NET SURFERS DON'T RIDE ALONE:
VIRTUAL COMMUNITIES AS COMMUNITIES

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Hope, Hype and Reality

Can people find community on-line in the Internet? Can relationships between people who never see, smell or hear each other be supportive and intimate?

The debate fills the Internet, the airwaves, and especially the print media. Enthusiasts outnumber critics, for as the prophet Jeremiah discovered millennia ago, there is more immediate reward in praising the future than in denouncing it. Unfortunately, both sides of the current debate are often *Manichean*, *presentist*, *unscholarly* and *parochial*.

The *Manicheans* on either side of this debate assert that the Internet either will create wonderful new forms of community or will destroy community altogether. These dueling dualists feed off each other, using the unequivocal assertions of the other side as foils for their own arguments. Their statements of enthusiasm or criticism leave little room for the moderate, mixed situations that may be the reality. The up-to-the-minute participants in this breathless debate appear to be unaware that they are continuing a century-old controversy about the nature of community, although with new debating partners. There is little sense of history.

Brave New Net World?

Enthusiasts hail the Net's potential for making connections without regard to race, creed, gender or geography. As Amanda Walker asserts on-line:

> Every advance in communication changes the nature of reality as we experience it. . . . The Internet is yet another revolutionary method of communication. For the first time in the history of the world, I can have an ongoing, fast-moving conversation with people regardless of their physical location, schedule, or other such constraints. . . . The world is changing, and we're the ones that are doing it, whether we realize it or not.[1]

Phil Patton similarly asserts that “computer-mediated communication . . . will do by way of electronic pathways what cement roads were unable to do, namely connect us rather than atomize us, put us at the controls of a `vehicle’ and yet not detach us from the rest of the world” (1986, p. 20). John Perry Barlow, co-founder of the Electronic Frontier Foundation, goes farther in prophesying the radical and positive social transformation that the Net will bring about:

> With the development of the Internet, and with the increasing pervasiveness of communication between networked computers, we are in the middle of the most transforming technological event since the capture of fire. I used to think that it was just the biggest thing since Gutenberg, but now I think you have to go back farther. (p. 36) . . . In order to feel the greatest sense of communication, to realize the most experience . . . , I want to be able to completely interact with the consciousness that's trying to communicate with mine. Rapidly. . . . We are now creating a space in which the people of the planet can have that kind of communication relationship. (in Barlow, et al., 1995, p. 40).

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[1]Message on the Net to the Apple Internet Users distribution list, August 3, 1995. Fittingly, the message was forwarded to Wellman in Toronto by Steven Friedman, a DL member and friend of Wellman's who lives in Israel. Yet the interaction is not solely a product of virtual community. The relationship between Wellman and Friedman developed out of a close childhood friendship of Wellman's wife and was reinforced when the Wellmans spent April, 1995 visiting Israel.

Lost in CyberSpace?

By contrast, critics worry (mostly in print, of course) that life on the Net can never be meaningful or complete because it will lead people away from the full range of in-person contact. Or, conceding half the debate, they worry that people will get so engulfed in a simulacrum virtual reality, that they will lose contact with "real life."[2] Meaningful contact will wither without the full bandwidth provided by in-person, in-the-flesh contact. As Texas commentator Jim Hightower warned over the ABC radio network:

> While all this razzle-dazzle connects us electronically, it disconnects us from each other, having us "interfacing" more with computers and TV screens than looking in the face of our fellow human beings. (Fox, 1995, p. 12).

Or as Mark Slouka, author of *War of the Worlds: Cyberspace and the Hi-tech Assault on Reality* (1995), worries: "Where does the need come from to inhabit these alternate spaces? And the answer I keep coming back to is: to escape the problems and issues of the real world" (In Barlow, et al. 1995, p. 43.)

Social Networks as Communities (Virtual or Otherwise)

Although broad references to Gutenberg (1436) and McLuhan (1965) are often made (see Press 1995), both sides of the debate are *presentist* and *unscholarly*. Consistent with the present-oriented ethos of computer users, pundits write as if people had never worried about community before the Internet arose. Yet sociologists have been wondering for over a century about how technological changes (along with bureaucratization, industrialization, urbanization and capitalism) have affected community (Wellman and Leighton 1979; Wellman 1988a). Have such changes led community to (a) fall apart, (b) persevere as village-like shelters from mass society, or (c) be liberated from the clasp of traditional solidary groups? Like Jim Hightower today, until the 1950s, sociologists feared that rapid modernization would mean the *loss of community*, leaving a handful of transitory, disconnected, weakly supportive relationships (e.g., Tönnies 1887; Stein 1960). Since then, more systematic ethnographic and survey techniques have demonstrated the *persistence of community* in neighborhood and kinship groups (e.g., Young and Willmott 1957; Gans 1962).

More recently, sociologists have discovered that such neighborhood and kinship ties are only a portion of people's overall community networks because cars, planes and phones can maintain relationships over long distances (Wellman 1988a, 1993). They realized that communities do not have to be solidary groups of densely-knit neighbors but could also exist as *social networks* of kin, friends, and workmates who do not necessarily live in the same neighborhoods. It is not that the world is a global village, but as McLuhan originally said, one's "village" could span the globe. This conceptual revolution moved from defining community in terms of space — neighborhoods — to defining it in terms of social networks (Wellman 1988a, 1994).

Social network analysts have had to educate traditional, place-oriented, community sociologists that community can stretch well beyond the neighborhood. By contrast, members of virtual communities take for granted that computer networks are also social networks spanning large distances (e.g., Rheingold 1993; Jones 1995; Hiltz and Turoff 1993; Stoll 1995). Such *computer supported social networks* (CSSNs) come in a variety of types such as electronic mail (email), bulletin board systems (BBSs) multi-user dungeons (MUDs), newsgroups and Internet Relay Chat (IRC). All CSSNs provide companionship, social support, information and a sense of belonging. But do they? The *Manichean* pronouncements of pundits -- pro and

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[2]We put "real life" in quotation marks because we believe that interaction over the internet is as much real life as anything else. However, we continue to use "real life" in this chapter because it is useful to make the contrast between online relationships and other types of community ties.

con -- most likely overstate the actual nature of virtual community life. (Pundits seem to get most media attention when they unequivocally assert that virtual community will greatly change life as we know it — for good or ill.) Although naysayers have recently gotten some press (e.g., Stoll 1995; Slouka 1995), most scholarly accounts of on-line interactions have been quite positive. We suspect that this enthusiasm is partially attributable to the involvement of academics and corporate researchers in developing and promoting groupware. With the best will in the world, people developing or evaluating on-line systems want them to work and have invested a large part of themselves in the apparent success of the systems in which they have been involved (Garton 1995).

Much of the analysis that does exist is *parochial*. It almost always treats the Internet as an isolated social phenomenon without taking into account how interactions on the Net fit with other aspects of people's lives. The Net is only one of many ways in which the same people may interact. It is not a separate reality. People bring to their on-line interactions such baggage as their gender, stage in the life-cycle, cultural milieu, socioeconomic status, and off-line connections with others (see for example, O'Brien's chapter in this volume).

