

# I Was a Teenage Network Analyst: The Route from The Bronx to the Information Highway<sup>1</sup>

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A totally true account of how I discovered network analysis as a pre-postmodern Bronx teenager and what it has taught me about personal communities, social support, and computer-supported networks of work and community.<sup>2</sup>

## I. MAKING CONNECTIONS

### Is Network Analysis Postmodern?

Sometimes I ask myself why I, as a network analyst, should be interested in post-modernism. So much of it is pretentious and empty: bad, untrained ethnography and history masquerading as good social science. Even much of the serious stuff has a different take on society compared to network analysis. Postmodernists deny the possibility of generalizing: everything is a case study. By contrast, network analysis is an inherently generalizing enterprise. We want to tease out the structural patterns that underlie the surface noise of social systems and use our knowledge of these patterns to understand social interaction. It is the old idiographic/nomothetic (particularizing/ generalizing) stuff I learned as an undergraduate history major, or as Charles Tilly (1970) calls it, the contest between "Clio and Minerva". I used to think that it was part of the unendable debate between "art" and "science," but Picasso set me straight on that.<sup>3</sup> Here is Picasso talking in the 1940s to his then-partner and afterwards-biographer Françoise Gilot:

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<sup>1</sup>Keynote Address to the International Social Network Conference held in February, 1994 in New Orleans.

<sup>2</sup>My talk is dedicated to Charles Tilly who taught me how to look at community, to Harrison White for bringing out the latent networker within me, to Scott Feld and J. Jill Suitor for inviting me to speak, to the more than forty students and colleagues who have collaborated with me, to the Centre for Urban and Community Studies for being a constantly supportive home for twenty-five years, and most of all to Bev Wellman whose thirty-one years of infinite, multistranded support has helped me to grow up without growing old.

<sup>3</sup>Why should I let Harrison and Cynthia White (1965) corner the network art market?

"Today, we are in the unfortunate position of having no order or canon whereby all artistic production is submitted to rule....As soon as art had lost all links with tradition, and the kind of liberation that came in with Impressionism permitted every painter to do what he wanted to do, painting was finished. When they decided it was the painter's sensations and emotions that mattered, and every man could recreate painting as he understood it from any basis whatever [in other words, no courses in methods or theory-construction], then there was no more painting; there were only individuals....

Painters no longer live within a tradition, and so each one of us must recreate an entire language. Every painter of our times is fully authorized to recreate that language from A to Zed. No criterion can be applied to him *a priori*, since we don't believe in rigid standards any longer. In a certain sense, that's a liberation but at the same time it's an enormous limitation, because when the individuality of the artist begins to express itself, what the artist gains in the way of liberty he loses in the way of order, and when you're no longer able to attach yourself to an order, basically that's very bad" (1964, pp. 74-75).

Picasso's vision of artistic hell is my vision of the purgatory to which mindless postmodernism can lead us. It is the structure-denying route to the kind of unanalytic individualism that does not realize that for every whale you save, a billion plankton die. I feel much more comfortable with Harrison White's statement of belief in structurally constrained individualism, pronounced in 1966 while he was teaching introductory sociology to unsuspecting Harvard undergraduates:

My personal *value* is voluntaristic individualism.... This value becomes a mockery without facing the constraints of social structure. Much better a twig of genuine freedom wrung from a tree of constraint than an artificial tinsel forest of freedom.... Most...social science, especially in the US takes the *view* of voluntaristic individualism: basic reality is in individuals' values and choices, social structure being... epiphenomenal. The fruit of much sociology theory is this deception: social structure must be the sum of individual values so that you can define it *a priori* out of your head. (quoted in Wellman 1988b, p. 34).

Like Harrison White, I take social structure and systematic analysis seriously. Hence I keep wondering if there is any use for postmodernism other than providing job opportunities for social scientists who really want to be English and French majors but are frightened by the lack of job prospects in those disciplines.<sup>4</sup> Can PoMo be more than a means for incompetents to mystify and get tenure?

Yet there is intriguing substance behind the PoMo smokescreen. In my own field of urban sociology, the postmodernist view of the city (Gottdiener 1991) critiques those who see cities as monolithic and hierarchically organized. This is nicely congruent with the basic network analytic insight that the world is composed of networks, and that hierarchically-organized, bounded groups are only one, somewhat rare, type of a network (Wellman 1988b). Postmodernism and network analysis eschew discussing "the city" or "the community" as if these are clearly defined, bounded entities. Rather, both approaches see communities as loosely-linked relations among people and institutions, where ties often cut across boundaries -- on Granovetterian bridges (1973) -- as stay within them. They see cities as networks of networks

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<sup>4</sup>The current vogue for postmodernism in the humanities is also a reversal of the 1960s and 1970s, when some historians and English majors wanted to generalize systematically, just like social scientists.

