Hitotsubashi Journal of Social Studies 21 (1989) 197-206. © The Hitotsubashi Academy

SOCIAL MOVEMENTS AND THE INFORMATIONAL CITY

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I. *Introduction*

Social change is a continuing process taking place in all contemporary societies, enacted through the dialectical relationship between social movements, social classes, and the State.[1] Such a relationship is conditioned by the overall social structure, while social structure is itself constantly modified by the action of social movements and their impact on institutions and culture.[2] Thus, structure and process are but two perspectives on the same social reality. Yet, it is crucial to establish the analytical difference between these two levels of social organization in order to explain the sequence of structural transformation.

Processes of social change take place within historically determined dimensions of time and space.[3] The interaction between the time-space constraints of social change and the modification of both time and space by deliberate social action is one of the fundamental elements through which humankind affects its material conditions of existence.

Contemporary social movements are taking place in a time-framed context marked by a technological revolution of historic proportions.[4] This revolution is characterized by two fundamental features:

a) It is information-based. Namely, while there are a number of new technologies that are not information technologies (e.g. new materials), the core of the current process of technological change is formed by a series of technologies that are focused on information processing, from microelectronics-based processing of symbols, to the decoding and reprogramming of living matter in the case of genetic engineering-based technologies.

b) The second major feature is that, as all major technological revolutions,[5] it is process-oriented, rather than product-oriented. To be sure, there are a number of new products emerging from technological change. But the most important impacts of new technologies concern the fact that they affect processes of production, consumption, management, and social interaction, in all their dimensions.

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[1] See the classical work by Nicos Poulantzas, *L'Etat, le Pouvoir, le Socialisme*, Paris: Presses Universitaires de France, 1978.

[2] Alain Touraine, *La Voix et le Regard*, Paris: Seuil, 1978.

[3] Ira Katznelson, *City Trenches, Urban Politics and the Patterning of Class in the United States*, New York: Pantheon Books, 1981.

[4] Bruce R. Guile (editor), *Information Technologies and Social Transformation*, Washington, D.C.: National Academy Press, 1985.

[5] Melvin Kranzberg and Carroll W. Pursell, Jr. (eds.), *Technology in Western Civilization*, New York: Oxford University Press, 1967.

Two major consequences follow from these two fundamental features:

a) Being information-based, that is relying on a symbol manipulation activity, this technological revolution establishes a closer connection than any other in the past between the culture of the society and the development of productive forces. Culture itself is the driving force in enhancing productivity.

b) Being process-oriented, the effects of this technological revolution are pervasive, as they spread over the entire realm of human activity, transforming our ways of producing, consuming, managing, organizing, living, and dying.

The revolution in information technologies is transforming the material forms of social organization, certainly including spatial forms and processes although, as we will see, the process of determination is an indirect one. These new spatial forms are constitutive elements in the formation and development of contemporary social movements. On the other hand, social movements continue to influence the production of cities and regions, and thus are major sources in the emergence of a new type of spatial process under the conditions of the new technological paradigm. This paper aims at exploring the web of interactions between social movements and the city in the new, informational mode of development.

II. *The Informational City*

New information technologies are transforming cities and regions throughout the world. However, their effects are mediated by social organization, and do not result from the direct impact of technology itself, against the simplistic assumptions of the prophets of technological determinism.[6] Thus, telecommunications are not just decentralizing the spatial location of business organizations, but leading to a more complex pattern where increasing centralization in nodal cities goes along with spatial dispersion of second-order activities.[7] Home-oriented telematics systems do not preclude the intensity of urban life in Paris, home of the greatly successful Minitel interactive system, while the suburban anonymity of the Los Angeles area could not commercially sustain the development of a similar system, that went bankrupt for lack of customers.[8] Telecommuting and salaried work at home on the basis of electronic equipment, is practiced by less than 30,000 workers in the United States,[9] while the growth of work in domestic premises is in fact linked to the expansion of the new sweatshops of the informal economy in New York or Los Angeles.[10] In sum, new information technologies are having very limited effects on social relationships and residential pat-

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[6] E.g. Alvin Toffler's *The Third Wave*. For empirical analyses that contradict such ideological prophecies, see: Ann Markusen, Peter Hall, and Amy Glasmeier, *High Tech America*, London: Allen and Unwin, 1986; and Thierry Noyelle and Thomas Stanback, *The Economic Tronsformation of American Cities*, Totowa, N.J.: Allanheld, Osman and Co., 1984.

