of the interests of corporations operating till now in relatively safe and separate areas (IBM, AT&T, Xerox, RCA, Exxon, etc.). We are talking, then, not simply of sizeable tremors in the media landscape, but, in fact, of a more fundamental restructuring and recomposition of the industrial landscape and, consequently, of the existing pattern of capital accumulation—a transformation that has been described by sociologists like Daniel Bell in terms of the emergence of a new social era, that of "postindustrial society" (see Webster and Robins, 1986, and Robins and Webster, 1987a). What we must be aware of is the fact that the new microelectronics/information technologies are changing not just entertainment and leisure pursuits but, potentially,

all spheres of society: work (robotics, office technology); political management; policing and military activities (electronic warfare); communication; consumption (electronic funds transfer, retailing technology). If the combined, though disaggregated, forces of multinational corporations and political interests succeed in the systematic introduction of these new technologies—from robotics and data banks to cable television and personal computers—and, particularly, in laying an integrated national electronic grid (the “wired society”), then social life will be transformed in almost all aspects. And two key areas may be highlighted as being of particular political significance: the reconfiguration of the relation between work and leisure (the so-called leisure revolution) and the exploitation of data banks and surveillance technology for control purposes.

The strategic development of microelectronics and information technology will, then, have reverberations throughout the social structures of advanced capitalist societies. The real meaning and significance of this can be more fully grasped if we situate the present upheaval and restructuring in its historical context. But in terms of what kind of history? The history of “technological revolutions”? The economic history of “long waves” in capitalist growth (as theorized by Kondratieff and Schumpeter)? Neither of these, in fact. For the purposes of our political economy we want to draw upon the work of Jean-Paul de Gaudemar (1979), who periodizes capitalist development in terms of the ways in which capital uses labor power and “mobilizes” populations for the production of surplus value. Gaudemar refers to the early 19th century as the period of “absolute mobilization.” At this time the traditional way of life of rural populations is systematically undermined in order to create a docile and disciplined factory workforce. This process involves disciplinary efforts, both within the factory and across the fabric of everyday life: on the one hand, the division of labor, waged employment, time-thrift, and the discipline of the “factory-prison”; on the other hand, the undermining of traditional culture (fairs, sports, etc.), the control of social space, and the moralization of the workforce through religion and schooling.

During the course of the 19th century, absolute mobilization is replaced by “relative mobilization.” In this process the earlier form of “external” discipline and control—the “policing” of workers—is replaced by an internal factory discipline in which technology now plays a central role and in which control coincides with the goal of productivity and surplus-value extraction: the machine as dual instrument of control and of increased productivity. This line of

development finds its apotheosis in the early 20th century with the scientific management of Frederick Winslow Taylor and, particularly, the automated assembly line of Henry Ford. In the Fordist factory the worker is divested of particularity and skill and subordinated to the logic of the machine. In the words of a contemporary American sociologist, “the task of the worker requires simply speed, dexterity, alertness and nervous endurance to carry the ‘robot’ through dull, monotonous, fatiguing, relentlessly automatic operations” (Dunn, 1929, p. 62). The Fordist plant becomes an integrated and automated complex, a mega-machine that paces and disciplines the workforce. Control is then truly structural. The time-clock and the assembly line prevail. Relations of power, subsumed into the functioning of technology, become automatic and invisible.

Fordism represents, then, the culmination of relative mobilization as a regimen within the factory. But (as with absolute mobilization) relative mobilization, particularly in its Fordist apotheosis, entails more than control over the immediate process of production: it necessitates a restructuring of the relation between factory and the outside world, and, consequently, an extensive recodification of the microstructures of everyday life. In this sense, “Fordism” designates not just a “revolution” in the factory, but also the creation of “a whole way of life.” And it is this latter aspect that concerns us particularly for the purposes of our present argument.

What, then, are the components of Fordism as a social system? Four broad and interrelated areas may be identified in what must be a rather cursory overview. First, Fordism entails the progressive intrusion into the sphere of reproduction—leisure, the family, and everyday life—by capitalist social relations.¹ This has occurred largely through the growth of *consumerism as a way of life*, for where there is mass production there must necessarily be mass consumption. As John Alt has argued, “the early social context where social relations and consciousness were largely mediated by the conditions of working class experience has been largely superseded by a socially-private existence mediated by consumerism” (Alt, 1976, pp. 68–69).

Where there once existed a relative independence (pig-rearing, smallholdings, weaving and sewing, etc.), there now exists a thorough dependence upon capitalistically produced and marketed com-

1. Although we refer specifically to Fordism—which evolved during the first half of the twentieth century—we are, of course, describing changes that were emerging throughout the whole period of relative mobilization.

modities (Trachtenberg, 1982). The reproduction of social life is fuelled by the products of capitalist factories—not only its material reproduction, but also, and increasingly, its psychic reproduction.

A second characteristic aspect of Fordism has been the increasing *state intervention in the management of society*. There has been a tendency toward “a more directly political control over the production and reproduction of daily life, extending methods of factory discipline into the state’s management of the social totality” (Levidow and Young, 1981, p. 5). Under the conditions of Fordist production—an intricate and technologically mediated division of labor, the integration of conditions of production and reproduction/consumption, the erosion of traditional forms of social integration—society becomes more complexly interrelated and interdependent and also increasingly susceptible to fragmentation and disintegration. In order to ensure the conditions of social integration and cohesion, state management and regulation become indispensable. And this intervention, as Joachim Hirsch has suggested, may take two distinct forms: the state as “both the materially supporting ‘caretaker of existence’ and the controlling, repressive ‘surveillance state’.” On the one hand, the state undertakes “bureaucratically organized regulation” in order to guarantee not only the conditions of material production (e.g., economic planning, fiscal policies, scientific research and development), but also those of social reproduction (welfare, social policy). On the other hand, it becomes increasingly implicated in those surveillance and intelligence activities appropriate to what Hirsch calls the “security-state” (Hirsch, 1981, pp. 83, 82, 87).

The third and fourth aspects of Fordism are related and involve the attempted *capitalist annexation of time and space* respectively. Fordism extends and deepens that process through which capital has sought to impose its rhythm and tempo upon time and time-consciousness. The period of relative mobilization has been characterized by “a gradual separation of work time from personal time . . . in which, paradoxically, work time and “leisure” time [have] gradually become more alike” (Thrift, 1981, p. 64).

