

COMPUTER TECHNOLOGY, LARGE-SCALE SOCIAL INTEGRATION, AND THE LOCAL COMMUNITY

CRAIG CALHOUN

University of North Carolina, Chapel Hill

Computers and new communications technologies are widely expected to contribute to "decentralization" of society. While they may contribute to population deconcentration, however, they offer major increases in capacity for centralized control and coordination of social action. Computerization facilitates further development of large-scale bureaucratic organizations and, thus, at least potential economic and political centralization. The existence of such large-scale forms of social integration is not incompatible with face-to-face community life, as some dystopian visions have presumed. The issue is one of balance between indirect (organizationally and technologically mediated) relationships and direct primary and secondary ones. Renewed attention to variations in pattern and extent of social integration is needed as a complement to attempts to describe demographic and economic-functional changes in urban life. This calls for a conceptual framework that elucidates the roles of both direct and indirect relationships, and does not presuppose the exclusive virtue or eventual complete predominance of either. Such a framework is outlined briefly here and illustrated through discussion of possible social consequences of widespread telecommuting.

Large cities are at once dissolving into a plethora of local communities and being absorbed into a larger-scale and more tightly knit web of indirect relationships.¹ Markets are no longer physical places, but

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technologically mediated connections between buyers and sellers who may never meet face to face. They require not only infrastructural technology, but also complex, generally bureaucratic social organizations.² Government and other nonmarket processes depend on similarly indirect relationships. Reducing the place-centered functions of cities may provide opportunities for the revitalization of local communities, but it also challenges the realm of public life by limiting accidental contact among strangers. As it becomes possible to conduct economic and other affairs without entering into the company of strangers, we lose both cross-cutting ties and one of the bases of democratic public life.

These social changes depend on a transformation in infrastructural technology, especially communications. Computers are the most important link in the web of electronic technologies making this possible. Most studies of computerization, however, have focused on the potential gains in efficiency and declines in employment to be fostered by industrial and office automation. Partly on this basis, some commentators have suggested the coming of a postindustrial or information society (Bell, 1973; Porat, 1977; Jones, 1982). Less research and theoretical work have been done on changes in the kinds and structure of social relationships that on the one hand create demand for information technology and on the other hand are fostered by it. From assembly lines to the electronic links among far-flung branches of multinational corporations, advances in communications and control have transformed society at least as much as the immediate substitution of machines for people in material production. In this regard, computers are not an altogether new and different technology, but part of a continuing industrial revolution producing recurrent waves of productivity-enhancing and infrastructural technologies. It seems unlikely that their social-structural effects will be so discontinuous as to merit the appellation "computer revolution."³

In this article, a conceptual framework is proposed for studying variations in kind and extent of social integration or relatedness, such as those new communications technology may foster. The article's central feature is the contrast between direct and indirect social relationships. In the second part of the article, the framework is illustrated by a consideration of potential social impacts of widespread "telecommuting." Possibilities are identified for both the undermining and the revitalization of local communities and it is suggested that many political consequences of computerization depend on how their use in communications systems affects community life.

TECHNOLOGY, URBAN CHANGE, AND SOCIAL INTEGRATION

The potential impact of new technology on cities has not gone unnoticed (see especially Castells, 1985). Commenting on changes in the U.S. population distribution, Kasarda (1980: 395) suggests:

Modern transportation and communications technologies have made compactness unnecessary for conducting most of today's economic and social exchanges. In fact, in many situations, compactness hinders them.

It is not entirely clear, however, just what "compactness" means for social relationships, and just what sort of relationships are able to transcend spatial proximity. Is there, for example, a shift in the balance between those relationships mediated by technology and bureaucratic organizations and those that are directly interpersonal? This question has been neglected by researchers, perhaps partly because it has not been conceptualized clearly. To do so is to add a new, strictly sociological dimension to discussions of the current state and future prospects of cities in advanced industrial societies. These have been dominated by economic, technological, and demographic factors. To quote Kasarda again:

Two fundamental yet conflicting transformations pervade the recent history and near term prospects of older and larger cities. The first is *functional* as these cities change from centers of production and distribution of material goods to centers of administration, information exchange, and higher-order service provision. The second transformation is *demographic*, as their resident populations change from a predominantly white, European heritage to predominantly black, hispanic, and other minorities [p. 33].⁴

Cities certainly are changing in economic function, technological base, and the characteristics and numbers of population they (and their metropolitan environs) include. Changes in urban life, however, are also changes in the form, content, and pattern of social relationships. Urban research such as Kasarda's clearly shows functional and demographic transformations; it remains to be considered how these relate to changes in social integration.