Just as previous generations had worried about whether community had been destroyed or transformed by earlier "new technologies" — such as the telephone (Fischer 1992) or the automobile -- the pundits of the 1990s have identified the Internet as the ultimate transformer (see the reviews in Wellman and Leighton 1979; Wellman 1988a). We think it useful to examine the nature of virtual community in the light of what we have learned about social networks of "real-life" community. Unfortunately, anecdotal assertions about virtual community outweigh careful accounts. These resemble the old genre of "travelers' tales," accounts of adventurous trips from the civilized world to newly-discovered, exotic realms. General interest magazines appear weekly with stories about dating ("Cybergal" 1995) or doing witchcraft on the Net (Davis 1995). *Wired* magazine appears to run such an account almost every month. Can *The National Geographic* be far behind?

Unfortunately, there have been few detailed ethnographic studies of virtual communities, no surveys of who is connected to whom and about what, and no time-budget accounts of how many people spend what amount of hours virtually communing. We review here what research there is about virtual community, supplemented with findings from a more widely-studied aspect of computer-supported social networks: "computer-supported cooperative work" (reviewed also in Garton and Wellman 1995; Sproull and Kiesler 1991; Wellman 1997; Wellman et al. 1996). To fill in gaps with first-order approximations, we add germane anecdotes and travelers' tales, including our own experiences.[3] Our key questions are:

1. Are relationships on the Net narrow and specialized or are they broadly based? What kinds of support can one expect to find in virtual community?

2. How does the Net affect people's ability to sustain weaker, less intimate, relationships and to develop new relationships? Why do Net participants help those they hardly know?

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[3] We focus in this chapter on computer-mediated communication (CMC) systems that are primarily text-based and are primarily used for personal and recreational reasons. These include both synchronous and asynchronous modes of CMC such as the Internet, dialogue or chat lines (i.e., Internet Relay Chat), email, newsgroups, bulletin board systems, commercial networks such as America On-Line or Prodigy, MUD's, MOO's, etc. Although some of these systems are strictly speaking not part of the Internet, they are rapidly becoming connected to it. Hence unless we are making special distinctions, we refer here to the sum of all these systems as the "Internet" or simply, "the Net." Indeed, the Net has never been a single entity. Rather, it is a "network of networks," a form first identified by Craven and Wellman (1973). We exclude here analyses of picturephones, videoconferencing and other forms of video-based computer-mediated communication that now are largely used in large organizations or experimentally by academics. For information on desktop videoconferencing, see Mantei, et al. 1991, Buxton 1992; Garton 1995.

3. Is support given on the Net reciprocated? Do participants develop attachment to virtual communities so that commitment, solidarity and norms of reciprocity develop?
4. To what extent are strong, intimate relationships possible on the Net?
5. What is high involvement in virtual community doing to other forms of "real-life" community involvement?
6. To what extent does participation on the Net increase the diversity of community ties? To what extent do such diverse ties help to integrate heterogeneous groups?
7. How does the architecture of the Net affect the nature of virtual community? To what extent are virtual communities solidary groups (like traditional villages) or thinly-connected webs? Are virtual communities like "real-life" communities? To what extent are virtual communities entities in themselves or integrated into people's overall communities?

Question 1: Are On-Line Relationships Narrowly Specialized or Broadly Supportive?

The standard pastoralist ideal of in-person, village-like community has depicted each community member as providing a broad range of support to all others. In this ideal situation, all can count upon all to provide companionship, emotional aid, information, services (such as child care or health care), money, or goods (be it food for the starving or saws for the renovating).

It is not clear if such a broadly supportive situation has ever been the case — it might be pure nostalgia — but contemporary communities in the Western world are quite different. Most community ties are specialized and do not form densely-knit clusters of relationships. For example, our Toronto research has found that except for kin and small clusters of friends, most members of a person's community network do not really know each other. Even close relationships usually provide only a few kinds of social support. Those who provide emotional aid or small services are rarely the same ones who provide large services, companionship or financial aid. People do get all kinds of support from community members but they have to turn to different ones for different kinds of help. This means that people must maintain differentiated portfolios of ties to obtain a variety of resources. In market terms, they must shop at specialized boutiques for needed resources instead of casually dropping in at a general store (Wellman and Wortley 1989, 1990; Wellman, Carrington and Hall 1988; Wellman 1990, 1992b).

Although much of the current literature shows that one can find various kinds of social resources on the Net, there is no systematic evidence about whether individual relationships are narrowly or broadly-based. Our reading of travelers' tales and anecdotes suggests that while people can find almost any kind of support on the Net, most of the support available through one relationship is specialized.

In one respect, the Internet has continued the trend of technology fostering specialized relationships. Its structure supports both market and cooperative approaches to finding social resources in virtual communities. With more ease than in most real life situations, people can shop around for resources within the safety and comfort of their homes or offices. Travel and search time are reduced. It is as if most North Americans lived in the heart of densely-populated, heterogeneous, physically-safe, big cities rather than in peripheral, low-density, homogeneous suburbs.

Net members participated in 24,237 topic-oriented collective discussion groups (as of January 27, 1996; Southwick 1996; see also Kling 1995; Kollock and Smith 1996). Their topics range from the political (feminist groups etc.), technical (computer hardware and software groups), to the social (abuse recovery groups, singles groups) and recreational (book reviews, hobby groups, sexual fantasy groups). On synchronous chat modes such as the IRC, people can browse through various specialized "channels" before

deciding to join a particular discussion (Reid 1991; Danet, Ruedenberg and Rosenbaum-Tamari 1997). Such groups are a technologically-supported continuation of a long term shift to communities organized by shared interests rather than by shared place (neighborhood or village) or shared ancestry (kinship group; see the discussions in Craven and Wellman 1973; Fischer 1975; Wellman and Leighton 1979).

As Usenet newsgroups and IRC channels can focus on very specific topics, relationships in these virtual communities can be quite narrow, existing mostly for information processing. The nature of the medium supports such relationships since people can easily post a question or comment and quickly receive information in return (Sproull and Faraj 1995). This can be important when efficiency and speed are needed. Everyday examples are the arrangement of group get-togethers, but the Net was also used to marshal resources just after the Oklahoma City bombing in April, 1995. Within hours after the explosion, university students in Oklahoma had created special information sites and electronic bulletin boards on the Internet (Sallot 1995). Among other things, these information resources provided a list of names of the wounded, hospitals servicing these wounded, and locations of emergency blood-donor clinics. Not only was this information available quickly, some found it more accurate than television news reports. Social movements also have been organized on-line, For example, striking Israeli university professors recently used both private and group messages on the Net to coordinate their fight against the government (Pliskin and Romm 1994; see also Johnson-Lenz and Johnson-Lenz 1993, Marx and Virnoche 1995; Ogden 1994).