(Craven and Wellman 1973)<sup>5</sup> -- links that by connecting small numbers of people also connect larger social entities (see also Breiger 1974).

Network analysts, like postmodernists, state loosely-coupled propositions rather than build grand theories. Our theories are cognitive networks that are analogous to the social networks we study. Indeed, I submit that we all have been postmodernists, properly interpreted, for many years -- just as it took us until high school to realize that we have been writing prose all along. This speech itself is postmodernist. It is not a monolithic argument but a self-referential series of interconnected topics and points.

### Teen-Age Networks

I am not sure that I was a teenage postmodernist in the 1950s, but I am sure that I was a teenage network analyst then. Growing up in the Bronx, New York City, I quickly became aware that boundaries were fluid. Most of us have a few defining "A Ha!" moments when the true nature of the universe becomes clear. While Lord Byron used to say he got his best thoughts climbing in and out of bed, my own defining moment was not a Byronic sensual experience, but one of fear. The "Fordham Baldies," the baddest gang in New York, were going to attack our high school, the erudite but defenseless Bronx High School of Science.<sup>6</sup> The Baldies never showed up to attack us, perhaps because we were armed to defend ourselves with the biggest slide-rules we could find. Yet the incident increased my thinking about gangs, I even hung around with one for a while, the Fordham Flames. I did their homework and they protected me.

It became clear to me in my teens that gangs as corporate entities did not exist. It was impossible to draw up a membership list. Indeed, it was as futile to draw a map cleanly delineating each gang's turf as it is to draw precise ethnic boundaries in eastern Europe (Magosci and Matthews 1993, plate 30). The Bronx consisted of unbounded networks of friends, and friends of friends. When a fight was coming up, groups of friends would call each other and come together to be a gang for that night. On another night, when other friends would call, many of some of the same teens would become members of another gang. Much of organized crime operates in the same way, be it a Colombian or Chinese drug cartel, the Cosa Nostra, or the Moscow mafia.

The Baldies had prepared me for my life's work: showing how communities, cities and societies are organized as networks.<sup>7</sup> When I arrived at Harvard graduate school, I found that

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<sup>5</sup>The information superhighway hype artists are now using the term "network of networks" to sell their product (see the discussion in Wellman and Buxton 1994). I regret that Paul Craven and I did not copyright it in when we first used it in our "Network City" paper (1973).

<sup>6</sup> Anyone who was in New York in that period should remember the gang. Indeed, Richard Price (1974) wrote a novel in which the Baldies play a central role, later made into a movie (Kaufman 1979).

<sup>7</sup>I think many of us have underlying lifetime projects: I read you Harrison White's before, but think too about Edward Laumann's many ways of using network analysis to comment on Talcott Parsons' ideas about societal integration (e.g., Laumann 1973; Laumann and Pappi 1976; Laumann and

urban sociology was full of silly garbage about the loss of community, the same counter-factual nonsense that politicians are selling today in the United States. I gradually developed from just using network analysis to show that traditional communities continue to exist, to taking advantage of my teenage, Fordham Baldies, insight (Wellman 1993). Communities rarely are tightly-bounded, densely-knit groups of broadly-based ties. Usually they are loosely-bounded, sparsely-knit, ramifying networks of specialized ties. You can trace the development of my thinking by comparing the somewhat traditional orientation of "The Network City" (Craven and Wellman 1973) — where we were using a rudimentary network perspective to say "yes, community ties persist in the traditional sense" — with my "community question" papers (Wellman 1979; Wellman and Leighton 1979). It was in these 1979 papers that I argued that sociologists should find community wherever it exists: in neighborhoods, in family solidarities, or in networks that reach farther out and include many friends and acquaintances.

I had it easy twenty-five years ago although I did not realize it then. Once you stop to think about it, once you start using a network perspective, then it is obvious that communities are networks (just as it is obvious that corporate interlocks are networks). The work is hard, but the concepts are easy. Although we network analysts have often been doing *sheer* documentation — demonstrating the existence of networks — we have not been doing *mere* documentation. We have shifted analysts away from thinking of social structure as nested in little boxes and relationships as being the product of internalized norms.<sup>8</sup>

My sense is that network analysts have come to a cusp. We have done a great job of showing the world that life is full of networks, and we have developed tools such as *UCINET* to make it almost as easy to play with networks as it is for *SPSS* users to play with surveys. My fear is that in sharpening our tools, we can lose sight of the big, important questions. Hence, I will take this time to discuss some of the big questions raised by our group's research into personal communities and social support. I will conclude by sketching our group's new research into computer-supported networks of work and community.