Early social theorists understood cities to embody the core features of a new kind of society, one that contrasted sharply with a previous, more

communally solidary, social order. Today, Tönnies's (1953) *gemeinschaft-gesellschaft* contrast, Wirth's (1938) and Redfield's (1941) folk/urban continuum and other contrasts of tradition and modernity are familiar primarily as objects of abuse and mandatory bits of vocabulary in introductory sociology textbooks (see Gusfield, 1967, 1975). While rejecting such large-scale historical typologies (and the functionalism of which many of them were a part), we have not produced a new conceptual framework for describing and explaining differences in the kind and extent of social integration.⁵ Assertions about epochal social change, such as the notion of a postindustrial society, are put forward with accordingly little attention to social relationships as such.

New computer and communications technologies affect social integration primarily by shifting the balance between relationships that are directly interpersonal and those that are mediated. Computers are themselves vehicles for communication and, thus, mediation; they also facilitate the extension and intensification of organizational control systems. Bureaucracy can be seen as a form of "social automation." Not only do machines assist in the formation and maintenance of social relationships, but bureaucratic organizations lend themselves to a reification that makes it appear that they, rather than the human beings who create them, are the true social actors.⁶ This is particularly common where people's social action is fragmented into a number of roles and their direct interpersonal relationships are spread among a number of different social fields.⁷

To adapt Cooley's (1909) language (see further discussion in Nisbet and Perrin, 1977), a primary relationship must both be directly interpersonal and involve the whole person. A secondary relationship, by contrast, need meet only the criterion of directness. Noting the impact of modern communications technology, we may go further and identify as indirect those relationships that require the mediation of a complex communications system. Such a system, of course, might be a bureaucracy based on ordinary written communication; it need not involve electronic technology, though such technology now greatly enhances the reach and efficacy of such systems. Individuals are aware of and active in some indirect relationships; we might say, then, that we have "tertiary" relationships with those to whom we write to complain about errors in our bank statements, with our political representatives (most of the time), and, often, with the senior managers of the companies for which we work. Other indirect relationships, by contrast, are beyond the limits of ordinary attention and awareness for a least one

of their parties. Such "quaternary" relationships are established when the FBI taps one's phone, or one's computerized communications are used in an unauthorized way. In short, they exist wherever a sociotechnical system exposes one to unintentional communications.

DIRECT AND INDIRECT RELATIONSHIPS IN URBAN LIFE

Advanced telecommunications and computer technologies have allowed indirect relationships to extend much more widely, with less reliance on those specific nodes within which direct relationships still prevail. "High-tech" cities increasingly are becoming consumer choices for those who still want urban public life of various sorts, rather than required residences for manufacturing or even information workers. Electronic technology may allow creation of physically attractive cities (e.g., by minimizing factory pollution), but it is not itself urbanizing; if such technology exerts any clear determinative pull on spatial population distribution, it is deconcentrating, encouraging both nonmetropolitan growth and dispersion of population and activities within metropolitan areas (see Hawley and Mazie, 1979; Kasarda, 1980). At the same time, new technology is a crucial support of an international division of labor that contributes to extreme centralization of wealth and power internationally, and to a very different urban pattern in much of the Third World.

Most Third World cities so far have not produced the infrastructures and structures of indirect relationships that allow successful coordination of life on the "megaurban" scale. At the same time, many are growing out of proportion to their national economic bases and to their ability to provide amenities because they alone provide places for the masses of people for whom the countryside offers no employment, either in agriculture or in decentralized manufacturing.⁸ Because the power structures of Third World cities remain based overwhelmingly on direct relationships, they cannot engender opportunities at a distance. In many Third World countries, moreover, transportation infrastructures are so poorly developed that dispersion of manufacturing activity is impractical, especially so long as key industries produce primarily for the export market. Third World transportation networks often link villages to a capital or to a port city, but not to each other. Last but not

least, the creation of "charity economies," dependent on foreign aid and/or military presence, can sustain an urban population out of proportion to any indigenous economy, and devitalize productive employments (Abu-Lughod, 1984). In the primate cities of the Third World, even those with great cosmopolitan traditions, urbane public life is sometimes destroyed or inhibited by burgeoning population, failing infrastructure, and economic distortion and disruption.