The times of production and reproduction have become increasingly continuous—an integrated time subject to a calculating and external time-discipline. Time is segmented and compartmentalized according to the different tasks of production/reproduction, divided and subdivided to be used as productively, intensively, and deeply as possible. As Foucault has suggested in another context, “power is articulated directly onto time; it assures its control and guarantees its use” (Foucault, 1979, p. 160). And, like time, so too have space and spatial relations been colonized by capital. For, to quote Foucault

again, “discipline proceeds from the distribution of individuals in space” (ibid., p. 141). Under Fordism this has primarily entailed the centralization of social structures in order to ensure monopolization and the efficient functioning of power: the concentration and centralization of productive units, of communications systems, of bureaucratic organizations, of urban structures, and so on. Complementing this is the increasing privatization and marginalization of everyday life, symbolized in the serial mobility of the private car and the isolation of televiewing.

Our argument, then, is that Fordism puts social life under the dual regimen of productivity and discipline. The reign of capital, which began as a revolution in the “manner of production,” has become a revolution in the “manner of living” (Granou, 1974). Now, it may appear that the account we have given so far is somewhat functionalist and determinist in the way it presents the unremitting domination of capital over social life. But let us be clear that we are describing a *tendency*. Let us emphasize that mobilization invokes counter-mobilization: the attempt to discipline populations is the struggle to contain and unify an always potentially disruptive and unstable “self-mobilization.” Indeed, the present crisis, we would argue, is the consequence of a struggle between the forces of mobilization and counter-mobilization. Characterized by Garnham as essentially an economic matter, it is in fact a crisis of, and a challenge to, Fordism as a way of life. Although Fordism (supported by Keynesian economic strategies) produced a period of economic prosperity and comparative social detente, it also produced other, less desirable, consequences (“side-effects”): ecological pollution, the overexploitation of natural resources, the threat of nuclear annihilation, and so on. In the face of these threats, opposition has been mobilized by diverse social movements (socialists and trade unionists; ecologists; the women’s movement; blacks; antiwar campaigners; health campaigners; etc.). Through the current crisis capital struggles to absorb and defuse these movements of protest. So evident now is the devastation wrought by the Fordist “revolution” that it has become necessary to restructure the mode of accumulation and the way of life. And the “information revolution” promises to do exactly this. It offers the possibility of assimilating demands related to the quality of life as the motor of a new phase of accumulation; the new information technologies promise to meet and satisfy the clamor for more freedom, democracy, leisure, decentralization, and individual creativity. According to one observer, “the revolution in telematics is a great *human* revolution, something capable of transforming all our lives as workers, consumers, citizens and individuals” (Butler, 1981, p. 4). That, at least,

is the sales-pitch: the reality, as we shall indicate in a moment, is somewhat different.

This long preamble brings us to the crux of our argument. We are now in a position to draw together the threads of our discussion—to assess what is likely to be the real direction of the current restructuring process and the real impact of the new technologies. Thus far we have sketched out a historical context within which to situate these technologies. It is, however, a contextualization that is informed by a particular theoretical and conceptual emphasis: it is through the concept of “mobilization” that we can explore the historical impact of capital—especially through the exploitation of technology—upon the way of life. And it is this theoretical emphasis that allows us to critically examine the probable consequences of information technologies and to ask what the “great human revolution” really adds up to. Our argument is that the so-called information revolution in fact represents a significant new stage in the strategy of relative mobilization—one in which technological domination becomes extensively and systematically used in spheres far beyond the workplace. This “revolution” is both an intensification and, in important ways, a reconfiguration of Fordism as a way of life. Against Garnham’s economic emphasis and Connell’s stress on ideology and signifying practices, we want to suggest that this seismic shift is important insofar as it represents a restructuring and reorganization of relations of power. What we feel is lacking in most accounts of the new information/communications technologies is consideration of the ways in which they will articulate and express power relations. Particularly important for us is the question of what Foucault calls the “microphysics of power”: the ways in which information technologies will provide the filaments through which power and control will invade the social body as a whole; the extent to which integrated cable systems, particularly, will assist and support the “capillary functioning of power” (Foucault). Our concern is with the new technologies as cultural and political forces, ones that will shape and inform the microstructures of everyday life.

WORK AND LEISURE

We can concretize this argument by looking at some of the ways in which social and cultural processes will be transformed by the new technologies; in so doing, we can bring out the nature and significance of those changes that have a bearing on the present recomposition of the media /communications industries. As we have already indicated, information technologies will have a profound impact on work and lei-

sure, and, particularly, on their interrelation. It is clear that, in the “information society,” the deskilling of much work will continue under various forms of automation (Shaiken, 1984; Wilkinson, 1983). Moreover, this tendency will extend increasingly to jobs in the service sector, with accelerating office automation and the Taylorization of much intellectual labor. The force of these developments will be felt perhaps most acutely by women workers; whether they work in the factory, the office, or the home, the quality of their daily lives is likely to deteriorate (Huws, 1982, 1984).

Beyond the intensification of work discipline, however, there is another issue that is of more consequence for the present discussion. Here we are referring to the prospect that, as a consequence of rising technological unemployment, the whole relationship between work and leisure may be transformed, and along with it the quality of our everyday lives. André Gorz has argued that “salaried work will by the end of the century have ceased to be the main occupation”; in the “microelectronics revolution,” he suggests, “economy of time (of work, of personnel) is the primary objective” (Gorz, 1983, pp. 216, 212).

Gorz pushes the argument further: “In the context of the current crisis and technological revolution it is absolutely impossible to restore full employment by quantitative economic growth. The alternative rather lies in a different way of managing the abolition of work: instead of a society based on mass unemployment, a society can be built in which time has been freed” (Gorz, 1982, p. 3). The choice, he explains, is “either a socially controlled, emancipatory abolition of work or its oppressive, anti-social abolition” (ibid., p. 8). Gorz confronts the question of how, in a world of disappearing (waged) work and expanding “leisure” time, we shall use the time that has been “liberated.” In the “postindustrial society,” what will be the content, the experience, the quality, of our everyday lives? We have doubts about Gorz’s optimistic faith in our ability to appropriate information technologies for socialist goals (Webster and Robins, 1986, Ch. 4), but we agree with him when he says that the socialist use of time should be defined by our ability to “relearn to apply ourselves to what we do, not because we are paid to do it, but for the leisure of creating, of giving, learning, of establishing non-market and non-hierarchical, practical and affective relations with others” (Gorz, 1983, p. 216).