[7] Mitchell Moss, "Telecommunications and the Future of Cities," in *Land Development Studies*, 1986, 3, pp. 33–44.

[8] Penny Gurstein, "The Implications of the Electronic Home on Socio-Spatial Patterns," Berkeley: University of California, Department of City and Regional Planning, Seminar Paper for CP284, Spring 1987.

[9] Margrethe H. Olson, "Overview of Work-at-Home Trends in the United States," New York: New York University Graduate School of Business Administration, Center for Research on Information Systems, 1983.

[10] Alejandro Portes, Manuel Castells, and Lauren Benton (editors), *The Informal Economy*, Baltimore: The Johns Hopkins University Press, 1988.

terns,[11] while their effects on the spatial dimension of production and management relationships, which are substantial, are mediated by the new forms of social organization.

The new, emerging, Informational City is not the result of the application of new technologies to spatial forms and processes, but the spatial expression of the new, Informational Mode of Development, to whose expansion and characteristics new information technologies decisively contribute.[12]

To present this analysis I need to introduce some conceptual precisions. Most of the discussion about the structural transformation tends to confound two different levels of social structure: mode of production and mode of development, thus opposing capitalism to postindustrialism. In fact, as both Alain Touraine[13] and Daniel Bell[14] argued in their initial formulation of the theories of postindustrial society, these two social forms correspond to two different levels that articulate each other in the historical process. In my own theoretical perspective, mode of production refers to the specific social relationships through which a dominant class appropriates surplus from the producers. Mode of development refers to the socio-technical organization through which the level of surplus is enhanced by increasing productivity. As we know, in contemporary societies we experience two main modes of production: Capitalism (the appropriation and allocation of surplus depends upon the control of the means of production by capital(ists)) and Statism (the appropriation and allocation of surplus takes place on the basis of the control of the State apparatus by a political class). Both modes of production perform their functions on the basis of two main socio-technical paradigms: the industrial mode of development and the informational mode of development. In the industrial mode of development productivity depends upon the energy-based process through which labor transforms matter by using certain means of production and a given level of social organization. Thus, energy sources, and the organization of work established to take advantage of the use of such energy sources are the basis of productivity (e.g.: the three first industrial revolutions were based on wind and stream power, on the steam engine, and on electricity, each one with its set of industries and corresponding forms of social organization). In the informational mode of development, knowledge and information processing are the key sources of productivity, as seems to be indicated by the whole stream of econometric work performed in the tradition of Robert Solow and the aggregate production function school.[15]

Industrialism and informationalism coexist in each society and in each contemporary mode of production, although the superior productivity derived from informationalism

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[11] Paul G. Getsos, "A Critical Analysis of Telecommuting: The Political Economy of Work at Home," Berkeley: University of California, Department of City and Regional Planning, Seminar Paper for CP 284, Spring 1987; see also, Gurstein, op. cit., 1987.

[12] For a development of the analysis of the relationship between the informational mode of development and the informational city, see my forthcoming book: *Flows, Information Technology, Economic Restructuring, and the Urban-Regional Process*, Oxford: Basil Blackwell, 1989.

[13] Alain Touraine, *La Societe Post-Industrielle*, Paris: Denoel, 1969.

[14] Daniel Bell, *The Coming of the Postindustrial Society*, New York: Harper and Row, 1973.

[15] Robert Solow, "Technical Changes and the Aggregate Production Function," in Review of *Economics and Statistics*, August 1957. See also: Richard R. Nelson, "Research on Productivity Growth and Productivity Differences: Dead Ends and New Departures," in *Journal of Economic Literature*, Vol. XIX, September 1981.

tends to impose the new system of productive forces as the predominant form of socio-technical organization.