The big story that I have participated in during the past three decades has been to show that large-scale social changes have neither destroyed community nor eliminated social support from kith and kin. The trick has been to conceive of community as an ego-centric network, a "personal community," rather than as a neighborhood. (We can easily use network terms to define membership in a traditional densely-knit, village-like, neighborhood as one form of personal community.) Until now, most research has gone into documenting the composition, structure and supportiveness of these personal communities. Such research is the stuff of science. It is now time build on this research and consider the implications of how personal communities have been transformed.

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Knoke 1987).

<sup>8</sup>Recall Agee's (1975) account of how the CIA bribed half the government of Ecuador but kept thinking they were battling for their "hearts and minds."

## II. PERSONAL COMMUNITIES IN THE GLOBAL VILLAGE

### *1. Community ties are narrow, specialized relationships rather than being broadly supportive.*

Both scholars and the public have traditionally thought of communities as composed of broadly-based relationships in which each community member felt securely able to obtain a wide variety of help. However, our research group has found in Toronto that most ties are specialized. Active personal community members usually supply only one or two out of five dimensions of social support. For example, those network members who provide small services or emotional aid rarely provide large services, companionship or financial aid (Hall and Wellman 1985; Wellman and Wortley 1989, 1990). By contrast, spouses supply each other with almost all types of social support (Wellman and Wellman 1992).

This means that people must maintain differentiated portfolios of ties to obtain a wide variety of resources (Wellman 1990, 1992b). They can no longer assume that any or all of their relationships will help them, no matter what is the problem. In market terms, they must shop at specialized boutiques for needed resources instead of casually dropping in at a general store. They search for support in relationships which they work hard to maintain. We need to know what are the consequences for people of having such insecure sources of supply.

### *2. People are not wrapped up in traditional densely-knit, tightly-bounded communities but are floating in sparsely-knit, loosely-bounded, frequently-changing networks.*

Scholars and the public have traditionally seen communities as densely-knit solidarities. Such communities tend to have tight boundaries so that relationships largely stay within the communities. Dense knit and tight boundaries make it easy for such communities to control their members and coordinate their behavior, whether this be supplying aid to those in distress or punishing those who transgress.

In reality, personal communities are usually sparsely knit and loosely bounded. For example, the 0.33 density that we have found in the two Toronto studies means that only one-third of a person's active community members have active ties with each other. Moreover, these networks become even more sparsely-knit as people age and their networks get more complex: mean network density declined from 0.33 to 0.13 over a decade (Wellman, et al. forthcoming).

I have started to wonder if there are some basic types of personal communities, albeit more complex than the traditional dichotomy of communal versus contractual organization (Tönnies 1887). Factor and cluster analysis of our data suggests that the basic dimensions of Toronto personal communities are Kinship-Friendship, Range, Intimacy, and Contact (Wellman and Potter 1994). Because there are four dimensions, I nostalgically keep wanting to map them onto Talcott Parsons' system parameters.

The complex and specialized nature of these personal communities means that these are fragmented networks. People must actively maintain each supportive relationship rather than relying on solidary communities to do their maintenance work. The fragmentation, specialization

and low density suggests that tie characteristics may be more important than network characteristics in the provision of social support. We have found that (a) strong ties (socially-close voluntary, multiplex) and bonds between parents and adult children provide high levels of support, (b) accessible ties (living or working nearby, or otherwise in frequent contact) provide many services, and (c) women provide much emotional support, especially to other women (Wellman 1992a; Wellman and Wortley 1989, 1990).<sup>9</sup> Yet the composition and structure of networks also affect the availability of support, especially the number of non-intimate active ties, network density, and network homogeneity (Wellman and Gulia 1993). Emergent properties are alive and well in Toronto.

Few Torontonians have stable networks. Only 28 percent of their intimate ties were still intimate a decade later. Twelve percent of the once-intimate ties became somewhat weaker over a decade but still continued as active relationships. Twenty-four percent became casual ties, while 36 percent became much weaker or disappeared altogether. Although kinship is more stable, only 34 percent of intimate kinship ties remained intimate a decade later while another 28 percent continued as active, but not intimate, relationships (Wellman, et al. forthcoming).

It is not that people's communities are disintegrating, but that they are in flux. Rather than being locked into one social circle, each person has about 1500 ties that ramify across changing, fragmented communities to connect them to the diverse resources of multiple social arenas (Kochen 1989). Indeed Stanley Milgram's (1967) and Harrison White's (1970) observations that the entire world is linked by paths of five or fewer indirect ties is the basis for a recent play and movie, *Six Degrees of Separation* (Guare 1993). With sparsely-knit, fragmentary, loosely-bounded communities, it is possible to reach many people through even shorter paths. One consequence is that people must actively search their ramifying ties in unbounded networks to deal with their affairs instead of having to depend on the goodwill of a single, bounded community.