This objective is important in the face of what capital has in store for us. For what it enthusiastically and ideologically dubs the “leisure revolution” will be quite another matter. If capital has its way, the likelihood is that the realm of “leisure” and “free” time will be further sub-

sumed under the regime of consumerism; the trends apparent in Fordist society will expand and deepen. The more (or less) affluent redundancy of enforced leisure will be serviced from the factories of the culture industry; commodified entertainment and services will be pumped into the individual household in a steady, metered flow. And the tendency will be towards increasingly privatized and passive recreation and consumption. In this consumer Cockaigne, an increasing number of social functions and activities will be mediated by the domestic television console: not just entertainment, but also information services, financial and purchasing transactions, communication, remote working, medical and educational services. Through the television console, and it alone, we shall gain access to what has been called the "network marketplace." In order to become socially and culturally enfranchised, the individual household must necessarily become heavily capitalized, investing in the essential video, communications, videotex, and computing technologies. Technologies will proliferate in the homes to mediate the work of consumption and reproduction, to facilitate the increasingly demanding and complex experience of everyday living. As one enthusiast puts it, "for many consumers, the daily business of living has become sufficiently complex, costly, and labor intensive that some machine assistance is not only feasible but necessary." The answer, she believes, is that "the family's information, record keeping, and communications needs must be responded to electronically through the new technologies of the 1980s" (Jones, 1983, p. 152). Another, more critical, commentator cuts through this bunkum when he suggests that this process is, rather, subordinating the domestic sphere to "the productivist criteria of profitability, speed and conformity to the norm." Through the "information revolution" capital invades the very cracks and pores of social life: "the industrialisation, through home computers, of physical and psychical care and hygiene, children's education, cooking or sexual technique is precisely designed to generate capitalist profits from activities still left to individual fantasy" (Gorz, 1982, p. 84).

TIME AND SPACE

These are forms through which the reach of capital is extended throughout society. And fundamental, now, to these strategies is the exploitation of information technologies. Crucial here is the way in which these technologies can, potentially, extend and deepen capital's hold on temporal and spatial relations. What the "information revolution" means, in the case of time, is the acceleration of that

process, which we have already outlined, whereby the sphere of "leisure" and reproduction becomes better subject to time-discipline. Increasingly, "leisure" will become amenable to arrangement by capital, which can now access the consumer via electronic/information consoles capable of penetrating the deepest recesses of the home, the most private and inaccessible spheres to date, offering entertainment, purchases, news, education, and much more round the clock—and priced, metered, and monitored by corporate suppliers. In these ways "free" time becomes increasingly subordinated to the "labor" of consumption.

The great virtue, however, of the new technologies lies in their capacity to transcend the limitations of Fordist time-discipline. For, under Fordism, with its rigid division of the day into work time and reproduction time, there develops both a constraining inflexibility in the exploitation of time and also a limitation on the depth and intensity of (productive) time use. With the combination of work, leisure, and consumption functions in the domestic information terminal, however, the rigid distinction between production (work time) and reproduction ("free" time) may be eroded. Domestic cable networks facilitate the restructuring of patterns of time use on a more flexible and individual basis; they provide the technological means to break the times of working, consumption, and recreation into "pellets" of any duration, which may then be arranged in complex, individualized configurations and shifted to any part of the day or night. The objective is, of course, to intensify and de-rigidify the exploitation of both labor power and "consumption power."

Related to the annexation of time is the colonization of geographic and social space. The impetus of Fordism as a social system was based upon control through the centralization and concentration of spatial structures and relations. The most insistent claim from the architects and ideologues of the "information society" is that the new technologies can halt this centralizing tendency and inaugurate a new era of decentralization. Thus the influential Nora Report argues that information technology "allows the decentralisation of even the autonomy of basic units," such that we can expect the passage "from an industrial, organic society to a polymorphous information society," one that is composed of "innumerable mobile groups" (Nora and Minc, 1980, pp. 126–27). It is, indeed, the case that decentralization is on the agenda. This is apparent in the new "demassified" media (cable, video, citizens' band radio, videotex) that are now undermining those patterns of centralization, synchronization, and standardization characteristic of the *mass* media. These new media, it is suggested, provide tailor-made communication and recreation, promoting thereby

greater diversity, choice, and freedom. In the sphere of production, too, there are signs of disillusionment with massive (Fordist) corporations and bureaucracies, and of a growing aspiration toward small, federated enterprises. The new communications technologies are the key to the disseminated factory and enterprise, for they allow productive (and bureaucratic) structures to become fragmented and dispersed—on both a national and international scale—without losing the ability to oversee and coordinate activities. As one techno-enthusiast has commented, “the multinational can now use its communications network to coordinate the activities of decentralised units.” This, he suggests, means that “the organisation can have responsiveness *and* control”: “decentralised activities can be coordinated as if they were centralised” (Keen, 1981, pp. 149, 141). Flexibility has been gained in production and administration without the loss of control.

Decentralized activities can be coordinated as if they were centralized. This is the important insight. Centralization and decentralization do not represent alternative paradigms of social organization. Rather than representing the road to freedom and democracy, decentralization refines and streamlines the effective exercises of power. First, it should be stressed that the disseminated electronic “cottage industry” or “electronic home” will in fact be embedded within a social structure increasingly subject to the centralizing and managerial tendencies of bureaucratically organized regulation. Large-scale systems for the coordination of national statistical data will promote social modeling, policy making, and management; and centralized mechanisms of administration and regulation will be reinforced by the formation of integrated intelligence systems handling, for example, welfare, social security, or tax data. A further, and crucial, area of centralization is to be found in the formation of police and military information systems. A second point to be made—and to be made emphatically—is that decentralization complements and reinforces such overarching tendencies toward centralization. Decentralization, dissemination, fragmentation, individualization, privatization, isolation, marginalization—these are the modalities through which power will flow through civil society in the “information age.” Decentralization of the spaces of production and consumption/reproduction: mobilization and, simultaneously, immobilization.

Our argument, then, is that the “communications revolution” is taking place within a much broader restructuring of social life, one that can be seen—historically and theoretically—as both the extension and the reconfiguration of Fordism. As such, this “revolution” marks a significant extension of relative or technological mobilization

to spheres of life beyond the workplace. Through information technologies, with their wide-ranging applications, social life opens up to more effective colonization; the rhythm and social space of everyday life become, potentially, subject to a more certain and effective codification according to the prevailing relations of power. It is this possible mobilization of the time, distribution, and manner of everyday life that constitutes, in our view, an important political and theoretical space between economic analysis (Garnham), on the one hand, and ideological/textual analysis (Connell), on the other. (See Robins, 1983, Robins and Webster, 1983a.)