Cities and regions are being transformed by the expansion of the informational mode of development, both through the effects of such expansion in the production, consumption, and management processes, and through the impact of new technologies in the spatial processes associated with such expansion. The informational city is the concept through which I designate the new form of socio-spatial organization resulting from such processes, in parallel to what the industrial city represents for the industrial mode of development. Both can only be understood through the interaction of their characteristics with the features derived from the dominant mode of production (e.g. capitalism). as well as the precise historical form of capitalism in each period and in each society.

There are three fundamental trends that express the transformation of the relationship between productive forces and spatial processes in the capitalist-dominated informational mode of development: the dominance of information-processing activities and the dialectics between spatial centralization and decentralization of these activities; the shift from large-scale organizations to networking of activities; the formation of new industrial space of high technology manufacturing, featuring an extreme spatial division of labor, at the national and international levels. Let us briefly examine these processes, all based upon the expansion of the new socio-technical paradigm, focusing on the spatial logic they determine.

Contemporary societies in advanced capitalist countries are not based, as it is often argued, on services, but on information-processing activities that permeate manufacturing, extractive activities, commerce, government, agriculture, and services.[16] Most of the labor force is now employed in information-processing activities, regardless of the sector of activity where it works.[17] Information technologies represent the material basis for the expansion of these activities and for the increasing productivity of the system as a whole. The merger of computers and telecommunications on the basis of microelectronics allows for information processing regardless of spatial contiguity. Thus, a dramatic process of spatial decentralization of information processing activities is taking place, internationally, nationally, regionally, and within metropolitan areas between central cities and suburbs.[18] However, at the same time, nodal centers of command and control of information processing and knowledge generation are increasingly centralized and concentrated in a few blocks of a few cities, such as New York, Tokyo, London, Frankfurt, or Los Angeles.[19] Face-to-face contacts remain crucial in the highest level of decision making. Personal and professional milieus nurture knowledge generation and the creative handling of information. And the most sophisticated telecommunications infrastructure is installed in these command centers, so that in order to communicate worldwide, headquarters have to locate in a few areas e-

[16] Marc Porat, "The Information Economy," Washington, D.C.: Department of Commerce, Office of Telecommunications, 1977.

[17] Rob Kling and Clark Turner, "The Structure of the Information Labor Force: Good Jobs and Bad Jobs," Irvine: University of California, Department of Information and Computer Science, Public Policy Research Organization, November 1987.

[18] David Dowall and Marcia Salkin, "Office Automation and the Implications for Office Development," Berkeley: University of California, Institute of Urban and Regional Development, April 1986.

[19] Saskia Sassen, *Global Cities*, Princeton, N.J.: Princeton University Press, forthcoming.

quipped with the adequate infrastructure to conduct their activities everywhere. Thus, micro-networks of information condition the access to macro-networks of information.

What characterizes the new space of business organizations is neither centralization nor decentralization but the connection between the two processes, and the reintegration of the unit of the system through communication flows between different spatial locations that follow distinct locational patterns.

The second major phenomenon accentuates the very same trend. As Piore and Sabel[20] have argued, we have shifted from mass production to flexible production, although large corporations still dominate the process in terms of economic power. Information technologies are crucial for such flexibility, perhaps the most important feature in economic performance nowadays. The organizational expression of such a trend is the growing dominance of networks over large scale organizations. Such networks are made up of different firms as well as of different units of large firms. Thus, the new organizational logic tends to separate the units of execution in distinct spaces, while articulating their coherence through communication networks made up of information flows.

The third techno-economic trend transforming the productive basis of our societies concerns the locational logic of the high technology manufacturing activities.[21] This accounts both for new, high-technology industries, such as electronics, as well as for traditional manufacturing transformed in its process and in its products by the use of new technologies, as is the case in the automobile industry. The new industrial space is not the result of footloose location of factories. In fact, the high level functions of technologically advanced industries are extremely dependent upon their spatial location in what I have called "milieus of innovation,"[22] that concentrate centers of generation of technological knowledge, as well as the scientific and technical personnel able to perform such innovation. In the United States, only a few locations (Silicon Valley in San Jose, Route 128 in Boston, Orange County in Los Angeles, Minneapolis-St Paul, Austin-Ft. Worth, the Research Triangle in North Carolina, and the inner worlds of IBM, ATT, Texas Instruments, and Motorola) seem to be suited to the ability to innovate in terms of advanced information technology manufacturing. On the other hand, low-level manufacturing functions can be either automated (and thus located close to markets) or spread out in the world or in the countryside following the location of cheap labor and of the possibilities for control of the social and natural environment by business. A number of intermediate functions can also be separated functionally and spatially. Requirements of labor and performance for each level are not only different but reciprocally exclusionary. Thus, the productive and reproductive space for highly sophisticated engineers and scientists must be different from the one required for unskilled minority women workers. It follows a very sharp spatial division of labor, that is both determined and allowed by the use of information technologies in the production process.[23] Spatially distinct units can work together in real time through the use of the same