### ***3. Communities have moved out of neighborhoods to be dispersed networks. Can dispersed community networks serve the needs of their members?***

As well as communities now being fragmentary, sparsely-knit and loosely-bounded, they are no longer local groupings of neighbors and kin. The residents of developed societies usually know few neighbors, and most members of their personal communities live outside of their neighborhoods (Wellman 1990, 1992b). People easily maintain far-flung relationships by telecommunications (with telephones now being supplemented by faxes and electronic mail) and transportation (based on cars, expressways and airplanes). In Toronto, being within an hour's drive or the local telephone zone is more important than being within a neighborhood's walking distance as the boundary for where face-to-face contact and social support start decreasing. A large minority of relationships stretch even farther than the metropolitan area. This lack of local ties and the presence of community members living elsewhere weakens local commitment and encourages people to leave when conditions are bad rather than staying to improve things.

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<sup>9</sup>The *American Journal of Sociology* tried to censor the title of Wellman and Wortley (1990), "Different Strokes from Different Folks" because they feared it was obscene.

Even the most spatially liberated person cannot avoid neighbors. Local relationships are necessary for domestic safety, controlling actual land-use, and quickly getting goods and services, as Jane Jacobs (1961) has pointed out for contemporary North America, Vicente Espinoza for impoverished Chileans (1992, forthcoming) and Charles Tilly for pre-industrial Europe (1973). In saying that communities are not as local as they used to be, we need to avoid committing the pastoralist fallacy of thinking our cities and suburbs are inferior to the shepherd-filled villagers of yore (Wellman 1988a). Remember, with shepherds, you also have sheep dung and pervasive social control.

I doubt that pre-industrial communities were as local as tradition has maintained for whenever scholars have looked for non-local ties, they have found far-ranging networks. For example, radioactive analyses of obsidian have found Neolithic spear points and choppers over one thousand miles from their origin (Dixon, Cann and Renfrew 1968). In medieval times, LeRoy Ladurie (1975) used Inquisition data to describe the far-flung relationships of Pyrenean villagers. These shepherds were always moving about, following the flocks or going off to war. Consider too, the protagonist of the *Return of Martin Guerre* (Davis 1983), a soldier returning from distant medieval wars.

I have recently co-authored a paper comparing the communities of twentieth century Toronto and eighteenth century Latvia (Wetherell, Plakans and Wellman 1994). By contrast to the mythical kinship-ridden past, we found that this rural Latvian community did not have enough kin to construct the kinds of social networks that exist today. As these farmers do not appear to have had many friends living beyond the local area, it seems that half the myth was true: Although these groups were local, they only had small clusters of kin at their core. Closer to home, Kenneth Scherzer's (1992) study of mid-19th century New York City is explicitly based on the network models of myself and Claude Fischer (1982). His analysis of wedding guest registers reveals that many of these strong ties came from outside of the neighborhood, often from another state.

#### ***4. Private intimacy has replaced public sociability.***

Rather than operating out of public neighborhood spaces, contemporary communities usually operate out of private homes. Until recently, men customarily gathered in communal, quasi-public milieus, such as pubs, cafés, parks and village greens. Take for example this description of eighteenth century Paris:

The whole neighborhood overflowed into the street from nearby houses, workshops, shops and taverns. Around every inhabitant a *quartier* took on its shape, made up of daily contacts and changing reputations. Individuals worked round the corner from where they lived. (Roche 1981, p. 246)

More accessible than private homes, such places drew their clientele from fluid networks of regular habitués. Men could drop into such places to talk and to escape domestic boredom. The high density of the city meant that they were likely to find others to talk with. This density, combined with the permeability of the public spaces, provided men with many chance encounters with friends of their friends, and gave them opportunities to form new bonds. Although the men generally went out to enjoy themselves, they also used these public communities to organize politically, to accomplish collective tasks, and to deal with larger

organizations. In colonial New England, "neighbors assumed not only the right but the duty to supervise one another's lives" (Wall 1990). This public community was largely a man's game. For instance, a woman who went alone to a Parisian wine shop risked being mistaken for a prostitute (Roche 1981; Garrioch 1986).