In Western European and American history, cities were by no means exclusively the enemy of community and direct relationships, as oversimplified conceptual contrasts sometimes imply. Cities have grown historically to foster both indirect and direct social relationships. First, they are the nodes that anchor great structures of indirect relationships. They mediate in far-flung markets and scattered citizens, creating networks of power and exchange stretching well beyond their boundaries. Growth in this sort of indirect relationship has characterized the whole "modern" period and, indeed, was or is characteristic of many ancient and non-Western cities. Bureaucratic mediation is certainly of ancient and non-Western invention. Artisanal workshops concentrated urban production for dispersed consumption well before modern factories. But factories, intensified division of labor, and new technologies gave indirect relationships a new importance, transforming the internal character of cities. Modern urban centers depend on complex systems of indirect relationships, often technologically mediated, for their everyday operation—transport, energy, governance, finance, communications, and goods production. Their role as nodes in networks of national or international relations may be declining, however, as direct communication among peripheral populations becomes easier.

Second, cities have long been a crucial locus for two special kinds of direct relationships: (a) public life, which is composed mainly of secondary relationships and even contacts among strangers, and (b) the direct relationships that make the systems of indirect relationships work—for example, personal relations connecting banking houses, the direct communications in and among corporate headquarters, or between private actors and governmental bodies. Ancient and early modern cities relied much more on these direct relationships. In countries of limited infrastructural technology and organization, cities still appear to be largely aggregations of smaller populations linked almost exclusively by direct interpersonal relationships. But even in the most advanced of industrial cities and the most cosmopolitan of

capitals, pockets of direct relationships still play crucial roles not only in personal life, but in large-scale socioeconomic organization (Gluckman, 1962). Moreover, community is still valued in urban society—*gesellschaft* (Boyte, 1984; Bellah et al., 1985).

Urbane public life, however, depends also on a vital field of secondary relationships offering serendipitous contact across sociocultural boundaries (Sennett, 1976; Hannerz, 1984). Yet, paradoxically, secondary relationships are often held in low esteem; the very conceptualization is in part a critique. We spend a huge proportion of our days, it is suggested, dealing with people whom we hardly know, but each interaction takes time and takes some of our emotional energy. Because they are still personal, and thus emotionally involving, secondary relationships have the capacity to generate a great deal of dissatisfaction. Of course, so do primary ones. The difference is that primary ones also have a great, offsetting capacity to satisfy, or at least to engender loyalty. In the crowded, complex, competitive worlds of economic and public life, our interactions with strangers often seem to exist *only* to annoy us. When this is so, we tend to avoid emotional involvement in these dealings with strangers, to deal with problems by trying to escape (see, for example, Slater's, 1976, popular depiction of this as "the pursuit of loneliness"). We develop a destructive idea of freedom in which relationships are simply the choices of the moment rather than commitments. The critique asserts that secondary relationships not only compete with primary ones, but also teach us habits that will undermine them. This critique has some merit, but its proponents tend to forget that secondary relationships are also the essence of public life and, as such, a key basis for democratic participation.

Tertiary relationships—which computerized communications are likely to foster—sound much worse to many people. They reason that the world is bad enough with all the dissatisfactions and impersonality of most face-to-face encounters. Certainly, they think, a world dominated by relationships conducted over the phone, by correspondence, or with the assistance of computers would be much worse. In the extreme case of a world in which almost all relations were mediated through machines, we would find ourselves devoid of simple human nurturance. Surveillance might be intensified and extended; both individual autonomy and the formation of intermediate associations might suffer. Dependence on tertiary relationships would make us more vulnerable to quaternary relationships of which we were never aware. A happier

vision is just as plausible, though, in which the proliferation of tertiary relationships cuts down on secondary, but not primary, relationships. We might focus time and energy on community building, friendships, and family life, though this is only a possibility, not an automatic result.