If the Net were solely a means of information exchange, then virtual communities played out over the Net would mostly contain only narrow, specialized relationships. However, information is only one of many social resources exchanged on the Net. Many Net members get help in electronic support groups for social, physical and mental problems along with information about treatments, practitioners and other resources. For example, women experiencing the same physical and emotional strains associated with menopause have found on-line support in knowing that others are going through the same symptoms, feelings and concerns (Foderaro 1995). Similarly, the Net provides emotional and peer group support for recovering alcohol and drug addicts; the virtual encounters provided by electronic support groups are important supplements to regular attendance at “real-life” meetings or recovery groups (King 1994).

In at least a few cases, emotional therapy itself is explicitly provided through the Net. One psychiatric social worker in New York “sees” dial-in clients on a BBS:

> The dynamics of the in-person interactive process itself are missing. But what online work can accomplish is to enable people to begin to explore their own thoughts and feelings without being judged. . . . Because I encounter words on screen only, my sensitivity to style as a communication itself and subtle changes in patterns of “speaking” has been heightened. Knowing what a word means to the “speaker” is particularly crucial where the communication is words on screen only. As a result, I tend to ask about the meaning of more words than I might in person. . . . Email or bulletin boards . . . can open a door for people who would not ordinarily reach out for help (Cullen 1995, p. 7).

Electronic support groups are not the only electronic groups where net surfers can find emotional support and companionship. Peter and Trudy Johnson-Lenz have moderated on-line groups for twenty years, working to build self-awareness, mutually supportive activities, social change, and a sense of collective well-being. In 1978 they coined the term “groupware” to describe “computer-mediated culture”: “Some parts are embodied in software, other parts in the hearts and minds of those using it” (1990, p. 1). At the heart of their workshops is a “virtual circle,” based on non-western traditions of passing around sacred “talking sticks.” Software tools rearrange communication structures, vary exchange settings, mark group rhythms and encourage non-contributing voyeurs to express themselves (Johnson-Lenz and Johnson-Lenz 1990, 1994).

Even when on-line groups are not designed to be supportive, they often are. As social beings, those who use the Net seek not only information but also companionship, social support and a sense of belonging. For example, while most elderly users of "SeniorNet" reported joining the Net to gain access to information, nearly half (47%) had also joined to find companionship. Indeed, the most popular activity was chatting with others. Over a four-month period, the most heavily used features of SeniorNet were email, "forum" and "conferencing" (social uses) while such information access features as "news," "bulletin board," "library" and "database" were the least used. Moreover, SeniorNet provides access to grief counselors who would otherwise be inaccessible. One member noted that "if I am unable to sleep at night, all I have to do is go to my computer and there's always someone to talk to, laugh with, exchange ideas. . . ." (Furlong, 1989, p.149).

There are many other examples of the on-line availability of emotional support, companionship and advice in addition to information (e.g., Hiltz, Johnson and Turoff 1986; Rice and Love 1987; McCormick and McCormick 1992; Walther 1994; Rheingold 1993; Meyer 1989; Sproull and Faraj 1995; Kraut et al. 1995). An informal support group sprung up inadvertently in a "Young Scientists' Network" established to provide postdoctoral physicists with job hunting tips, funding information and news stories (Sproull and Faraj 1995). Similarly, the private mailing list, "Systers" was originally designed for the exchange of information among female computer scientists, but turned into a forum for companionship and social support (Sproull and Faraj 1995). In another case, the members of a university computer science laboratory use email extensively for emotional support. As much of their time is spent on-line, it is natural for them to use email to communicate these problems to confidants. When confidants receive an on-line message of distress on their own screens, responding by email is easy for them (Haythornthwaite, Wellman and Mantei 1995).

Emotional support, companionship, information, making arrangements, and providing a sense of belonging are all non-material social resources that are often possible to provide from the comfort of one's computer. They usually do not require major investments of time, money or energy. But skeptics (e.g. Stoll 1995) ask about the quality as well as the narrowness of such support. Consider the following colloquy:

> On the Internet . . . , people would put words like "grin" or "smile" or "hug" in parentheses in a note. It's a code meaning cyberhugs, cybersmiles, cyberkisses. But at bottom, that cyberkiss is not the same thing as a real kiss. At bottom, that cyberhug is not going to do the same thing. There is a big difference. (Mark Slouka in Barlow, et al. 1995, p. 42.)
>
> Yes, there is a difference. But I wasn't without the warmth of my friends. I got a lot of hugs during that period, and I still get them. My community was around me. I mean, it wasn't a case of either/or. I didn't have to give up the human embrace in order to have this other, slightly larger form of human embrace, a kind of meta-embrace. One supplemented the other. (John Perry Barlow in Barlow, et al. 1995, p. 42.)

To address this issue, we can only be like Slouka and Barlow and provide anecdotes, rather than more persuasive evidence from controlled experiments, detailed ethnographies or systematic surveys. Many people have received significant emotional support online. For instance, when David Alsberg, a 42-year-old computer programmer, was murdered in New York City, his Net friends organized on-line to solicit recipes and compile an electronic cookbook whose proceeds support a trust fund for the Alsberg family (Lewis 1994; Seymour 1994). In another case, when Mike Godwin's belongings were destroyed in a blaze while moving to Washington, his "cyberspace neighbors" on the Well responded by sending boxes and boxes of books to him for six months (Lewis 1994).

In addition to worrying about the reduced bandwidth of the supportive communication provided on-line as opposed to in-person, some pundits are concerned that the Net may be becoming a repository of misleading information. For example, a *Wall Street Journal* article proclaimed that the "pioneers" or veteran

users of the Internet were rejecting the electronic medium, overwhelmed by the "sludge" of information that is overpowering Usenet (Chao 1995). Indeed, over a two-week period in March, 1994, the volume of articles received for the top 16 Usenet newsgroup hierarchies (comprising 2,295 newsgroups) was 817,638, occupying 1,818 megabytes at one site (Kling 1995, table 1). Critics worry about the overwhelming number of people "who don't have a clue, who are posting questions because they can, not because they have something to offer" (James Bidzo, president of RSA Data Security and a 20-year veteran of on-line communication, quoted in Chao 1995). This concern is shared by health care professionals who criticize on-line services for functioning as repositories of incorrect information and bad advice (Foderaro 1995).

Such worries discount the fact that people have always given each other advice. Before life on the Net, people did not always consult expert mechanics for their cars, doctors for their bodies, or therapists for their psyches. For example, the health care literature has many accounts of "lay referral networks" giving people advice on what their ailments were, which remedies to use, and appropriate doctors or alternative healers to see (Pescosolido 1986; Wellman 1995). To some extent, the Net has just made the process more accessible and more visible to others, including experts whose claims to monopolies on advice are threatened (Abbott 1988).

Yet information supplied over the Net is not like information flows through other relationships, for the Net's speed and greater connectivity can accelerate the spread of (mis)information when people often send messages to scores of friends and to large DLs (Dantowitz and Wellman 1996). For example, the night we were completing a draft of this article, we received an email warning from a friend about a "brand-new Good Times computer virus" transmitted by email that could destroy our hard disk. Yet we have received the identical warning about the alleged Good Times virus eleven times in the past four years. Although the initial warning message was a hoax, the persons who sent it on did so in good faith and were thoroughly alarmed about the possibility of their friends' computers becoming infected. While the speed of the Net allows such information to be disseminated speedily and quickly, fortunately the ability of Net mail systems to maintain logs of who sent and received messages aids the correction of misinformation.