Now community has moved inside, into private homes. The separation of work from residential localities means that co-workers are more apt to commute from different neighborhoods and no longer come home from work in solidary sociable groups. While men now spend more time at home, the feminization of paid work means that women spend less time. Husbands and wives are in no mood to go out together after their weary trip home from work. In any event, foolish zoning regulations in North America ensure that commercial areas are far from home. Domestic pursuits dominate, with husbands and wives spending evenings and weekends together instead of the men going off to pubs and streetcorners (for more details, see Wellman, 1992a). Workaholics bring their computer disks home; couch potatoes rent videos.

Rather than being accessible to others in public places, people now overcome their isolation by getting together in each other's homes or by the private media of the telephone and electronic mail. Most members of Torontonians' personal communities do not live near-by but a median distance of nine miles apart (Wellman, Carrington and Hall 1988). Yet the easy accessibility of local relationships makes them continue to be significant. Although neighbors (living within one mile) comprise only 22 percent of the Torontonians' active ties, these neighbors engage in fully 42 percent of all interactions with active network members (Wellman forthcoming).

Thus the neo-conservative privatization of Western societies, the withering of collective public services for general well-being, is reflected in the movement indoors of community life. Even in Toronto, the safest North American metropolis, 36 percent of the residents feel somewhat unsafe walking alone in their neighborhoods at nights. Yet the usual flight to safety -- driving one's car or staying home and using the telephone or e-mail -- offers little opportunity for enriching, diversifying contact en route. Cars leave garages as sealed units, opened only on reaching the other's home; telephones and modems stay indoors, sustaining only closed duets.

Where North Americans a generation ago often spent Saturday night going out for a movie and pizza, they now invite a few friends over to their homes to watch videos and order a pizza to be delivered. In 1992, the average Canadian household spent \$101 for buying and renting videos compared to \$99 for going to live theatre, concerts and movies. It costs \$3 *per household* to rent a video in Toronto, but \$8 *per person* to go to the movies and about \$30 to attend a play or concert (Film Canada 1990; Strike 1990). This means that people are watching videos at home an average of thirty times per year but are going out for entertainment only three or four times a year. The telephone number for Toronto's largest pizza delivery service, 967-11-11, has become so well known that Canadian immigration officers use it as a test to see if border crossers really are Canadian residents. As my fellow Toronto pundit Marshall McLuhan observed (1973), North Americans go out to be private -- in streets where no one greets each another -- but they stay in to be public -- to meet their friends and relatives.

Public spaces have become residual places to pass through or to shop in. North American church attendance is declining, and Canadian movie attendance has decreased from eighteen

times per year in 1952 to three times per year in 1993. When Torontonians do go out to the movies, most (55 percent) go alone or in pairs (Oh 1991). The public community of the pub in the recent television show, *Cheers*, was appealing because it is so rare. In fact, only 10 percent of adult Canadians go to a pub once a week or more.<sup>10</sup> Suburban shopping malls have become residual agoras -- for consumption purposes only but not for discussion. Their cafes mock the name, deliberately using tiny tables and uncomfortable chairs to discourage lingering sociability. There is little possibility for casual contact or for the expansion of networks. Only in America do such cafes tell their patrons to "have a nice day" and expect them to stay less than a half-hour.

I suggest that as community has become private, people continue to feel responsible for their relatively strong relationships but not for the many acquaintances and strangers with whom they rub shoulders but are not connected. Private contact with familiar friends and relatives has replaced public gregariousness so that people pass each other unsmiling on streets. This privatization may be responsible for the lack of informal help for strangers who are in trouble in public spaces (Latané and Darley 1976). I suspect that one consequence of this privatization of community in a world of strangers is that people feel that they lack friends even when their personal communities are abundantly supportive (see also Lofland 1973).

Network analysis has been better at studying the strong ties of personal, private community than at studying the weak ties and ecological juxtapositions of public community. Network analysts have learned only about strong active ties (Campbell and Lee 1991; Marsden and Campbell 1984) when they ask people to whom they feel close -- as we have done (Wellman 1979, 1982) and as the U.S. General Social Survey more or less did in 1985 (Burt 1984; Marsden 1987) -- or by asking from whom people get various kinds of social support -- as Claude Fischer (1982) and the Dutch have done (Knipscheer and Antonucci 1990). Network analysts have been useful and accurate in saying that strong personal communities continue to exist but have neglected to look at what is happening around these small networks.

##### ***5. To what extent have communities become domesticated and feminized?***

Home is now the base for relationships that are more voluntary and selective than the public communities of the past. Personal communities now contain high proportions of people who enjoy each other and low proportions of people who are forced to interact with each other because they are juxtaposed in the same neighborhood, kinship group, organization or workplace (Feld 1981). Friends and relatives get together as small sets of singles or couples, but rarely as communal groups (Wellman 1992a). This voluntary selectivity may mean that personal communities have become quite homogeneous networks of people with similar attitudes and life-styles.