SOCIETY UNDER SURVEILLANCE

We want now to extend the argument by focusing upon one crucial dimension of the new communications technologies that is usually ignored by media analysts. It is a perspective that allows us to assess the real power and political implications of information technologies, particularly in their impact upon the fine grain of daily life. We are referring here to the intelligence and surveillance capacities of these technologies—an area more familiar, perhaps, to investigative journalists and civil libertarians.

We approach this discussion, to which we have already briefly alluded, by way of a further historical detour. At the end of the 18th century, Jeremy Bentham outlined his plans for an institutional architecture of control. What Bentham devised was a general mechanism—applicable to prisons, asylums, schools, factories—for the automatic and uninterrupted functioning of institutional power and control. This mechanism, the Panopticon, is a building of circular structure with a series of individual cells built around a central “well”; at the center is an inspection tower from which each of the cells could be observed and monitored. A calculated illumination of the cells, along with the darkening and masking of the central tower, endows the “inspective force” with “the unbounded faculty of seeing without being seen” (Bentham, 1843, p. 80). The essence of the Panopticon, Bentham suggests, consists in “the centrality of the inspector’s situation, combined with the well-known and most effectual contrivances for *seeing without being seen*.” What is of importance, he argues, is “that for the greatest proportion of time possible, each man should actually *be* under inspection”; but it is also desirable “that the persons to be inspected should always feel themselves as if under inspection,” for “the greater chance there is, of a given person’s being at a given time actually under inspection, the more strong will be the persuasion—the more *intense*, if I may say so, the *feeling*, he has of his being so”

(*ibid.*, p. 44). The inspector is apparently omnipresent and omniscient, while the inmates, cut off from the view of each other, are reduced to the status of "solitary and sequestered individuals." The inmate is marginalized, monitored, and, ultimately, self-monitoring: "indulged with perfect liberty within the space allotted to him, in what worse way could he vent his rage, than by beating his head against the walls?" (*ibid.*, p. 47).

Jeremy Bentham considered the Panopticon to be an architectural paradigm capable of generalization. This insight has been developed most fully by Michel Foucault in his historical and philosophical exploration of forms and relations of power. For Foucault, the Panopticon, as a mechanism and edifice for channeling the flow of power, amounts to a major landmark in the history of the human mind. Historically, it represents a bulwark against the mobile disorder of the swarming crowd, against forbidden circulations and "dangerous mixtures." The Panopticon is a form of mobilization—and here Foucault's work intersects with that of Gaudemar—the production of an architecture of control and supervision, eliminating confusion through the elaboration of a permanent grid of power. What Bentham did was to crystallize a sea-change in the social economy of power: his contribution was part of a wider "effort to adjust the mechanisms of power that frame the everyday lives of individuals; an adaptation and a refinement of the machinery that assumes responsibility for and places under surveillance their everyday behaviour, their identity, their activity, their apparently unimportant gestures; another policy for that multiplicity of bodies and forces that constitutes a population" (Foucault, 1979, pp. 77–78).

This policy, according to Foucault, was implemented through the creation of spaces that are at once architectural, functional, and hierarchical. The Panopticon contains "so many cages, so many small theatres, in which each actor is alone, perfectly individualised and constantly visible" (*ibid.*; p. 200): "the crowd, a compact mass, a locus of multiple exchanges, individualities merging together, a collective effect, is abolished and replaced by a collection of separated individualities. From the point of view of the guardian, it is replaced by a multiplicity that can be numbered and supervised; from the point of view of the inmates, by a sequestered and observed solitude" (*ibid.*; p. 201). Within the Panoptic machine, the individual "is seen, but he does not see; he is the object of information, never a subject in communication." The inmate is subjected to "a state of conscious and permanent visibility that assures the automatic functioning of power" (*ibid.*). So insidious are the relations of power that the individual becomes self-monitoring:

He who is subjected to a field of visibility, and who knows it, assumes responsibility for the constraints of power; he makes them play spontaneously upon himself; he inscribes in himself the power relation in which he simultaneously plays both roles; he becomes the principle of his own subjection. By this very fact, the external power may throw off its physical weight; it tends to the non-corporal; and, the more it approaches this limit, the more constant, profound and permanent are its effects: it is a perpetual victory that avoids any physical confrontation and which is always decided in advance. (*Ibid.*, pp. 202–3)

The Panopticon, then, is a machine that ensures the infinitesimal distribution of power, one that turns the monitored individual into a visible, knowable, and vulnerable *object*. It is a generalizable "type of location of bodies in space, of distribution of individuals in relation to one another, of hierarchical organization, of disposition of centres and channels of power, of definition of the instruments and modes of intervention of power" (*ibid.*: p. 205). According to Foucault, the Panoptic machine, "at once surveillance and isolation and transparency" (*ibid.*: p. 249), is an integrated system of surveillance/intelligence and discipline/control.

We believe that Foucault is right in seeing Bentham's Panopticon as a significant event in the history of the human mind. We want to suggest that the new communication and information technologies—particularly in the form of an integrated electronic grid—permit a massive extension and transformation of that same (relative, technological) mobilization to which Bentham's Panoptic principle aspired. What these technologies support, in fact, is the same dissemination of power and control, but freed from the architectural constraints of Bentham's stone and brick prototype. On the basis of the "information revolution," not just the prison or factory, but the social totality, comes to function as the hierarchical and disciplinary Panoptic machine.

If we consider the loops and circuits and grids of what has been called the "wired society" or "wired city" (Aldrich, 1982; Martin, 1978), we can see that a technological system is being constituted to ensure the centralized, and furtive, inspection, observation, surveillance, and documentation of activities on the circumference of society as a whole. Cable television networks, for example, can continuously monitor consumer preferences for programming material, along with details of any financial or communicative transactions. We have the now innumerable, and increasingly interlinked, networks of bureaucratic and commercial data banks that accumulate and aggregate information on the activities, transactions, needs, and

desires of individuals or social groups. And, of course, this is the age of the, now mundane, surveillance camera, of telephone tapping, and of ever more sophisticated and integrated police computer systems (Manwaring-White, 1983).² This is the real achievement of cable! The population becomes *visible* and *knowable* to the different computerized "inspective forces." Here, as Foucault suggests of the Panopticon, is "a machine for dissociating the see/being seen dyad: in the peripheric ring, one is totally seen, without ever seeing: in the central tower, one sees everything without ever being seen" (Foucault, 1979, p. 202). The individual becomes the object of surveillance, no longer the subject of communication. And, like the Panopticon, the "wired society" too is a "system of individualizing and permanent documentation" (*ibid.*, p. 250): the observed and scrutinized individual, subjected to continuous registration, becomes the object of knowledge (of files and records). Seen and known. Overcoming spatial and temporal constraints, the electronic grid fulfills the dream of an "infinitely minute web of panoptic techniques" (*ibid.*, p. 224).