It seems as if messages transmitted through the Net can merge the "two-step flow of communication" (Katz and Lazarsfeld 1955) into one step, combining the rapid dissemination of mass media with the persuasiveness of personal communications. The warnings about this non-existent virus usually come in clusters, so that the first warning is usually followed by several others. This redundant clustering occurs because messages are broadcast to friends, and such friends are often friends of each other (Rapoport 1957).

Question 2: In What Ways are the Many Weak Ties on the Net Useful?

Virtual communities may resemble "real life" communities in the sense that support is available, often in specialized relationships. However, Net members are distinctive in providing information, support, companionship and a sense of belonging to persons they hardly know off-line or who are total strangers. Anecdotes from virtual communities and more systematic accounts of computer-supported cooperative work provide ample evidence of the usefulness of acquiring new information from weak ties on the Net (Constant, Sproull and Kiesler 1996;Pickering and King 1996; Garton and Wellman 1995; Harasim and Winkelmans 1990; Carley and Wendt 1991). For example, 58% of the message on an organization's discussion list *(DL)* came from strangers (Finholt and Sproull 1990; Kiesler and Sproull 1988).

A few commentators have warned about the consequences of making affiliations in an electronic medium teeming with strangers whose biographies, social positions and social networks are unknown (Stoll 1995; Chao 1995; Sproull and Faraj 1995). Yet Net users usually trust strangers, much like people gave rides to hitchhikers in the flower child days of the 1960s. For example, some Net users hide their identities and addresses by using a re-mailing service that claims to hide senders' email addresses while forwarding their

messages to designated recipients. Although such a service could be of use to those wanting to disturb the established order or to harass others, users must trust that the service will keep their identities secret and forward their messages to the intended recipients. The best-known service (now defunct) claimed to be in Finland, but for all the users know it might have been operated or monitored by the CIA, the KGB, the Mafia or Microsoft.

This willingness to communicate with strangers on-line contrasts with in-person situations where bystanders are often reluctant to intervene and help strangers (Latané and Darley 1976). Yet bystanders are more apt to intervene when they are the only ones around (and most reluctant when there are many others) and requests are read by solitary individuals, alone at their screens. Even if the on-line request is to a newsgroup and not to a specific person, as far as the recipient of the request knows, s/he may be the only one available who could provide help. Yet on-line assistance will be observed by the entire newsgroup and positively rewarded by its members (Kollock and Smith 1996). Moreover, it is easier to withdraw from problematic situations when they are on-line — all you have to is "exit" the Net session — than it is to withdraw from face-to-face interactions.

The lack of status or situational cues can also encourage contact between weak ties. Often, the only thing known about others is their email address which may provide minimal or misleading information (Slouka 1995). The relatively egalitarian nature of Net contact can encourage responses to requests. By contrast, the cues associated with in-person contact transmit information about gender, age, race, ethnicity, life-style and socioeconomic status, and clique membership (Culnan and Markus 1987; Garton and Wellman 1995; Hiltz and Turoff 1993; Weisband, Schneider and Connolly 1995). On-line interaction can also generate a culture of its own, as when humorous stories (or virus warnings) sweep the Net, coming repeatedly to participants. Indeed, the Net is fostering a revival of folk humor. At times, the velocity and proliferation of this communication can have consequences as when the broad circulation of "Intel Insied" [sic] jokes helped create successful pressure for replacing faulty Pentium computer chips.

On-line and off-line, weak ties are more apt than strong ties to link people with different social characteristics. Such weak ties are also better than strong ties for maintaining contact with other social circles (Feld 1982; Granovetter 1982; Lin 1986). This suggests that the kind of people you know is more important for obtaining information than the number of people you know. For example, in one large organization, people were better able to solve problems when they received on-line suggestions from a variety of people than when they received suggestions from a larger number of socially-similar people (Constant, Sproull and Kiesler 1996).

Question 3: Is There Reciprocity On-Line and Attachment to Virtual Communities?

It is a general norm of community that whatever is given ought to be repaid, if only to ensure that more is available when needed. Repayment of support and social resources might be as exchanges of the same kind of aid, reciprocating in another way, or helping out a mutual friend in the network. For example, the real-life communities of the Torontonians we are studying are reciprocal and supportive overall. Almost all can get a wide range of help from somewhere in their network. Their diversified portfolios of ties provide access to a variety of network members and resources (Wellman, Carrington and Hall 1988; Wellman and Nazer 1995).

The problem of motivation for giving support in a virtual community arises when we consider that many of the exchanges that take place on-line are between persons who have never met face to face, have only weak ties, and are not bound into densely-knit community structures that could enforce norms of reciprocity. Some analysts have suggested that the greater the social and physical distance between the support seeker and provider (i.e., the weaker the tie), the less likely that reciprocity will take place. This suggests that people

may not be motivated to provide assistance, information and support to physically and socially-distant others on the Net as they are less likely to be rewarded or receive support in return (Thorn and Connolly 1987; Constant, Sproull and Kiesler 1996).

Nevertheless, many Net members do reciprocate support, even to weak ties (Hiltz, Johnson and Turoff 1986; Walther 1994). Constant, Sproull and Kiesler's (1996) study of information sharing in an organization suggests two explanations for this reciprocity (see also Constant, Kiesler and Sproull 1994). One is that the process of providing support and information on the Net is a means of expressing one's identity, particularly if technical expertise or supportive behavior is perceived as an integral part of one's self-identity. Helping others can increase self-esteem, respect from others and status attainment.

Meyer's (1989) study of the computer underground supports this social psychological explanation. When they are involved in illegal activities, computer hackers must protect their personal identities with pseudonyms. If hackers use the same nicknames repeatedly, this can help the authorities to trace them. Nevertheless, hackers are reluctant to change their pseudonyms regularly because the status associated with a particular nickname would be lost. With a new nickname, they would have to gain the group's respect again. If they are not seen to contribute, the hackers would not be recognized as community members.

Norms of generalized reciprocity and organizational citizenship are another reason for why people help others on-line (Constant, Sproull and Kiesler 1996). People who have a strong attachment to the organization will be more likely to help others with organizational problems. Such norms typically arise in a densely-knit community, but they appear to be common among frequent contributors to distribution lists and newsgroups. People having a strong attachment to an electronic group, will be more likely to participate and provide assistance to others. As Kollock and Smith argue:

> Whatever the goal of the newsgroup, its success depends on the active and ongoing contributions of those who choose to participate in it. If the goal of the newsgroup is to exchange information and answer questions about a particular topic, participants must be willing to answer questions raised by others, summarize and post replies to queries they have made themselves and pass along information that is relevant to the group. (1996, p. 116).

Group attachment is intrinsically tied to norms of generalized reciprocity and aiding mutual friends. People often show respect for groups by helping both members they do not know and members who have once helped them (Constant, Sproull and Kiesler 1996). Rheingold, a regular participant of the “Well” community writes that, “the person I help may never be in a position to help me, but someone else might be” (Rheingold 1993 p. 60). Moreover, one of us has observed that those who have contributed actively to the BMW car network get their requests for advice answered more quickly and more widely. That is probably why people reply to the entire group when answering an individual's question.