Where once-public communities were essentially men's worlds, home-based personal communities bring husbands and wives together. Men's community ties are now tucked away in homes just as women's ties usually have been. Toronto couples operate their networks jointly (Wellman and Wellman 1992), a far different scene from the segregated networks that Elizabeth

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<sup>10</sup>Special analysis by Scot Wortley of the 1989 Canadian National Alcohol and Other Drug Survey.

Bott (1957) described in the 1950s for England. As community has moved into the home, homes have become less private. Where previous generations had confined friends to ground-floor parlors and dining rooms, friends now roam all floors and rooms.

Not only do women participate in community, they dominate it. Women have historically been the "kinkeepers" of western society: mothers and sisters keeping relatives connected for themselves, their husbands and their children. With the privatization and domestication of community, community-keeping has become an extension of kinkeeping, with both linked to domestic management. No longer do husbands and wives have many separate friendships. As men now usually stay at home during their leisure time, the informal ties of their wives form the basis for relations between married couples. Women define the nature of friendship and help maintain many of their husbands' friendships.

Thus the privatization and domestication of relationships has transformed the nature of community. Because communities interact in private homes, they are more likely to focus on household concerns and they provide less opportunity for casual encounters with friends of friends. Women's ties, which dominate personal communities, provide important support for dealing with domestic work. Community members help with daily hassles and crises, neighbors mind each other's children; sisters and friends provide emotional support for child, husband and elder care. Because women are the community-keepers and are pressed for time caring for homes and doing paid work, men have become even more cut off from male friendship groups (Wellman 1992a). North American men rarely use their community ties to accomplish collective projects of work, politics or leisure. Their relationships have largely become sociable ties, either as part of the relationship between two married couples or as disconnected relations with a few male "buddies".

This domestication helps explain the contemporary intellectual shift to seeing community and friendship as something that women do better than men. Just as husbands and wives are more involved with each other at home, the focus of couples and male friends is on private, domestic relations. Men's community ties have come to be defined as women's have been: relations of emotional support, companionship, and domestic aid. Thus the nature and success of community is now being defined in domestic, women's terms. Concurrently, the growing dominance of the service sector in the economy means that the manipulation of people and ideas has acquired more cultural importance than the industrial and resource-extraction sectors' manipulation of material goods. With 20 percent more managers and professionals than blue-collar workers in Canada (1993), many workplaces share the emphasis on social relationships that women have traditionally practiced at home.

At the same time, the material comfort of most North Americans means that they no longer need to rely on maintaining good relations with community members to get the necessities for material survival. The goods and services that community members exchange are usually matters of convenience, rarely of necessity, and hardly ever of life and death. Community ties have become ends in themselves, to be enjoyed in their own right and used for emotional adjustment in a society that puts a premium on feeling good about oneself and others. This resonates with contemporary feminist celebration of women as being more qualified in the socioemotional skills deemed to be the basis of contemporary communities -- and the downgrading of the allegedly masculine qualities of instrumentalism and materialism.

Contemporary discussions of community often reverse the traditional sexist discourse that has seen women as inadequate men. Now it is men who are seen as unable to sustain meaningful community relationships, especially when such relationships are defined only in terms of socioemotional support. This socioemotional definition has almost totally replaced the traditional definition of community as also including instrumental aid. Patriarchical arguments for male superiority in getting things done are being replaced by the celebration of female superiority in knitting together social networks. As the "feminist author" Maggie Scarf (1987) said on the Oprah Winfrey television show, "Men just don't have friends the way women have friends. Men just don't like to make themselves vulnerable to other men." Clitoris-envy, the alleged longing for empathy among men, has become the new-age replacement for penis-envy among the not-so *Iron Johns* (Bly 1990).

**6. *How do personal communities operate within the context of their political, economic and social milieus? How do such milieus affect the composition, structure and functioning of communities?***

Although the assertion that women have greater capacity for community has raised much consciousness, it is an idea that is time bound, culture bound, and empirically unsound. It ignores the thousands of years during which men's bonds largely defined community in public discourse. By reducing the definition of community to socioemotional support, it assumes that the world is as materially comfortable as North American intellectuals.

In less comfortable parts of the world, community members do more for each other than being privately sociable and emotionally supportive. Consider how Eastern Europeans use friends for economic, political and social survival: Greek men argue and plan projects in cafes, and Hungarians help each other build new homes (Sik 1988). Even in more affluent Britain, people value getting services and information from community members as much as they value getting esteem and affection (Argyle 1990). To put matters more broadly, communities do not function in isolation but within the context of political, economic and social milieus that affect their composition, structure and operations.<sup>11</sup> The nature of different societies strongly affects the opportunities and insecurities with which individuals and households must deal, the supportive resources they seek, and the ways in which markets, institutions and networks structure access to these resources.