[20] Michael Piore and Charles Sabel, *The Second Industrial Divide*, New York: Basic Books, 1984.

[21] Allen Scott, *New Industrial Spaces*, London: Pion, 1989.

[22] Manuel Castells, "The New Industrial Space, High Technology Manufacturing and Spatial Structure in the United States," in George Sternlieb and James Burchell (eds.), *America's New Market Geography*, Piscataway, N.J.: Rutgers University Center for Urban Policy Research, 1988.

[23] Amy Glasmeier, "The Structure, Location, and Role of High Technology Industries in U.S. Regional Development," Berkeley: University of California, Ph.D. Dissertation in City and Regional Planning, 1986.

technologies they help to produce. Here again, what is characteristic is not a given locational pattern, but the simultaneous process of differentiation and linkages between different elements of production and management by the means of communication flows.

Thus, the common spatial feature of the new organizational forms of production and management is their reliance upon a space of flows that substitutes for a space of places. Each function, or each unit, continues to be spatially dependent, and linked to a specific socio-spatial environment. But the overall spatial logic of the system is dependent upon a space of flows that transcends localities, and therefore local and national societies. It does not follow the de-spatialization of human activity, but the creation of a new form of space, distinct from the historically determined, place-focused forms of spatial determination, that characterizes the functional logic of dominant economic organizations, further specifying their material basis and their social logic via a vis cultural or political processes. New information technologies at the same time contribute to such a trend and make it feasible. The Informational City, as the urban form of the Informational Mode of Development, is characterized by the predominance of the space of flows over the space of places.

III. *Social Movements and the Space of Flows*

Over the last two decades we have assisted, in advanced capitalist societies, to a decline of industrial social movements, simultaneously with the rise of culturally oriented social movements.[29] Urban social movements have played an important role in this transition. It is my hypothesis that both the transformation in the relative importance of each type of social movement, and the specific role played by urban social movements is linked to the emergence of the informational mode of development, with its material expression in the space of flows.

Class-based movements are declining not so much because we are in class-less societies, but because the material forms of self-awareness and collective organization of social classes have been transformed by the new informational mode of development. It is obvious that if the traditional labor movement has been based on the organization of manual workers of large manufacturing plants, the movement towards an information economy dramatically reduces the historical basis for such a movement. But, why do the legions of exploited women clerical workers not form a new labor movement? Why does the alienated and overworked technical and professional class not organize itself collectively? Why do the underground economy workers not follow the historical example of the revolt of the sans culottes? In other words, why does the existence of new forms of exploitation and oppression not lead to new forms of class-based movements?

One of the hypotheses I advance is that of the fragmentation and occultation of the conditions of exploitation and oppression through the formation of a space of flows.

On the one hand, the logic of organizational power is structured around worldwide flows that cannot be recognized in their entire meaning from any specific position in the

[24] Alain Touraine has conducted a comprehensive series of sociological studies of social movements in the 1970s and the 1980s, published between 1978 and 1986 in several volumes by Editions du Seuil, Paris.

network, thus freeing the overall logic from the social control linked to the historical and institutional framework characterizing each place.

On the other hand, people in general, and workers in particular, continue to be place oriented; they live in given cultures, organize their lifes around specific places, and exercise their power through territorially based institutions.