Consider banking through automatic teller machines (ATMs) as a simple example. Direct interpersonal contact is reduced, as the customer no longer deals with a teller. But the customer also spends less time standing in lines and has greater flexibility as to when to use banking services. He or she risks no rebuff of nonrecognition, no insulting need for the teller to check his or her account balances. Why is this significant? It saves the bank money, which it may pass along to customers in the form of lower costs. It is also convenient for the customer. Though banks could economize by providing fewer machines (just as they might do with tellers) and thus force customers to stand in line, they have less incentive to do so because machines are cheaper. Customer use is also spread over a longer period of time.

Perhaps as important to the customer, ATMs can be much more widely and conveniently distributed than bank branches. Perhaps the customer's time can be redeployed into primary relationships or other more productive activities. At least as significant, though, are changes in the quality of human relationship involved. A bank teller is generally not in a position to enter into any more "personal" contact with a customer than to say, "Have a nice day," even though the bank teller must be privy to some rather intimate financial information about the customer. The interaction has some built-in tensions or frustrations that are usually minor but real. At the very least, there is often a disappointment on the customer's side at not being recognized (and apparently not trusted) by a person with whom he or she may interact on a regular basis. On the other side, the bank teller's job is hardly a triumph of conviviality, fascination, or opportunity. In short, it is not obvious that we are losing much of value in giving up this sort of "personal" interaction. It depends on what we replace it with; what the customer does with his or her time, what other job the bank teller might get.

The contact with the automatic teller machine is unlikely to be intrinsically rewarding; indeed, banks found that customers did not care for attempts to make the machines more "human" and less purely instrumental—for example, by programming them to tell jokes. Customers wanted straightforward functionality from the machines. But

this is just the point: Being treated impersonally by another human being is an insult, but no one expects anything else from a machine. Of course, customers may be furious when ATMs break down, destroy their plastic cards, or otherwise malfunction. Though frustration with machines may be great, as any computer user knows, we seldom take offenses from the world of inanimate objects personally, no matter how inconvenient they are.⁹ Our anger will be directed at the machines, or "the system," not at other people; there is nothing in it to promote a withdrawal from sociability.

The example is trivial, but the hope is real. Instead of resembling Orwell's *1984*, instead of simply depersonalizing everything, a computerized future could automate precisely those things that now depersonalize humans, those tasks that involve us only as automatons (in the colloquial, not the literal, sense) and as potentially annoyed and annoying parties. This will not eliminate annoyance, of course, only limit it more to machines, bureaucracies, and those relationships that have the strength to weather it and can best offset it with intimacy and pleasure. Of course, people lacking primary relationships might wind up even more socially isolated, losing some opportunities for casual interaction in the course of ordinary commerce.

But there are grounds for hope, at least, for a renaissance of community at the same time that computers assist in large-scale social integration. This is by no means automatic, to be sure. There is as much (or more) reason to think that computerization and new communications technologies will lead to or accompany further deterioration of interpersonal relationships. A drift toward relationships of convenience might be accelerated; passive enjoyments from the mass media might predominate over active social participation. A few people might even wind up preferring relationships based on single common interests and mediated through computer networks—or worse (from the point of view of social integration), preferring the company of computers themselves, which are dependable, don't talk back, and don't make silly mistakes (very often) (Zimbardo, 1980; Turkle, 1984). Nonetheless, it is technically feasible to have computers and tertiary relationships do enough of our routine work and minimally personal communication that we have more time to develop good relationships with our friends, neighbors, and loved ones. Whether we have the will, either collectively or individually, to accomplish this is another question. It is too early for empirical evidence to show whether we are in fact moving in this

direction. It is not only possible, however; it is being promoted by a variety of advocates. Taking "telecommuting" as an example, the rest of this article addresses the possible implications of such a movement for urban and community life.

THE ELECTRONIC COTTAGE AND ITS NEIGHBORHOOD

New technologies join with social and economic changes to make it unlikely that communities will continue to develop on past patterns. In Berry's (1973) words:

It was the demand for ease of communication that first brought men into cities. The time-eliminating properties of long-distance communication and the space-spanning capacities of the new communications technologies are combining to concoct a solvent that has dissolved the core-oriented city in both time and space, creating what some refer to as "an urban civilisation without cities" [p. 54; quoting Kristol, 1972].