In addition to aiding self-expression, organizational attachment and generalized reciprocity, the Net's technological and social structures assist the provision of social support in other ways. The logistic and social costs of participating in electronic gatherings are low if people have a personal computer (Sproull and Faraj 1995). People can easily participate within the comfort and safety of their own homes or offices, for any length of time they choose and at their own convenience. Moreover, providing assistance to others when the group is large can be quite easy. The accumulation of small, individual acts of assistance can sustain a large community because each act is seen by the entire group and help to perpetuate an image of generalized reciprocity and mutual aid. People know that they may not receive help from the person they helped last week, but from another network member (Rheingold 1993; Barlow 1995; Lewis 1994).

Question 4: Are Strong, Intimate Ties Possible On-Line?

Even if weak ties flourish in virtual communities, does the narrower bandwidth of computer-mediated communication work against the maintenance of socially-close, strong ties? When people chat, get information and find support on the Net, do they experience real community or just the inadequate simulacra about which Jim Hightower and Mark Slouka have warned?[4] The test is to see if the Net creates and sustains the socially-close, strong, intimate ties that are the core of community. Personal relationship theorists tell us that the stronger a tie, the more intensely it exhibits these characteristics:

— (1) a sense of the relationship being intimate and special, (2) with a voluntary investment in the tie and (3) a desire for companionship with the tie partner;

— (4) an interest in being together as frequently as possible (5) in multiple social contexts (6) over a long period;

— (7) a sense of mutuality in the relationship (8) with the partner's needs known and supported;

— (9) intimacy often bolstered by shared social characteristics such as gender, socioeconomic status, stage in the life-cycle, and life-style (Duck 1983; Perlman and Fehr 1987; Blumstein and Kollock 1988; Feld 1982; Homans 1961).

In practice, many strong ties do not contain most of these characteristics. For example, intimates living abroad may rarely be seen or offer social support, while many frequently-seen relationships are with neighbors and co-workers whose relationships are rarely intimate, voluntary or supportive (Wellman, Carrington and Hall 1988). So this list of nine characteristics is more a typology with which to evaluate the strength of on-line relationships than it is an accurate depiction of the actual nature of strong ties.

Strong ties that are on-line have many characteristics that are similar to strong off-line ties. They encourage *frequent, companionable* contact and are *voluntary* except in work situations. One or two keystrokes are all that is necessary to begin replying, facilitating *reciprocal*, *mutual support* of tie partners' needs. Moreover, the placelessness of email contact aids *long-term* contact, without the loss of the tie that so often accompanies geographical mobility.

But if the relationships are companionate and supportive, are they truly intimate and special enough to be strong ties, and do they operate in multiple social contexts? Part of the fears of pundits about the inability of the Net to sustain strong ties is wrongly specified. Pundits, both enthusiasts and critics of virtual community, usually speak of relationships as being solely on-line. Their fixation on the technology leads them to ignore the abundant accounts of community ties operating both on-line and off-line, with the Net being just one of several ways to communicate. Despite all the talk about virtual community transcending time and space *sui generis*, much contact is between people who see each other in person and live locally. Our research into a less trendy communication medium, the telephone, found that Torontonians spoke more with people who live nearby than they did with those far away. Their calls filled the gaps between in-person meetings, and made arrangements for future get-togethers (Wellman, Carrington and Hall 1988; Wellman and Tindall 1993).

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[4]Devotees of computer science and science fiction are already aware that virtual community members in the near future will interact via simulacra. Instead of sending text messages, animated figures will interact with each other (*Communications of the ACM* 1994). Several preliminary chat systems using graphical “avatars” already exist, such as *AlphaWorld* on the internet and *WorldChat* on the *CompuServe* network. Non-graphical “agents” have proliferated rapidly on the Net since 1995. Although these agents have largely been used to search the World Wide Web for relevant information, they should soon have the capability of interacting with the Net denizens (from files to humans) they encounter. See Stephenson (1992) for a fictional account of agents and avatars in future virtual communities and Maes (1995) for a report on implementations.

Yet some relationships are principally sustained on-line. Can they be strong? Some analysts have argued that the comparatively low bandwidth of computer-mediated communication cannot by itself sustain strong ties (Beniger 1987; Jones 1995; Stoll 1995). They argue that without physical and social cues or immediate responses, email can foster extreme language, difficulties in coordination, and group polarization (Daft and Lengel 1986; Short, Williams and Christie 1976; Kiesler and Sproull 1992; Hiltz and Turoff 1993; Latané and Bourgeois 1996). Perhaps the medium itself does not support strong, intimate relationships; or as neo-McLuhanites might say, the medium may not support the message (McLuhan 1965). Thus Clifford Stoll (1995, p. 24) worries that intimacy is illusory in virtual community: "Electronic communication is an instantaneous and illusory contact that creates a sense of intimacy without the emotional investment that leads to close friendships."

Unfortunately researchers have looked more at the presence of supportive, intimate relationships in on-line work situations rather than in virtual communities.[5] However, one study has found that some participants came to feel that their closest friends were members of their electronic group, whom they seldom or never see (Hiltz and Turoff 1993). Walther (1995) similarly argues that on-line relationships are socially close, suggesting that groups of people interacting on the Net become more personal and intimate over time (see also McGrath and Hollingshead 1994). He points out that most research experiments analyze social interactions within a limited time, missing the nuances of later interactions and the potential for relationships to grow closer over time. He argues that the medium does not prevent close relationships from growing but simply slows the process. Relational development takes longer on-line than in face-to-face interactions because communication is usually asynchronous (and slower) and the available bandwidth offers less verbal and non-verbal information per exchange. Walther's experiments comparing groups of undergraduates on-line and in-person meetings suggest that over time, on-line interactions are as sociable or intimate as in-person interactions. In other words, the Net does not preclude intimacy.

There has been little systematic analysis of the nature and longevity of on-line intimacy, other than experiments with university students or serendipitous observations of intimacy observed in computer-supported cooperative work (reviewed in Garton and Wellman 1995). Despite lurid media reports, there may not be much anti-social behavior on-line other than uttering hostile "flaming" remarks and "spamming" individuals and DLs with profuse junk mail. However, social psychological studies report that CSSNs seem to foster uninhibited discussion, non-conforming behavior and group polarization (Hiltz, Johnson and Agle 1978; Kiesler, et al. 1985; Siegal, et al. 1986; Sproull and Kiesler 1991; Lea, et al. 1992; Walther, Anderson and Park 1994). Studies of Usenet groups (e.g. Kollock and Smith 1996) report extensive free-rider "lurking" (reading others' comments without contributing). Although lurking does not support the group (because it is not easily observed on-line), it is less detrimental to group morale than is similar behavior in face-to-face situations.