Communities are not just ways in which people spend some of their leisure time but key mechanisms by which people and households get resources. Yet most North American research funding has ignored the broader implications of community ties and looked only at "social support," the effects of community ties on maintaining physical and mental health. Although this is an important matter, it is unfortunate how the availability of money for health-care research has narrowed scholarly attention.

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<sup>11</sup>I am now editing *Networks in the Global Village*, in which authors from several countries demonstrate this.

A broader view would see community as an essential component of society. For example, it is one of five principal ways by which people gain access to resources:<sup>12</sup>

- **Market Exchanges** (as purchases, barter or informal exchanges). Seeing this as the only means of access to resources is in line with the Reaganite belief in the loss of community. [*Liberty*]
- **Institutional Distributions** (by the state or other bureaucracies as citizenship rights, organizational benefits or charitable aid). Such access to resources is in line with those who have traditionally seen society as a moral community writ large, as in the current American debate as to whether health care is a community obligation or a market decision. However, the use of the term "community" to describe such institutional distributions can be a subterfuge for bureaucratic privilege, as was the case in socialist eastern Europe [*Equality*]
- **Community Exchanges**. If such informal, interpersonal access to resources occurs within neighborhood or kinship solidarities, then it fits those who believe in traditional community. If the exchanges are less-bounded (and hence less normatively-enforceable), then it fits the ramified community networks that have been described here. [*Fraternity*]
- **Coercive Appropriations** Direct predatory behavior by interpersonal (robbery) or institutional bullies (expropriation). Current involuntary appropriations usually occurs under the legitimating guise of imbalanced market exchanges or state extractions for unequal institutional distributions (as in governments forcing farmers to sell produce to urbanites at low prices [Tilly 1975]). More extreme instances of the loss of community is common in societies where institutional and communal mechanisms of social control have broken down. [*Robbery*]
- **Self-Provisioning** Making and growing things in one's household. Self-provisioning is used even in market societies (see Pahl's [1984] discussion of growing food in England) and in socialist-institutional ones (see Sik's [1988] discussion of Hungarian home building). Such self-provisioning rests on an infrastructure of market and community exchanges that provide advice, skills and materials. [*Peasantry*]

Although all types of resource access can be found in all societies, market exchanges are especially characteristic of western societies, institutional distributions are characteristic of centrally-planned statist societies, and community exchanges are characteristic of third-world societies with weak states and few formal organizations. While personal communities are important in western, statist and third-world societies, communities are differently composed, structured and used in each type of society. For example, the insecurities of members of western societies largely come from physical and emotional stresses in their personal lives and social relations. Hence people seek support from community members for emotional problems, homemaking chores and domestic crises, and they look to markets and institutions to deal with their economic and political problems.

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<sup>12</sup>Note that the French Revolution was fought in the name of three of them.

The comparatively low importance of economic and political concerns in western societies distinguishes the communities in them from those in societies which are less economically or politically secure. Most westerners rely on market exchanges for almost all of their production and much of their consumption. Institutional benefits such as schooling and medical care are abundantly available as citizenship rights. Westerners do not pay as much attention as do the inhabitants of statist societies (such as the former East European socialist states) to having community members who can make and fix things (such as home building) or who have connections to strategic institutional circles. To make another contrast, because westerners rarely have urgent cares about daily survival, they can manage domestic resources with less apprehension than third-worlders living on the margins.

### III. THE INFORMATION HIGHWAY IS A SOCIAL NETWORK

"The Network City" (Craven and Wellman 1973) begat *The Network Nation* (Hiltz and Turoff 1978), the first book about virtual communities. It is a direct progression to go from talking about personal communities -- linked by phones, planes and cars -- to talking about virtual communities, linked by such computer-supported means of communication as electronic mail and videoconferencing. Thus our group is now investigating the nature of virtual communities and virtual workgroups (Mantei, et al. 1991; Wellman, et al. 1994b).

The media are filled with excitement over the promise of computer-based "information superhighways," although much of the hype is an all-out effort by the telephone and cable companies to get the taxpayer to pay for the immense cost of putting fiber optic cables into every home and office (Wellman and Buxton 1994). To give you an example of the gap between promise and reality, I recently sent an e-mail message to U.S. Vice President Albert Gore, a leading champion of the information highway, asking him to cancel the free trade deal and return Canada to its residents. I received a reply in 20 seconds, telling me that my "correspondence has been read carefully" and thanking me for my "continued support... and participation in our democratic system of government." It was a self-negating message!