Many people can work in decentralized settings connected "telematically" (by computerized communications) to networks and formal organizations of large-scale integration. A smaller number of workers will not need to live near even a branch of the businesses that employ them or the clients they serve. They can telecommute. In one sense, this brings the relationship between work and residence full circle. Early industrialization removed work from the home into factories. The next phase of industrial organization encouraged the separation of community of work and community of residence (especially in the United States). Now, telematics offers the possibility of reunion. This is one of the factors that makes it a favorite proposal of speculative futurists (e.g., Toffler, 1980: especially chap. 16; Deakin, 1981).¹⁰ The possibility that telematics might reunite residence and workplace also makes it a convenient example for considering whether computer-assisted communications might help to revitalize community and/or public life as well as knit together larger structures of indirect relationships.

Telecommuting offers convenience to some workers and economy to their employers. So far, however, most experiments in telecommuting have been in relatively low-skilled clerical occupations such as typing.

Critics have charged that this practice creates "home sweatshops" (see, e.g., Mattera, 1983; Howard, 1985). Telecommuting is spreading, too, among those higher-level personnel such as salespeople who already do much of their work by phone. Their home computer terminals readily can be used to feed orders and other data directly into the larger machines at company offices, which in turn can automatically process entire transactions from manufacturing to shipping to billing and inventory control. Stockbrokers have found it easy to work at home via telematics—in fact, even when they work in offices it is now by telematic link to markets, stores of information, and often customers. Even executives may find it convenient to telecommute for at least part of their work. Face-to-face inspirational management or problem solving is usually only a fraction of the managerial task. Analysis of financial and/or production records and projections often requires little face-to-face communication.

From the employer's point of view, the advantages to telecommuting are many. They include not having to build, heat, light, and otherwise pay for so much office space. Telematics may reduce labor costs, especially if part-time employees can be hired as needed, thus avoiding the wasted time and fringe benefits of full-time workers. Microelectronics makes this practical not only by enabling the communications linkages, but by offering greatly improved capacity for monitoring the work of clerical and other information workers. A computer, for example, can be set to count the number of keystrokes entered by a typist—a closer supervision than usually undertaken in noncomputerized offices. Telematics allows physical decentralization without sacrificing central control.

Indeed, the same is true at the scale of multinational capitalism; telematics facilitates simultaneous extension of the international division of labor and maintenance of a high level of systemic integration and control. Ford could design, build, and distribute its "world car" on four continents because telematics allowed not only exchange of information but constant monitoring. Of course, this creation of large-scale systems does not have to be carried out through centralized administrative direction; markets and marketlike relationships within corporations are also possibilities (see White, 1983, on agency; Pinchot, 1985, on "intrapreneurship").

The advantages of telecommuting to individuals are both less tangible and less certain, but not necessarily negligible. It could enable

people to make personal life-style more central to choices about where they want to live. Working parents could be home when children return from school. Two-career families could face fewer hard choices about job-related moves. The advantages are perhaps easier to see than some of the dangers. One of the latter is increasing social isolation and fragmentation. Telecommuters would miss the sociability of factory, store, or office. We all know the value of being "plugged in" to corporate or bureaucratic goings on; being plugged in to our computer terminals miles away might cut us off from that. On the other hand, computer networks could be designed to encourage employees just to "chat" with each other, and managers could guarantee the privacy of these communications. Such policies, however, are not yet being implemented. Similarly, it seems important to encourage employees to meet in person some of the time, to encourage the building of stronger relationships. Some firms have recognized this need and are bringing their telecommuters into the office once a week.¹¹

There are enough advantages, in any case, to enough different interested parties, to make it likely that telecommuting and related work will spread. What effects will this have on local communities and on people's relations to them? Most neighborhoods are not well suited to telecommuting by residents. Many poorer, working-class and even lower-middle-class communities lack the physical space and amenities to make working at home a very practical prospect. Even well-off upper-middle-class suburbs and neighborhoods are not designed to provide for the sociability we may lose by telecommuting. They are designed for beauty and privacy. This is especially true of newer and more affluent suburbs and of high-rise apartments. It is the implicit, and probably correct, assumption of developers that people want their homes to be safe, sheltered havens, that they (at least those who work outside the home) get enough spontaneous stimulation and contact in their working lives, and would rather have complete control over when and whether they see other people at home.¹²

If people start working at home, however, they are going to find themselves isolated in these privatized neighborhoods. Americans do not even have the advantages of the ubiquitous English pub, let alone of the mixed-use neighborhoods characteristic of smaller-scale production and commerce, and famously advocated by Jane Jacobs (1961). People will require more public spaces—places to go on breaks from work, opportunities for chance encounters and easy meetings—if residential

communities are going to be able to do happy double duty as working communities.¹³ Schools, churches, and shopping malls are among the few widely distributed public institutions that, in different ways, might become such public spaces. We have invested a great deal in structures predicated on a strong separation of home and work; these may not suit any coming telematic age very well.