We are not suggesting that there is, or will be, a single omniscient and all-seeing "inspective force" in the "wired society." The nodal points on the electronic grid will be multiple and differential. There is, of course, the problem—a pressing political and civil liberties issue—of increasingly centralized state and police surveillance/intelligence activities, which, as David Leigh suggests, represent "a very pure form of bureaucratic utopia: the official is kept invisible, and the citizen is stripped naked" (Leigh, 1980, p. 218). This political and repressive use of the new information and communications technologies must always be kept to the fore. But we are also talking of more ordinary and routine surveillance activities, undertaken from more diffuse and numerous power centers. As opposed to the more active and calculative amassing of data by control agencies, there exists also a more passive and mundane gathering and collation, by bureaucratic and commercial organizations, of what has been called "transactional information" (Burnham, 1983). For *any* electronically mediated activity—cable viewing, electronic financial transactions,

2. To answer the charge that this is a paranoid and unsupported assertion, we point skeptics to the considerable body of literature documenting the accumulation of command and control technologies and the abuse of them to surveil large sections of the populace (see, for example, Bamford, 1983; Campbell, 1980; Davies, 1985; Davies and Black, 1984a, 1984b; *Guardian*, 1985; Leigh, 1980).

telephoning, for example—spawns records that can yield up a harvest of information about individuals or groups: their whereabouts and movements; daily patterns of work and recreation; contacts, friends, associates; tastes, preferences, desires. Such information, when accumulated and processed, becomes an invaluable asset to a plurality of corporate and political interests. These different, but related, tendencies point to the increasing importance of surveillance and social monitoring. Joel Kovel has, in fact, argued that surveillance is "a process inherently tied to the development of technology." Surveillance, he suggests, originates in the labor process, where there developed a need for "watching the producer and controlling what was being done" (Kovel, 1983, p. 76). This phase in the development of surveillance techniques, which found its apotheosis in Taylor's scientific management and in the Fordist factory, has now been superseded by more extensive and ambitious surveillance:

The same craft has been taken over by the state as its target shifts to the domestic population. what began with control of the worker and flourished into the technology of Scientific Management in the early years of the century, has turned to directly political ends.

Computerised electronic surveillance has ushered in a whole new phase of domination. (*Ibid.*, pp. 76-77)

Technologies, as they have actually existed, have been constituted to watch and control, to control through watching. Information technologies—*actually existing* information technologies—extend this capacity. In them is perfected the ability to mobilize and control through watching and monitoring: power expresses itself as surveillance and panopticism, on the scale of the social totality. The eye of power; the technology of knowledge and control. The cabled electronic grid is a transparent structure in which activities taking place at the periphery—remote working, electronic banking, the consumption of entertainment or information, tele-shopping, communication—are *visible* to the electronic "eye" of the central computer systems that manage the network(s). The "technical" process of administering the numerous electronic transactions is simultaneously, and integrally, a process of observation, recording, remembering, surveillance. The electronic worker, consumer, or communicator is constantly scanned, and his or her needs/preferences/activities are delivered up as information to the agencies and institutions at the heart of the network. Decentralized, sequestered, privatized activities and lifestyles are monitored from the diverse centers of power/administration. In the panoptic structure of the electronic grid, we

find expressed that pattern of centralization and decentralization—of concentrated power and fragmented impotency—which, we have argued, is at the heart of that emerging configuration of social relations referred to ideologically as the “information society.” The lives of those on the periphery are subject to constant surveillance and documentation—and, hence, control—from the central observatories of the social Panopticon.

Jeremy Bentham’s Panopticon—as the prototype of a regimen of power relations—is, then, a central figure for understanding the modalities of power in the “information society.” In the panoptic machine—whether it is constructed of bricks and mortar, or electronic cables—mobilization is achieved through the (serialized, cellular) isolation of individuals, combined with the development for surveillance and intelligence by centralized agencies. Again we would stress that we are exploring terrain inaccessible to economic theory (Garnham) or ideological analysis (Connell): we are concerned with the implications of the new technologies for the department of everyday life, for the way in which capital may come to better discipline the very conduct, rhythms, and spaces of day-to-day existence.

KNOWLEDGE, INFORMATION, INTELLIGENCE

Another important, and neglected, aspect of the communications revolution is of particular significance to those involved or interested in the mass media. Many commentators now see the emerging pattern of capital accumulation, the successor to Fordism, in terms of the evolution of an information economy and an “information society.” Information is thought to be the key to a new phase of economic growth. And, more ambitiously, freely flowing information is held up as the means to achieve a future libertarian and communicative democracy. Thus Tom Stonier argues that “in a postindustrial society, a country’s store of information is its principal asset, its greatest source of wealth” (1983, p. 12)—“as our knowledge expands the world gets wealthier” (*ibid.*, p. 63). He can then go on to suggest that “whereas material transactions can lead to competition, information transactions are much more likely to lead to cooperation—information is a resource which can be truly shared” (*ibid.*, pp. 18–19). And, more fantastically, “no dictator can survive for any length of time in communicative society as the flows of information can no longer be controlled from the centre” (*ibid.*, p. 203). In the present context of social and economic crisis, information offers itself as the principle of redemption (see Williams, 1985).