With respect to longevity, there are no statistics of how *long lasting* Internet relationships are, although one study shows that people are more apt to participate actively in those on-line groups that they perceive to be long-lasting (Walther 1994). We do note that the durability of "real-life" strong ties may be more pastoralist myth than current reality. For example, only 27% of Torontonians' six socially-closest "real-life" community ties remained close a decade later (Wellman, et al. 1997).

To be sure, there are many anecdotes about anti-social behavior on-line, such as confidence men betraying the innocent, entrepreneurs "spamming" the Net with unwanted advertisements, on-line stalkers harassing Net members, and scoundrels taking on misleading roles (e.g., "Cybergal" 1995). The most widely-

[5]As noted earlier, the supportiveness of on-line coworkers has been an unexpected outcome of what had originally been seen as an instrumental, limited-bandwidth medium focused on the exchange of information.

reported stories are about men posing on-line as women and seducing other women (e.g. Slouka 1995), but the accounts suggest that these are probably rare incidents. Moreover, masquerading can have a playful, creative aspect allowing people to try on different roles: Such systems as the real-time IRC (Reid 1991; Bechar-Israeli 1995; Danet, Ruedenberg and Rosenbaum-Tamari 1997) and the asynchronous EIES (Hiltz and Turoff 1993) encourage role-playing by permitting participants to communicate by nicknames.

A much greater threat to community relationships is the ease by which relationships are disrupted. The literature on flaming shows that the narrower bandwidth of communication facilitates the misinterpretation of remarks and the asynchronous nature of most conversations hinders the immediate repair of damages.

What of *multiplexity*, the strengthening of relationships through interactions in multiple roles and social arenas? In multiplex relationships, a neighbor may become a friend, or a friendship may broaden from a single shared interest. The Net supports both narrowly specialized and broadly multiplex relationships, although on-line relationships often broaden over time (Parks and Floyd 1996). Usenet groups and distribution lists focus on special interests. For example, one of us has observed that frequent participants on the BMW DL know little about each other besides the types of cars they drive and their level of expertise about repairs. Indeed, the rules of that DL forbid comments unrelated to BMWs.

Our observations of such groups suggest that many on-line interactions are what Wireman (1984) calls "intimate secondary relationships": informal, frequent and supportive community ties that nevertheless operate only in one specialized domain. Although Wireman originally studied in-person voluntary organizations, her concept is useful for analyzing relationships on-line (see also Calhoun 1987).

Question 5: How Does Virtual Community Affect "Real-Life" Community?

Several writers have expressed fears that high involvement in virtual community will move people away from involvement in "real-life" communities, which are sustained by face-to-face, telephone and postal contact. Certainly there are stories of "cyberaddicts" whose involvement in on-line relationships turns them away from real-life relationships with family and friends (Hiltz and Turoff 1993; Barlow 1995; Rheingold 1993; Kling 1995; *Newsweek* 1995). Addiction may even create "cyberwidows" as when O'Neill (1995) reports:

> I was coming home later and later. My wife thought I'd started drinking again. I lose all sense of time once I get on-line. I'm an addict.

Such fears are misstated in several ways. For one thing, they treat community as a zero-sum game, assuming that if people spend more time interacting on-line, they well spend less time interacting in "real life." Second, such accounts demonstrate the strength and importance of on-line ties, and not their weakness. As we have seen in the previous section, strong, intimate ties can be maintained on-line as well as face-to-face. It is the siren call of the virtual community that is luring some people away from "real-life." We believe that critics who disparage the authenticity of such strong, on-line ties are being unwarrantedly snobbish in disregarding the seriousness with which Net participants take their relationships.[6]

Third, we suspect that the excitement about the implications of email for community implicitly sets up a false comparison between email based virtual communities and face-to-face based real-life communities. In fact, most contemporary communities in the developed world do not resemble rural or urban villages where all know all and have frequent face-to-face contact. Rather, most kith and kin live farther away than

[6]Our own study of "real-life" community in Toronto provides support for accepting people's own accounts of strong ties. We asked study participants to distinguish between their intimate and less strong relationships, and we independently coded for intimacy ourselves. The correlations were extremely high (> 0.90) between the participants' own reports and our "expert" coding.

a walk (or short drive), so that telephone contact sustains ties as much as face-to-face get-togethers (Fischer 1982; Wellman, Carrington and Hall 1988). Even community members living in the same neighborhood rely on telephone contact to maintain relationships in-between face-to-face encounters (Wellman 1996). While people now take telephone contact for granted, it was seen as an exotic, depersonalized form of communication only fifty years ago (Fischer 1992). We suspect that as on-line communication becomes widely used and routinely accepted, the current fascination with it will decline sharply. It will be seen much as telephone contact is now and letter writing was in Jane Austen's time: a reasonable way to maintain strong and weak ties between people who are unable to have a face-to-face encounter just then. Indeed, there will be times when people will prefer email contact to face-to-face contact because they can better control their communication and presentation of self, and they do not have to spend time at that moment dealing with the other person's response.

Fourth, people neatly divide their worlds into two discrete sets: people seen in-person and people contacted on-line. Many community ties connect off-line as well as on-line. It is the relationship that is the important thing, and not the communication medium. Email is only one of the ways by which a relationship is sustained. For example, university researchers intermingle in-person and email communication, often using email to arrange for in-person get-togethers (Haythornthwaite, Wellman and Mantei 1995; Haythornthwaite and Wellman 1996; see also Eveland and Bikson 1988; Finholt and Sproull 1990). In another example, employees in a small office communicate by email while they physically work side-by-side. This allows them to chat while giving the appearance of working diligently at their computers (Garton 1995). In such situations, conversations started on one medium may continue on others. As with the telephone and the fax, the lower bandwidth of email may be sufficient to maintain strong ties between persons who know each other well. Thus “invisible colleges” of scholars communicate over wide distances through email and other media (Carley 1990; Kaufer and Carley 1993), while kinship networks use the Net to arrange weddings and out-of-town visits.

Fifth, although many on-line relationships remain specialized, the inclusion of email addresses in messages and DL headers provides the basis for more multiplex relationships to develop between participants (Rheingold 1993; King 1994; Hiltz and Turoff 1993). For example, 58% of recovering addicts on electronic support groups also contacted their on-line acquaintances by phone, postal mail or face-to-face (King 1994). His findings corroborate Walther's aforementioned hypothesis (1995): the longer addicts frequented the electronic support group, the more likely they were to contact others off-line. Such multiplexity has also been found elsewhere:

> During and following Conference '72, many participants altered their business and vacation travel plans to include a face-to-face meeting with each other. (Hiltz and Turoff 1993, p.114).

As in this situation, the development of multiplexity can involve the conversion of relationships that only operate on-line to ones that include in-person and telephonic encounters. Just as community ties that began in-person can be sustained through email, on-line ties can be reinforced and broadened through in-person meetings. Without social and physical cues, people can meet and get to know each other on the Net and then decide whether to take the relationship into a broader realm. For example, in a newsgroup devoted to the topic of planning weddings, one of us observed a woman explaining that some of her guests would include people she has never seen but has known for some time from the Net.