Promoting community life in a telematic age is more than just a matter of finding local social and physical structures within which telecommuting will be comfortable. It is also a matter of building mediating institutions that can nurture direct relationships in a world increasingly characterized by indirect ones (Berger and Neuhaus, 1977). Mediating institutions can offer primary relationships not only as a source of personal satisfaction but as the basis for intermediate political associations standing between individuals and the large-scale sociotechnical systems of government and business. Along with mediating institutions, public spaces remain or even grow in centrality as a basis for democracy in a society reorganized by telematics. One of the most important social characteristics of cities is the provision of public spaces in which relative strangers can interact with and observe each other, debate and learn politically, and grow psychologically from diverse contacts (Sennet, 1970, 1976; Evans and Boyte, 1986; Palmer, 1982).

Far from being antithetical to community, as crude binary contrasts suggest, cities host strong, close-knit communities. At the same time, however, cities allow an occasional anonymity that smaller, more self-contained communities such as rural villages do not.¹⁴ Especially in the public worlds defined by commerce and politics, people interact constantly without establishing primary, or sometimes even ongoing, relationships. Secondary relationships are neither simply attenuated versions of primary ones nor bad in themselves. They are the stuff of much public life and they allow a considerable freedom from sometimes oppressively close communal relations. Through these secondary relationships and casual interactions, cities give their residents the opportunity to form a variety of cross-cutting ties, links to and knowledge of other social groups. In some cases, such secondary relationships may lead to voluntary shifts of community membership. They offer a chance to change that is seldom present in the small town.

Though telematics need not undermine these virtues of cities, new technology may well facilitate consumer choices antithetical to them. Telematics could maintain the inclusive social totality of indirect

relationships even while we choose decentralized communities that cut us off from much of the diversity of urban public life. Telematically linked communities could fragment our larger society, enabling each of us to pursue isolation from everything different, unfamiliar, or threatening, and removing the occasions for contact across lines of class, race, and culture.¹⁵ Growth of primary and tertiary relationships may foster community without public life. At the same time, growth of quaternary relationships and a newly enhanced capacity for creation of social automata may create an unprecedentedly large scale of social organization with little mechanism for participatory control.

COMMUNITIES AND TECHNOLOGY

Short of the often announced but ever illusive end of capitalist industrialization, efforts to strengthen local communities will have to be made *within* the increasingly large-scale integration of indirect and technologically mediated relationships. We simply have come to depend on these structures for too much of our lives. To try to do away with such large-scale integration would be as foolish as surrendering to it completely. As Kevin Lynch (1981:97) remarks on the idealization of the small, "organic" residential community, "social or economic autarchy can hardly be recommended as a contemporary ideal." Andre Gorz (1982: 76) has grasped this clearly, in an important departure from the dominant tendencies of both "old labor" and 1960s "countercultural" thinking on the left:

Everything now indicates that it is impossible to create a highly industrialized society (and hence a world order) which presents itself to each individual as the desired outcome of his or her free social cooperation with other individuals. There is a difference in both scale and nature between communal work or life and the social totality. Although it may be possible to build highly conscious community through total personal involvement in cooperative activity, conflicts and affective relations, so that everyone assures the cohesion of what they feel to be "their" community, society as a whole will still remain a system of relations embodied in and governed by institutional organizations, infrastructures of communication and production, and a geographical and social division of labor whose inertia is its guarantee of continuity and efficacy.

It is already widely recognized that the political boundaries of cities have at best a tenuous relationship with the real range of socioeconomic relations on which they depend. Transformation in infrastructural technology only widens the gap. This is as much a problem for those who would return politics to movements based on direct relationships as for those who must manage fiscal crises. The vitality of communal relationships depends on their position within larger patterns of social organization. It is misleading to try to understand, and potentially pernicious to try to foster, community life without paying attention to the nature of its incorporation into structures of large-scale social integration. Modern capitalist enterprises and government organizations both use telematic technology to create a new level of interdependence among population aggregates.