Although we remain highly skeptical about this putative informa-

tion utopia, it nonetheless remains the case that a significant mutation is taking place in the social economy of information/knowledge. We have already indicated that the media industries, and, more importantly, the whole of the electronics, telecommunications, and data-processing industries, are undergoing a process of convergence and integration. This upheaval should also be understood as a transformation in the existing structures of information production and circulation—as an important recomposition of the present social ecology of information/knowledge. The way in which this is significant particularly for an understanding of the current mass media “revolution” is brought out in a recent report by the British government’s Information Technology Advisory Panel (ITAP). Here it is argued that:

new technology is eroding many of the distinctions that have previously distinguished one form of information medium from another; publications, films and news services are now all becoming aspects of an expanding “tradeable information sector.” (Information Technology Advisory Panel, 1983, p. 11)

And again:

There is now an expanding “tradeable information sector” which encompasses the supply of financial and business information, printing and publishing, on-line technical information, consultancies, etc. We consider that the entertainment industry and aspects of education and training services fall within this sector, since many of the same technological influences bear upon these activities as upon more obviously “information” activities.” (*Ibid.*, p. 7)

Circumstances, then, make it increasingly impossible and irrelevant to treat the mass media in isolation: the culture industries are increasingly becoming subsumed within a massive and overarching information sector, of which they make up but one constituent part.

According to the ITAP report, this emerging information mega-industry divides into trading and nontrading components. The latter category includes certain activities within the private sector (banking, insurance), along with central and local government operations, and (though ITAP does not mention these) military and policing applications. The greatest component of the industry, however, is involved in the trading of various kinds of information (“packaged,” “semi-packaged,” transient, permanent, skilled judgment, education and training, entertainment [*ibid.*, pp. 12–16]). As to the noncommercial exploitation of information—the bureaucratic and control applications—we have already touched upon this in our brief discussion of surveillance. Bureaucratic social management and police or military

surveillance manifest themselves as the compulsive and incessant gathering of what is called "intelligence." What Joachim Hirsch refers to as the modern "security state" accumulates and processes information for the purposes of regulation and control.

But if information is being marshaled in the political domain, it is also circulating on an ever greater scale in the marketplace. Thus we have a veritable explosion of new media commodities: video games, videocassettes and discs, cable and satellite channels, personal computers. And we also have the commodification of new areas of information: "a much wider range of information has become profitable because it can be flexibly processed, selectively rearranged, and quickly transmitted and disseminated by a virtuoso new technology" (Schiller and Schiller, 1982, p. 461). Thus scientific and technological knowledge, demographic information, education, medical care, public reports and statistical services, libraries, and much more all become transformed into information commodities (Lumek, 1984; National Commission on Libraries and Information Science, 1982). Pushing in this same direction is state intervention that seeks to transform what have hitherto been public resources into commercial enterprises. The liberalization and privatization of British Telecom, for example, is part of the strategy to open up the information sphere to market forces. So too is the attempt to hive off government information services to private organizations whenever feasible, and when not, to introduce commercial criteria into the government's own administration of information and statistical services; according to the recent Rayner Report, all information should be charged for at commercial rates. All of this is bound to have serious social implications. We are likely to see an increasing scarcity of information that is not considered to be commercially viable. The available information will be differentially distributed: "hard" (financial, commercial, scientific) data for the wealthy corporate sector; trivial data, through videotex and teletext channels, for the domestic consumer. And, most important, the principle of public knowledgeability, of the availability of information resources as a public service—an ideal imperfectly realized at the best of times—will be undermined (paralleling, of course, the subversion of public service broadcasting [the British Broadcasting Corporation], the decline of library services, and the dismantling of communication publicly owned communication systems [British Telecom]; see Robins and Webster, 1983b; 1985).

Can this amount to an "information revolution"? Does it put us on the threshold of an "information society"? We think not. This political and commercial annexation of information only appears to be a novel occurrence (Robins and Webster, 1987a). The appropriation of

information/knowledge, in our view, has roots particularly in the capitalist labor process. Marx described this phenomenon in terms of the tendential separation of mental from manual labor, suggesting that capital strives to monopolize the intellectual aspect of the labor process in order to increase productivity and to ensure control. It is a development that, again, finds its apotheosis in Taylor's scientific management. With scientific management the project of appropriating the skills and knowledge of workers becomes systematic and compulsive. What Taylor realized was that it was to their traditional skills and rule-of-thumb knowledge that his workers owed their independence and resilience in the face of discipline and control. On this basis he undertook

the deliberate gathering in on the part of those on the management's side of all the great mass of traditional knowledge, which in the past has been in the heads of the workmen, and in the physical skill and knack of the workmen, which he [sic] has acquired through years of experience. The duty of gathering in of [sic] all this great mass of traditional knowledge and recording it, tabulating it, and, in many cases, finally reducing it to laws, rules, and even to mathematical formulae, is voluntarily assumed by the scientific managers. (Taylor, 1974, p. 40)

All "brainwork" Taylor aimed to concentrate in his centralized "planning department." It is with machinery, however, that this gathering in of skill and knowledge can become truly systematic. It is through technology that we see "the separation of the intellectual faculties of the production process from manual labour, and the transformation of those faculties into powers exercised by capital over labour" (K. Marx, 1976, p. 548). With Henry Ford's assembly line this process reaches its historical culmination. Here the skills of the worker are truly embodied in the machinery: control of the labor process assumes the guise of objective necessity, and domination expresses itself through the form of technological "rationality." In the Fordist factory, as one contemporary observer noted, "automatic machines show a transfer of thought, skill or intelligence from person to machine" (Reitell, 1924, p. 41). In the subsequent history of the labor process, this automatic and impersonal functioning of power through the technological appropriation of knowledge/skill has been intensified and extended, including the Taylorization and mechanization, through information technologies, of certain forms of intellectual labor.

Our argument is that this gathering in of skill/knowledge/information, hitherto most apparent in the capitalist labor process, is now entering a new and more pervasive stage. What we are seeing is the progressive collection, centralization, and concentration of knowl-

edge on a wide social scale, and, thereby, the establishment of what we would call Social Taylorism (Webster and Robins, 1986, ch. 11). In an intensive consumer society, as we suggested earlier, needs—material and psychic—are met by commodities. As Ivan Illich suggests, the “professionally engineered commodity” replaces the “culturally shaped use-value,” and we see the substitution of “standardized packages for almost everything people formerly did or made on their own” (Illich, 1978, p. 24). The corollary and consequence of this consumerization is a tendential depletion of social skills, knowledge, self-sufficiency. Jeremy Seabrook has written perceptively of the “plundering of people, the shedding of skills, the loss of human resource” and of “the process of wrenching away from working class people needs and satisfactions they had learned to answer for each other, and selling them back, in another form, as commodities” (Seabrook, 1982, pp. 179, 105). We are talking of a process of social deskilling, the depredation of knowledge and skills, which are then sold back in the form of commodities—or, alternatively, professionally administered through bureaucratic agencies and organizations.