In sum, the Net supports a variety of community ties, not only weak ties and intimate secondary relationships, but strong, intimate ties. Moreover, the weaker ties on the Net are significant. Not only do such ties sustain important, albeit more-specialized, relationships, the vast majority of informal interpersonal ties are weak ties, whether they operate on-line or face-to-face. Although North Americans usually have more than one thousand interpersonal relations, only a half-dozen of them are intimate and no more than fifty are

significantly strong (Kochen 1989; Wellman 1990, 1992b). Yet, taken together, a person's other 950+ ties are important sources of information, support, companionship and a sense of belonging.

Question 6: Does the Net Increase Community Diversity?

To this point, we have considered the ability of the Net to support community *ties*. Yet a community is more than the sum of a set of ties: its *composition* and *network structure* affects how it supplies companionship, supportiveness, information and a sense of identity.

Consider two types of communities. The traditional communities of pastoralist nostalgia have been densely knit, village-like structures composed of socially similar community members. Their composition and structure give them the communication capacity to coordinate and control the supply of supportive resources to needy community members. Yet they tend to be all-encompassing, with less scope for innovation. In contemporary western societies, such traditional communities are typically found in isolated rural areas or enclaves of poor immigrants (e.g., Gans 1962; Walker 1993), but even such communities have significant ties with the outside world (Allan 1989; Allen and Dillman 1994).

Most contemporary western communities do not resemble preindustrial villages for they are socially diverse, sparsely knit and well-connected to the outside world (Wellman, Carrington and Hall 1988; Wellman 1988a). These are only partial communities that do not command a person's full allegiance. Rather, each person is a limited member of multiple communities such as kinship groups, neighborhoods and friendship circles. These heterogeneous, low-density communities do not control members and resources as well as community villages do, for disgruntled participants can always shift their attentions to other arenas. Yet their multiple, ramifying communities expose each member to a more diverse set of social worlds, with heterogeneous, non-redundant sources of information and social support. These external ties make them better at getting new resources from the outside (Greer 1962; Wellman and Craven 1973; Fischer 1975).

Although MUDs and similar role-playing environments at times resemble village-like structures in the ways they capture some participants' attention (see the chapters by Reid and DuVal Smith in this volume), people rarely spend their full time in these environments. The tendency of the Net is to foster participation in multiple, partial communities. People often subscribe to multiple discussion lists and newsgroups. They can easily send out messages to personal lists of their own making, perhaps keeping different lists for different kinds of conversations. Moreover, they can vary in their involvements in different communities, participating actively in some, occasionally in others, and being silent “lurkers” in still others.

Such communities develop new connections easily. The Net makes it easy to ask distant acquaintances and strangers for advice and information via email (distribution lists, newsgroups, etc.). When one's strong ties are unable to provide information, one is likely to find it from weak ties. Because people wit strong ties are more likely to be socially similar and to know the same persons, they are more likely to possess the same information. By contrast, new information is more apt to come through weaker ties better connected to other, more diverse social circles (Granovetter 1973, 1982).

The Net encourages the expansion of community networks. Information may come unsolicited through DLs, newsgroups and forwarded messages from friends who “though you might like to know about this.” Friends forward communications to third parties, and in so doing, they provide indirect contact between previously-disconnected people who can then make direct contact. Newsgroups and discussion lists provide permeable, shifting sets of participants, with more intense relationships continued by private email. The resulting relaxation of constraints on the size and proximity of one's “communication audience” on the Net can increase the diversity of people encountered (Lea and Spears 1995).

The Net's relative lack of social richness can foster contact with more diverse others. The lack of social and physical cues on-line makes it difficult to find out if another Net member has similar social characteristics or attractive physical characteristics (Sproull and Kiesler 1986), and Net norms discourage asking outright if someone is high or low status, handsome or ugly. (As one pooch in a *New Yorker* cartoon says to another, "On the Internet, nobody knows if you're a dog.") Thus the Net's lack of in-person involvement can give participants more control over the timing and content of their self-disclosures (Walther 1995). This allows relationships to develop on the basis of shared interests rather than be stunted at the onset by differences in social status (Hiltz and Turoff 1993; Coate 1994; Weisband, Schneider and Connolly 1995).

This focus on shared interests rather than on similar characteristics can be empowering for otherwise lower-status and disenfranchised groups. Consider, for example, "Amy's" situation in Douglas Coupland's novel, *Microserfs:*

> [Amy] told me that all her life people had only ever treated her like a body or a girl — or both. And interfacing with [her virtual lover] Michael over the Net [where she used the gender-obscure alias, "Bar Code"] was the only way she could ever really know that he was talking to *her*, not with his concept of her. "Reveal your gender on the Net, and you're toast." She considered her situation. "It's an update of the rich man who poses as a pauper and finds the princess. But fuck that princess shit — we're both *kings.* (1995, p. 334)

As Amy/BarCode observes, social characteristics do not disappear entirely from the Net. Women, in particular, may receive special attention from male Net members and may feel uncomfortable (or be made to feel uncomfortable) in participating actively (Shade 1994; Herring 1996, O'Brien this volume). This may well be a function of the high ratio of men to women on the Net (Pitkow and Kehoe 1995).

Possibilities for diverse communities also depend on the population of the Net being socially diverse. Yet a survey of "Web users" in Spring, 1995 found that women comprised less than one-fifth of their sample, although the proportion of women users had doubled in the past six months (Pitkow and Kehoe 1995; the authors note that their convenience sample may not be representative). The survey reported that about two-thirds of the sampled Web users had at least a university education, had an average household income of US$59,600, and three-quarters lived in North America (Gupta, Pitkow and Recker 1995).

Because most friends and relatives live a long drive or airplane ride away, sustaining relationships on-line than is meeting face-to-face (Wellman 1988a, 1992a; Wellman, Carrington and Hall 1988). Indeed, people's allegiance to the Net's communities of interest may be more powerful than their allegiance to their neighborhood communities because those involved in the same virtual community may share more interests than those who live on the same block. Howard Rheingold expresses his attachment to the parenting conference on the Well in the following terms:

> People you know as fierce, even nasty intellectual opponents in other contexts give you emotional support on a deeper level, parent to parent, within the boundaries of "Parenting," a small but warmly human corner of cyberspace. (Rheingold 1993 p.18).

Community based on shared interests can foster another form of homogeneity. Despite the medium's potential to connect diverse cultures and ideas, we suspect that people are generally drawn to electronic groups that link them with others sharing common interests or concerns. Sole involvement in one Net group may have a de-individuating effect, where the lack of information about personal characteristics may promote attraction between people solely on the basis of their membership in that group (Lea and Spears 1992).

Question 7: Are Virtual Communities "Real" Communities?

Despite the limited social presence of on-line links, the Net successfully maintains strong, supportive community ties, and it may be increasing the number and diversity of weak ties. The Net is especially suited to maintaining intermediate-strength ties between people who cannot see each other frequently. On-line relationships are based more on shared interests and less on shared social characteristics. Although many relationships function off-line as well as on-line, CSSNs are developing norms and structures of their own. They are not just pale imitations of "real life." The Net is the Net.