One result is that local communities become less autonomous. This does not necessarily mean that they cease to be strong communities; that is a separate question, and one not decisively determined by technological trends. However, the growth of large-scale social integration that is furthered by new information technology does mean that action through direct relationships at the communal level is not able to achieve control over very much of life. Institutions at a supracommunal level not only determine much of what goes on in the "outside world"; they also determine many of the conditions of life inside local communities, as, for example, through capital mobility and attendant economic gain or loss. Communities are less microcosms and more compartments of overall social life.

There are crucial limits on the capacity of any mobilization of community relations and resources that is not complemented by some less direct set of organizational relationships. This is not always recognized, however, as examples of many more or less "populist" urban movements show. In Castells's (1983: 331) words:

When people find themselves unable to control the world, they simply shrink the world to the size of their community. Thus, urban movements do address the real issues of our time, although neither on the scale nor terms that are adequate to the task.

The kinds of local involvement that give many populist political movements their strength (Calhoun, 1982) are not gone beyond repair, but neither can community building stand alone as a program for

renewal of democracy. Involvement in direct relationships may be a potent way of combating a psychological sense of alienation or estrangement, but writers who commend it on that basis should not neglect the issue of how it is to be related to large-scale structures of social integration or treat it as a sufficient basis for democracy (Bellah et al., 1985). In a society the scale of most modern states, democracy depends not just on strong and intimate communal relationships, but on cross-cutting ties and a capacity for public discourse among relative strangers.

Much of the socioeconomic role and urbane character of cities has stemmed from secondary and indirect social relationships. These are likely to be subjected to increasing technological mediation. This will make them more independent of spatial constraints. Along with a likely growth in quaternary relationships, this will make both communities of primary relationships and a capacity for public life through secondary relationships more, not less, important. Though the economic functions of spatial compactness may be diminishing, democratic politics and a variety of personal values still seem to depend on direct social relationships. Technological trends are indeterminate with regard to community and public life, but they pose challenges to the past bases of each.

NOTES

1. The term *local communities* here means both spatially contiguous neighborhoods and "communities without propinquity" (Webber, 1967), inasmuch as the latter require (as they generally do) some spatial propinquity or frequent face-to-face contact, even though that is not their basis. Though importantly similar to more strictly local communities, these are also different—for example, because they lower the likelihood for relationships formed in one sphere of activity to extend into many others, to be "multiplex" (Bell and Newby, 1971: 18; Calhoun, 1980).

2. As Granovetter (1985) has stressed, the fact that markets are large does not mean that they are impersonal. Participants will still seek to establish relationships with others, both for motives of personal enjoyment and in order to establish trust and mutual support. That many markets remain much more committed to face-to-face trading than technology now requires is a testimony to the importance of direct relationships in establishing such trust (and also insight into the motives and strategies of other actors). Nonetheless, where face-to-face relationships are few, this does not mean that social relationships vanish in favor of perfect competition. Indirect relationships, mediated by technology and formal

organizations, still shape market behavior; individuals do not become wholly autonomous, atomistic actors.

3. This notion of a continuing industrial revolution focuses on the socioeconomic forces that have sustained a high rate of change for at least 200 years, rather than on specific sets of technological innovations. Relatedly, several critics of the postindustrial society notion argue that it is rooted in a faulty characterization of present and recent past society as simply and statically industrial (Kumar, 1978; Badham, 1984).

4. These trends are conflicting because the employment prospects for the groups rising in demographic prominence are lowest in the sectors rising in functional economic prominence, as well as because of changing spatial distribution patterns.

5. This appears as the object of these studies most clearly in Durkheim's (1951) famous analysis of "mechanical" and "organic" solidarity. Durkheim's key variable of "dynamic density" also unfortunately has been neglected in favor of the more easily measured but less sociologically meaningful physical density or simple concentration of people (see Abu-Lughod, 1969).

6. With even a minimal communications technology a social organization can be constructed to render interpersonal relationships quite indirect. In extreme cases, these indirect relationships seem to disappear while the formal organization, emptied of its human content, remains in view. Participants experience not the active creation of interpersonal relationships but the operation of apparently self-moving and external technical and social systems. This is what Marx noted for both the factory and the capitalist economy as a totality. Studies have long explored the impact of mechanical analogies on our understanding of human nature.