Despite the loathsome hype, computer-supported communication will affect work and community. We are finding my "Community Saved - Community Liberated" typology (Wellman 1979; Wellman and Leighton 1979) to be useful for analyzing virtual workgroups and communities that are linked through computer-supported communication. The Saved type is similar to the experiences of workers in a tightly-bounded, densely-knit open-office fishbowl, often on a single, common project. The Liberated type is similar to the experiences of workers who tend to operate more independently as they work simultaneously on a variety of projects. They work in loosely-bounded, sparsely-knit, multiple, fragmented networks, switching among a diversified set of relationships to accomplish their tasks. Quite different computer interfaces are needed to support Saved and Liberated styles of work (Wellman 1994).

We need to share more than just typologies between studies of work and community. Computer-supported communication has the potential to reconnect work and community by bringing skilled workers back home as "teleworkers" and by linking like-minded colleagues without regard to distance. But telework affects connectivity in complex ways. We have found that some teleworkers value the social isolation that working at home gives them, buffering their

communications with voicemail, closed-door videoconferencing, and asynchronous e-mail (Salaff, et al. 1994; Wellman, et al. 1994a) With computer-supported communication, an electronic network becomes a social network, and a community sustained by such media becomes a virtual community. We must teach computer scientists and policy makers that a computer network is a communication network is a social network.<sup>13</sup>

Social network analysis is a useful approach to understanding how computer-supported communication affects the organization of work. We are looking at how different types of relationships operate over computer-supported communication networks (e-mail, videoconferencing, et al.) and what kinds of communication media are used for what types of ties. For example, a set of computer scientists whom we have studied rely heavily on e-mail to exchange emotional support, presumably because they are usually at their terminals and because e-mail avoids close physical contact (Haythornthwaite, Wellman and Mantei 1995; Garton and Wellman 1995).

One of our studies is comparing two organizations that rely heavily on computer-supported communication. In one organization, "Indigo," two existing offices that are 100 kilometers apart have been linked by desktop videoconferencing and enhanced electronic mail. In the other organization, "Blue," some white-collar employees have moved home to be connected to their firm by a wide variety of computer-supported communication media. At the stay-in-place "Indigo" organization, although there has been some increased connectivity between the two offices, workers have learned how to preserve their autonomy and use the new technology for the unanticipated purpose of socializing. The teleworking "Blue" employees are much more heavily involved with their new technology -- as they would be unproductively isolated at home without it -- but they use it to protect themselves from unwanted intrusions as well as to communicate with others (Salaff, et al. 1994; Wellman, et al. 1994a).

We have been struck by how much the home-based teleworkers remain integrated into the Blue organization. Management by matrix, in which people report to several others, is a common organizational alternative to the traditional tree hierarchies of bounded workgroups. Yet simple two-dimensional matrices do not adequately represent work organization in this large high-tech firm. In Blue, white-collar workers constantly report to, relate to, and supervise shifting sets of multiple others. The firm has implemented what we call "management by network" in which computer-supported communication networks organize much of their work. Consequently, Blue can afford to encourage workers to move home to become teleworkers for they will continue to be enmeshed in the same communication *cum* control networks (Salaff, et al. 1994; Wellman, et al. 1994a).

What about community? Will teleworking further privatize community and lead to renegotiated marital roles, as paid work gets done around the home? Will the loss of community increase? With teleworking and teleshopping, there is even less reason to leave home and mingle with neighbors or the public. Computer-supported communication will help many ties to remain active over long distances. The effect on weaker ties may be more complex. It is probable that there will be less of the weak-tie physical contact that has integrated the social fabric. Yet weak

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<sup>13</sup>With apologies to Gertrude Stein.

ties who live far apart but rarely communicate could more easily stay in contact. At the same time, teleworking spouses will see even more of each other around the home. Although men have done few domestic chores until now, teleworking may lead to new domestic divisions of labor. Doing the laundry may become a rest stop on the information superhighway.

## EXPERIENCING NETWORKS

Clearly, connections are (almost) everything. But the audience is sitting in rows, stiff as isolates. It is one thing to analyze networks. It is another to experience it, to feel what it is like to be a member of a network with your whole body and soul. To help us move from analysis to action, Bev Wellman and the (Toronto) Ties and Bonds dancers have devised a whole-body network dance experience for all of us! Let's move!

*At which point, revelry filled the hall as social networks were experienced rather than analyzed.*<sup>14</sup>

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<sup>14</sup>*Publisher's note:* Some people escaped out the back.

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