It is just this appropriation and concentration of social knowledge and skill that the new information technologies are designed to promote. They underpin a more extensive, efficient, and systematic colonization of social knowledge. Potentially all social functions are to be incorporated and metamorphosed into information commodities: education, entertainment, health care, communication, and so on. According to Mary Gardiner Jones, whom we quoted earlier, we can look forward to

a flexible, multipurpose information and communication system [which] could encompass not only information, education and entertainment services but also a series of remote control applications to adjust home temperatures and energy use, setting off alarms at a variety of types of intrusion, fires and other hazards, and handling record-keeping, accounting, and bill-paying. (Jones, 1981, p. 36)

In the new information industries, social knowledge and resources will be annexed and alienated. The mass of traditional knowledge, in Taylor’s terms, will be recorded, tabulated, and reduced to laws, rules, and mathematical formulae. Through data banks and information services we shall have to buy the information necessary to function in a complex industrial society, or be deprived of it if we are too poor. With the new information technologies, previously dispersed, and inaccessible, information/knowledge can become processed and possessed. We shall see the “migration of information from the home to the organisation,” and much of this information, until re-

cently, “would not have been collected at all, but would instead have been stashed away in our homes” (Burnham, 1983, pp. 12, 11).

More than this, people themselves will increasingly be relegated to the status of data; their actions and transactions will be recorded as digits and ciphers by the ubiquitous and always watching information machines. Already credit agencies, finance houses, and large retailers are constructing databases on customers and potential customers, categorizing them, analyzing them, scrutinizing their movements, that they might be used to the optimum benefit of the corporation. In advanced capitalist societies online links give instant access to buying patterns, demographic traits, balances outstanding, and other characteristics. The Direct Mail Sales Bureau advises business to build and access these resources. Introducing the concept of “Precision Management,” it observes that “vast sums are being invested by far-sighted marketers to create complex data bases which contain a vast array of information about our various target markets. Thus armed, we can speak to people about that which is relevant [what is saleable] and ignore that which is not relevant [the poor] to their [sic] needs and interests” (advertisement, *Financial Times*, 16 October 1985). The size and scale of these databases can be awesome. For example, in Britain Infolink, the biggest agency of its kind in the United Kingdom, boasts an information bank that includes the entire electoral register of 42 million voters, whom it can review at a rate of 48,000 transactions an hour (Wiltshire, 1986). Increasingly, people are objects of surveillance: objects of knowledge and information.

It is worth adding that, although this surveillance has been developed chiefly as an extension of market endeavors, capital has not been entirely responsible for its spread. The growth of the modern state, integrally connected as it is with the rise of corporate capitalism, has contributed independently and massively to the maximization of surveillance. Anthony Giddens (1985) has recently reminded us of the importance of nationalism, citizenship, war, and the preparation for war as key factors stimulating heightened surveillance (and its converse, control of information dissemination). Inexorably the state has amassed files, increasingly computerized and interlinked, on health, taxation, social security, employment, education, vehicle ownership, housing, crime, and intelligence. In the present period, when the state has noticeably raised its coercive profile in response to social unrest and in order to facilitate the necessary restructuring to regain competitiveness, Giddens’ warning of the risks of totalitarianism inherent in states that so intensively scrutinize and manipulate their people deserves close heed (cf. Campbell, 1986; G. Marx, 1985).

As Bentham’s Panopticon expresses the social relations of surveil-

lance and control, another figure expresses the social relations of generalized Taylorism. We are referring to H. G. Wells's conception of the World Brain or World Encyclopaedia—the dream of an unlimited, concentrated, and accessible reservoir of knowledge. According to Wells,

an immense and ever-increasing wealth of knowledge is scattered about the world today, a wealth of knowledge and suggestion that—systematically ordered and generally disseminated—would probably . . . suffice to solve all the mighty difficulties of our age, but that knowledge is still dispersed, unorganised, impotent . . . (1938, p. 47)

The knowledge systems of the world must therefore be concentrated in the World Brain, in the creation of “a new world organ for the collection, indexing, summarising and release of knowledge” (*ibid.*, p. 59). Wells ponders “the creation of an efficient index to *all* human knowledge, ideas and achievements . . . the creation, that is, of a complete planetary memory for all mankind” (*ibid.*, p. 60); “the whole human memory,” he believes, “can be, and probably in a short time will be, made accessible to every individual” (*ibid.*, p. 61). For Wells, “the time is ripe for a very extensive revision and modernisation of the intellectual organisation of the world”—(*ibid.*, p. 26): “this synthesis of knowledge is the necessary beginning to the new world” (*ibid.*, p. 64). The world “has to pull its mind together” (*ibid.*) through this new kind of “mental clearing house,” the World Brain (*ibid.*, p. 49).

Nowadays the figure of the World Brain is not an ideological mirage to be mocked and peremptorily dismissed. Like Jeremy Bentham's Panopticon it is a utopian proposal, but one that should be taken seriously. The World Brain is an intellectual “invention” with considerable social and political resonance. It is one that tunes well with the aspirations of police and surveillance agencies; with business corporations like Telerate, Datastream, Reuters, or the now defunct International Reporting Information Systems (IRIS), which sought “to gather in, sort and increase in value by sophisticated analysis the vast amount of information floating around the world” (Saint Jorre, 1983); and with the purveyors of videotex information, who realize that this “can be seen as a system in which the basic structuring imposed on the information according to amount of detail and place in the subject hierarchy . . . makes the Wellsian dream practicable” (Fedida and Malik, 1979, pp. 166–67). The World Brain anticipates what we can now see as an emerging new regime of information production, circulation, consumption, and control; as a new economy and politics of knowledge.