The idea of automation—self-movement—also exerted an early influence on conceptions of social organizations. Hobbes (1962), for example, describes Leviathan as an artificial man or automaton. The image suggests much of our ordinary understanding of the independence of such social automata from human action. Corporations, thus, are treated legally as persons in their own right. Sociotechnical systems automate not just industrial production or office work, but also control and coordination of social relationships. In doing so they create indirect relationships particularly conducive to reification. New computer and communication technologies help to foster the creation and operation of highly complex and seemingly autonomous social automata by coordinating human activities at great distances in space and time.

7. See MacIntyre's (1981: chap. 10) discussion of how any revival of traditional moral discourse depends on overcoming this fragmentation and reconstituting human subjects as whole persons.

8. In two senses, urbanization cannot be blamed for all of this. First, cities may not offer much security, but they offer opportunities where the countryside often offers none. Second, cities may swell because, while they are unable to exclude immigrants, rural villages are able to force emigration. The very social strength of some villages enables those well placed within them to force others to seek employment in cities, or even abroad. (See Moore, 1975, for an example of how witchcraft accusations perform something of this role among Tanzania's Chagga.)

9. But compare Pynchon's (1963) conception of the *schlemiel* as someone whose interactions with inanimate objects must be governed by such personal frustration.

10. *Business Week* (1984: 99) quotes estimates that as many as 18% of U.S. workers will telecommute in the near future. As Kraemer (1982) and Kraemer and King (1982) have

shown, however, the cost advantages of telecommuting over commuting are still equivocal. Any change will be gradual and will depend on many intervening factors. Telecommuting seems particularly likely whenever work activities already depend primarily on relationships mediated by technology or formal organizational procedures, or where the crucial direct relationships involved in a job are those with clients or others outside of the employing organization (as in many sales positions). Telecommuting is unlikely wherever tasks require substantial direct relationships, whether for reasons of motivation, trust, or sheer complexity and lack of precise task definition. It is also unlikely wherever personal support is a substantial part of what employers (or bosses) want from a worker—as in the otherwise different cases of physicians and personal secretaries.

11. This particular "high touch" complement to high tech is encouraged by Naisbitt (1982: 35). Such arrangements may have implications for long-standing generalizations about the amount of time people are willing to spend commuting (apparently, on average, about one hour a day), and, hence, the impact of transportation systems on city scale.

12. This is the ideology of "purified community" that Sennett (1976) criticizes, arguing especially against the notion that such a community might make a good setting for childhood and adolescence. This ideology also reflects sexist assumptions about work and family life, as Hayden (1984) has shown. Even houses themselves are designed in ways inimical to their conversion to combination residences/workplaces. Consider the popularity of open interior spaces, which presupposes either a very small household or one that occupies the house only during leisure time.

13. The old question of what constitutes good city size (perhaps never answerable; see Lynch, 1981) may become even less meaningful. It is not the size of whole cities that matters, but of arenas for social action within them. In this vein, see Smith's (1970: 180-87) criticism of the "myth" of the city as a whole.

14. One of Simmel's points in "The Metropolis and Mental Life" (1903) was that cities allowed an anonymity absent from rural villages and small towns, but important to many individuals. Moreover, "the fact that in certain respects the individual is not an element of society constitutes the positive condition for the possibility that in other respects he is" (Simmel, 1908: 12).

15. Of course, new technology affects employment prospects, and distribution of wealth, and, in general, the economic basis for possible renewal of communities. These questions are not addressed here for reasons of space. Elsewhere, I have suggested that computerization tends to increase the overall wealth of society, but at least initially to exacerbate existing disparities in its distribution (Calhoun, 1981).

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Craig Calhoun is Associate Professor of Sociology at the University of North Carolina at Chapel Hill. His work on technology and social change includes "The Microcomputer Revolution? Technical Possibilities and Social Choices" (Sociological Methods and Research, 1981), "Industrialization and Social Radicalism" (Theory and Society, 1983), "Electrotechnology, Community and Opportunity" (IEEE Spectrum, 1984), "Our Computers, Our Selves," (Transaction/Society, 1986), and "Class, Place and Industrial Revolution," in N. Thrift and P. Williams (eds.), The Making of Urban Society: Historical Essays on Class Formation and Place (Routledge & Kegan Paul, forthcoming).