Thus, the logic of power is exercised in the space of flows while the dynamics of experience is articulated around the space of places. The new informational mode of development allows capitalism to restructure itself in the dream of a free movement of endless circulation, unlimited by the rigidity of societies and political institutions. To be sure, business corporations do have to relate to national political systems, and dominant classes are still socially specific. Yet, their organizational logic can now follow a pattern of variable geometry, in which specific interests are fulfilled in different spaces and different times, in a dynamic whose logic is only found in the structure of flows of information and power. Such structure dramatically undermines the process of social control over economic development, on which the social movements of the industrial society relied. Cities, regions, localities, become powerless in their efforts to seize the power impulses upon which their daily life depend. The schism between locally determined processes of social control and placeless processes of functional performance reduces social movements to defensive reactions and limits their ability to mobilize broader social projects around the defense of specific local interests.

This is why the new social movements tend to focus on the cultural dimension, affirming identities that are not reducible to bargaining positions within a given system of goals. For instance, the major social movement of our time in advanced capitalist societies, that is the women's movement, argues on the basis of gender identity, regardless of broader social or institutional conditions, so that any development process must operate on the premises of gender equality. Similarly, the environmental movement affirms the primacy of Nature (usually understood in utopian terms) over development, thus superseding the rationalization of the use of resources for the sake of economic growth. However, the very strength of these cultural movements, namely their fundamentalism, becomes an obstacle for their ability to become central movements in our societies in terms of their capacity to articulate the general interest for most of society in the process of social change.

Thus, the fragmentation of the elements of new social classes in the space of flows slows down the process of historical emergence of new social actors, while the affirmation of cultural identity without reference to the development processes by the new social movements limits their ability to build their hegemony over the majority of the society, thus limiting their effects to the pervasive impact of their utopian themes on the institutionalized process of social reform, but without being able to change the mode of production.

Urban social movements occupy an intermediary position between the traditional class-based movements and the new cultural movements. In my cross-cultural study of urban social movements, with particular emphasis on their development during the 1970s in Europe and the United States,[25] I showed that they articulate demands along three different dimensions: collective consumption, cultural identity, and local political autonomy. Thus,

[25] Manuel Castells, *The City and the Grassroots: A Cross-Cultural Theory of Urban Social Movements*, Berkeley: University of California Press and London: Edward Arnold, 1983.

they combined elements of labor unionism (collective consumption), with political strategies at the local level, and with the affirmation of cultural identities. In this sense, they represent a bridge between class and culture, and they could be a transitional form of social mobilization, able to bring about social change in our transitional societies. However, I also showed that they tend to be organized on a territorial basis, and therefore they are highly dependent upon the dynamics of historically rooted local communities. Because the logic of power, be it economic or military-political, tends to be increasingly fulfilled in the space of flows, characterizing the informational mode of development, urban social movements are reduced to defensive reactions from local trenches, able to control a given place, but not the societal processes. Furthermore, because of their awareness of powerlessness at the global level, they tend to reinforce their localism, and could actually degenerate in tendencies to tribalism, when the local community is the beginning and the end of the horizon of their struggle, since any further extension of such struggle faces the incomprehensible and uncontrollable detours of the space of flows.

Thus, the more organizations of power extend their reach throughout the space of flows, the more grassroots based social movements become territorial and parochial in the defense of their specific, place-based interests. It follows a growing distance between economy and society that disarticulates political institutions and breaks down the cultural codes of social communication.

Urban social movements could have been the missing link between class based interests and the new cultural movements, nurturing the embryos of new class formation. Instead, confronted by the structural domination of the space of flows, they have reproduced the territorial, ethnic, and religious cleavages of our societies, oscillating between the narrow logic of pressure groups and the defensive affirmation of irreducible identities.

With social dynamics increasingly split between the one-dimensional logic of domination and defensive revolts, social movements tend to disintegrate in inter-personal violence, or to sublimate into utopian dreams.