Wells, of course, sees this “new encyclopaedism” as an entirely benevolent phenomenon. His is the Fabian ideal of knowledge as a social resource: knowledge is neutral and contains all goodness within itself. In reality, however, things are somewhat different. What we have in the World Brain is the utopia of technocratic planning, administration, and management. The encyclopaedic dream represents, in fact, a technocratic consummation and travesty of what has been termed the public sphere. In the place of informed debate and interchange and of public knowledgeability (as aspirations, at least), we are left with nothing but the commerce, collation, and manipulation of data. As Jürgen Habermas has demonstrated, the (bourgeois) public sphere has undergone a long process of decline. Historically, we have seen the replacement of a political public sphere by a depoliticized consumer culture that erases the difference between commodity circulation and social intercourse, and by social engineering through the massaging of “public opinion.” Critique has become integration, acclamation, consumption (Habermas, 1962, chs. 5–6). The public sphere becomes publicity and public opinion. And now publicity and public opinion assume the diminished and alienated form of the “world encyclopaedia” or “information society.” Public debate and discourse have given way to the mindless, avaricious, and indiscriminate amassing of information. For the Fabian Wells—as for the masseurs and diagnosticians of public opinion—it seems self-evident that the free and bountiful flow of information will bring people together. In reality, information can divide them, render them ignorant, silence them, manipulate them, monitor them, alienate and isolate them. For the majority of us, as André Gorz has argued, the “information explosion” does not promise greater freedom or independence:

The expansion of knowledge rather has gone in parallel with a diminution of the power and autonomy of communities and individuals. In this respect, we may speak of the schizophrenic character of our culture: the more we learn, the more we become helpless, estranged, from ourselves and the surrounding world. This knowledge we are fed is so broken up as to keep us in check and under control rather than to enable us to exercise control. (Gorz, 1976, p. 64)

What is missing in most accounts of the “information society” is an understanding of the way in which knowledge and information mediate relations of power. As we have already suggested, a society of routine and procedural surveillance is one that also, necessarily and automatically, gathers and processes information. Surveillance is also continuous and perpetual intelligence, the recording of existence,

and the accumulation and the annexation of knowledge. Surveillance, knowledge, power: in the "information society" there is no one central "planning department" as there is in the Taylorized factory. The centers of power are multiple and differential; the archives of commerce and control are relatively dispersed. But in each of them social knowledge and resources are appropriated and transformed into power and capital. The store of collective knowledge, and of popular memory and tradition, is tendentially displaced by the estranged objectivity of data banks and information reservoirs (Lyotard, 1980). Moreover, information, when it is harvested on a massive and systematic scale, becomes intelligence. Information on natural resources, or on the activities and transactions of individuals, becomes politically significant when it is held in large quantities that can be processed and aggregated by technological means. What we are suggesting, in fact, is that in the "information society" the intelligence function is the paradigm for all information gathering. In the words of one information apparatchik, what we are seeing is

the maturation of the intelligence function from its origins as a government spy service to full growth as an intellectual discipline serving the private and public sectors alike. . . . Today's proliferation of information banks and analytical centers for investment counselling, political risk assessments, and "futures" estimates are witness to the growth of the intelligence discipline outside traditional government circles. (Colby, 1981, pp. 67-68).

Information is not a thing, an entity; it is a social relation, and in contemporary capitalist societies it expresses the characteristic and prevailing relations of power.

The information industries, then, are undergoing a process of massive institutional transformation, convergence, and integration. Behind the myth of the "information society" there is the reality of a growing commercial and political exploitation of social knowledge and information. What we need in order to respond to this initiative by capital is not a policy for cable, nor simply a media policy, but a politics of information.

CONCLUSION

In this discussion we have tried to outline our difficulties with the approaches of Nicholas Garnham and Ian Connell to the new media technologies and industries. Each grasps particular and important aspects of the new communications "revolution," and, in our own view, Garnham's work represents an important starting point for research. But

crucial dimensions of this "revolution" are overlooked by both Garnham and Connell. We have sought to open up some of these in order to explore the social meanings of the new technologies.

What we have suggested, first, is that media analysts must try to understand the wider social, political, and economic restructuring process that is now shaping the communications "revolution"—a process that entails a significant recomposition of the forms of social mobilization (for example, a transformation of state regulation and "preventive" surveillance). Circumstances now conspire to undermine parochialism, making it impossible for us to be media specialists alone. We have then gone on to argue that this disconcerting "revolution" cannot be understood simply in terms of ideological or economic issues. These aspects *are* important, but we must also understand the current upheaval in terms of the mobilization and transformation of *everyday life*. Of particular interest is the growing importance of technology beyond the workplace—the increasing technological mediation of everyday life; far from being socially neutral, information technologies are beginning to shape the whole way of life and assume a profound cultural significance. The category of "everyday life"—which has led a kind of half-life in the interstices of cultural theory, in the work of such different thinkers as Leon Trotsky, Fernand Braudel, Henri Lefebvre, and Agnes Heller—can help us to see the pervasive and intrusive nature of the "information revolution." For it points to the ways in which the rhythm, texture, and experience of social life—the very segmentation of time and space—are being transformed and informed by capital. And, furthermore, it allows us to see how relations of power penetrate and infuse the social body. This emphasis upon power is central to our own analysis of the new technologies: we are concerned with the ways in which everyday, and apparently insignificant, activities, deportment, and interchanges are disciplined and controlled.³ This leads us to suggest that the development of integrated and systematic information/communi-

3. We are not unaware of the difficulties in theorizing power, particularly in relation to the question of agency. There is always the danger of falling into conspiracy theory. In the exercise of power, as Foucault observes, "the logic is perfectly clear, the aims decipherable, and yet it is often the case that no one is there to have invented them, and few who can be said to have formulated them." Foucault suggests that "power relations are both intentional and nonsubjective." Theoretically this formulation remains inadequate. It does, however, identify the seeming paradox in our perception of power (see Foucault, 1981, pp. 95, 94).

cations networks significantly transforms the economy of power in society. In our view, society as a whole comes to function as a giant panoptic mechanism: automatic and continuous surveillance, along with centralized power and peripheral isolation, conspire to create a climate in which the inmates of society "not only suspect, but [are] assured, that whatever they do is known, even though that should not be the case" (Bentham, 1843, p. 66). The panoptic society is a society of routine and compulsive information gathering. It is, we suggest finally, a society in which the nature and composition of knowledge/information undergoes a radical transformation. In the "information society," we have the massive and systematic exploitation of information (intelligence) by commercial and political interests. Information/knowledge becomes a site—and stake—of the struggle for power.

Our response to the information revolution is somber. We are not talking of what information technologies *might* do; of how cable *could* further democracy if it was run by the right people; of the *possibilities* for satellite television or viewdata systems or word processors. We are talking *actually existing* technologies—technologies already constituted to embody particular social relations, technologies that threaten to constitute a mega-machine, a systematic and integrated mechanism (and the more integrated and extensive a technological system, the less possibility there is of its flexible use). We must confront the reality of existing technologies, technologies in the present tense. And we must confront the reality of an "information age" that is now being engineered in Thatcher's Britain. We can expect no utopia courtesy of Ms. Thatcher. If we want one we shall have to invent it ourselves, and the new technologies do not provide a short cut.

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