IV. *From Deconstruction to Reconstruction: Towards a New Social Dialectics between Space and Society*

This paper does not intend to be an exercise in historical pessimism. The dynamics of social change is a relentless process, that always finds its ways, generally unpredictable, to foster structural transformation. Yet, social sciences have to account for the failure of new social movements generated during the last two decades in advanced capitalist countries to generate a significant process of social change.[26] The hypothesis I have put forward is that one of the key material conditions for the formation of new classes, and of new social movements, that is the spatial manifestation of the new social structure, has become a major obstacle in the articulation between the processes of economic development and social control over development that is at the core of all new historical formations. This is because of the separation between the space of function and power, in the ahistorical abstraction of the

[26] Claus Offe, Alain Touraine, and Alberto Melucci represent some of the very few attempts at analyzing the historical and structural reasons for the limits of contemporary social movements.

space of flows, determined and facilitated by new information technologies, and the confinement of social control and cultural experience to historically determined places and territorially defined societies. While the English working class recognized its identity in the specific spaces of factories and taverns, the new informational producers, connected to networks of flexible production, and constantly redefined in their productive role by worldwide communication flows of interaction, can hardly recognize their identity through their daily experience. Thus, a crucial problem in the process of new class formation and the emergence of new social movements is the reconstruction of social meaning in the space of flows. In other words, the question arises of how the collective practice of social control at the local level, shaped by history and culture, could make a difference in the way the instrumental functions of the system are performed at the global level of the space of flows.

Recent social trends point to some embryos of such a reconstruction process.

The feminization of the labor force in the information economy is leading to the emergence of a new form of labor unionism, based upon the specificity of women's interests and values that, by superseding the sexist tradition of organized labor, may contribute to its revitalization. Thus, a transition seems to be under way in the form of extending labor-based movements to the realm of cultural-gender based identities, articulating them to the defense of workers rights in the subordinated positions of the informational economy. Because of the universality of women's condition, the articulation between workers' interests and women's interests reduces the importance of specific places in controlling organizational decisions.

Local governments are also becoming key actors in the process of exercising control over organizational decisions.[27] Paradoxically, the space of flows limits the role of national states while enhancing the importance of local governments. This is because the diversity and flexibility of the new power system can only be checked by a constant adaptation of the mechanisms of political control to the effects of changing organizational decisions vis a vis specific interests of specific societies. Thus, local governments represent ad hoc mechanisms to respond to such strategies in the whole variety and flexibility of each instance. Although organizations can escape such controls by moving around the planet (not necessarily by relocating their physical assets, but by switching their commitments and investments) a number of cases in recent times suggest that localities do have some negotiating power to the extent that they target the specific element of the network of flows to which they have to relate.[28] Efforts by local states in different countries to establish their own network of flows of information vis a vis the flows of power decisions could illustrate the emergence of a new consciousness of the need to invent a new form of exercising political power.

Another important element in the process of reconstruction of social meaning in the space of flows concerns the characteristics of labor in the informational mode of development. Since new productivity depends fundamentally on the quality of mental labor,[29] the conditions of reproduction of such labor are crucial. Thus the quality of the reprod-

[27] Manuel Castells, "Local Government, Urban Crisis, and Political Change" in *Political Power and Social Theory: A Research Annual*, Greenwich, Conn.: JAI Press, 1981, Vol. 2.

[28] Pierre Clavel, *The Progressive City*, Ithaca: Cornell University Press, 1985.

[29] Ralph Landau and Nathan Rosenberg, "The Positive Sum Strategy: Harnessing Technology for Economic Growth," Washington, D.C.: National Academy Press, 1986.

uctive process becomes an important argument for the logic of organizations. And we know that social reproduction is highly a function of the local society where it takes place. Thus, the quality of the environment, the quality and level of collective consumption, the ability to generate cultural innovation, all key elements of the informational production process, will depend on what is generally labeled "the quality of life," that is a socially bounded, historically specific process.[30]

Under these conditions, movements focused on collective consumption are also movements that help generate the conditions of the new productivity, thus reintegrating the place-based, living conditions of labor with the informational-labor process, performed in the space of flows.

The search for the human basis of informational productivity, the articulation of women's rights and workers' interests, and the new flexibility of the local State in exercising political control over specific segments of the network of power flows seem to be elements of a process of social reconstruction able to generate a new, complex, productive dialectics, between new social movements and the emerging informational city.

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[30] Manuel Castells, "Crisis, Planning and the Quality of Life," in *Society and Space*, Vol. 1, 1983.