The limited evidence available suggests that the ties people develop and maintain in cyberspace are much like most of their "real life" community ties: intermittent, specialized and varying in strength. Even in "real life," people must maintain differentiated portfolios of ties to obtain a variety of resources. But in virtual communities, the market metaphor of shopping around for support in specialized ties is even more exaggerated than in real life because the architecture of computer networks promotes market-like situations. For example, decisions about which newsgroups to get involved in can be made from topical menus that list available choices, while requests for help can be broadcast to a wide audience from the comfort of one's home rather than having to ask people one-by-one. Thus while *on-line ties* may be specialized, the aggregate sets of ties in *virtual communities* are apt to provide a wide range of support.

The provision of information is a larger component of on-line ties than of real-life ties. Yet despite the limited social presence of on-line ties, companionship, emotional support, services and a sense of belonging are abundant in cyberspace. Although sending material goods over the ether is not possible, the Net supports arrangements to supply goods as well as services. The mechanism or functions involved with maintaining supportive network ties exist in both virtual and "real life" community networks. Like other forms of community, virtual communities are useful means of both giving and getting social support.

Virtual communities differ from "real life" communities in the basis upon which participants perceive their relationships to be intimate. People on the Net have a greater tendency to develop feelings of closeness on the basis of shared interests rather than on the basis of shared social characteristics such as gender and socioeconomic status. So they are relatively homogeneous in their interests and attitudes just as they are relatively heterogeneous in the participants' age, social class, ethnicity, life-cycle stage and other aspects of their social backgrounds. The homogeneous interests of virtual community participants can foster high levels of empathetic understanding and mutual support (Lazarsfeld and Merton 1954; Verbrugge 1977; Feld 1982; Marsden 1983).

The architecture of the Net may encourage significant alterations in the size, composition and structure of communities. Although no study has yet provided a count of the number of ties in virtual community, its architecture supports the maintenance of many community ties, especially non-intimate ties. Discussion lists and newsgroups routinely involve hundreds of members while people easily send hasty notes or long letters to many friends and acquaintances. The distance-free cost structure of the Net transcends spatial limits even more than the telephone, the car or the airplane because the asynchronous nature of Net allows people to communicate over different time zones. This could allow latent ties to stay in more active contact until the participants have an opportunity to meet in-person. By supporting such on-line contact, the Net may even foster more frequent in-person meetings between persons who might otherwise forget each other.

With regard to the structure of communities, the Net is nourishing two contradictory phenomena. Specialized newsgroups, discussion lists and the like foster multiple memberships in partial communities. Yet the ease of group response and forwarding can foster the folding-in of formerly separate Net participants into more all-encompassing communities.

Operating via the Net, virtual communities are simultaneously becoming more global and local, as worldwide connectivity and domestic matters intersect. Global connectivity de-emphasizes the importance of locality for community; on-line relationships may be more stimulating than suburban neighborhoods. At the same time, people are usually based at their home, the most local environment imaginable, when they connect with their virtual communities. Their lives may become even more home-centered, if telework proliferates (Salaff and Dimitrova 1995; Wellman, et al. 1996). Just as was prevalent before the Industrial Revolution, home and workplace are being integrated for teleworkers, although gender roles have not been renegotiated. The domestic environment of teleworkers is becoming a vital home base for neo-Silas Marners sitting in front of their computer screens. Nests are becoming well feathered, and teleworkers will be well situated to provide the eyes on the street that are the foundation of neighboring (Jacobs 1961).

Pundits worry that virtual community may not truly be community. These worriers are confusing the pastoralist myth of community for the reality. Community ties are already geographically dispersed, sparsely-knit, connected heavily by telecommunications (phone and fax), and specialized in content. There is so little community life in most neighborhoods in western cities that it is more useful to think of each person as having a *personal community:* an individual's social network of informal interpersonal ties, ranging from a half-dozen intimates to hundreds of weaker ties. Just as the Net supports neighborhood-like *group communities* of densely-knit ties, it also supports personal communities, wherever in social or geographical space these ties are located and however sparsely-knit they might be.

Both group communities and personal communities operate on-line as well as off-line. Thus Wellman gets widely-distributed email daily from his group communities of BMW aficionados and social network analysts. He reads all their on-line discussions, and all of the groups' members read his. Messages to group communities narrowly focus on the concerns of that group (Hiltz and Turoff 1993). For example, no other member of the social network analysis group is interested in BMWs, and vice-versa.

Wellman also maintains an email address file of more than 800 members of his personal community. As the creator, maintainer and center of this network, he is the only one who initiates communications with this personal community. Usually, correspondents respond privately to his messages, although his email allows replies to all who have received a message. By its very nature, this personal community cuts across specialized, partial communities. Hence it provides the basis for cross-cutting ties that link otherwise disconnected social groups.

It is even possible that the proliferation of computer-mediated communication may produce a counter-trend to the contemporary privatization of community. In this century , community in the western world has moved indoors to private homes from its former semi-public, accessible milieus such as cafes, parks and pubs. People are spending less time in public places waiting for friends to wander by and to introduce friends to other friends (Wellman 1992a). Even the French are going out to cafes less often (*Economist* 1995). Instead, by-invitation private get-togethers and closed telephone chats have become the norm. This dispersion and privatization mean that instead of dropping in at a café and pub and waiting for people they know to drop by, people must actively get in touch with community members to keep in contact. The result probably is a lower volume of contact between community members.

Computer mediated communication accelerates the ways in which people operate at the centers of partial, personal communities, switching rapidly and frequently between groups of ties. People have an enhanced ability to move between relationships. At the same time, their more individualistic behavior means the weakening of the solidarity that comes from being in densely-knit, loosely-bounded groups (Wellman 1997).

Yet virtual communities provide possibilities for reversing the trend to less contact with community members because it is so easy to connect on-line with large numbers of people. For example, one of us has a personal "friends" list of eighty persons and frequently sends them jokes, deep thoughts and reports about life experiences. Such communication typically stimulates ten to twenty direct replies, plus similar messages sent out by others to their on-line friends. Communities such as on-line chat groups usefully stimulate communication in another way. Because all participants can read all messages — just as in a barroom conversation — groups of people can talk to each other casually and get to know the friends of their friends. "The keyboard is my café," William Mitchell enthuses (1995, p.7).[7]

Thus even as the Net might accelerate the trend to moving community interaction out of public spaces, it may also integrate society. The Net's architecture supports both weak and strong ties that cut across social milieus, be they interest groups, localities, organizations or nations. As a result, cyberlinks between people become social links between groups that otherwise would be socially and physically dispersed (Durkheim 1893; Breiger 1974; Wellman 1988b).[8]

We have concluded this chapter more like pundits and tellers of tales than like researchers. As others before us, we have argued often by assertion and anecdote. This is because the paucity of systematic research into virtual communities has raised more questions than even preliminary answers. As one of Bellcore chief technologists noted, when

> scientists talk about the evolution of the information infrastructure, . . . [we don't] talk about . . . the technology. We talk about ethics, law, policy and sociology . . . . It is a social invention. (Lucky 1995: 205).

It is time to replace anecdote with evidence. The subject is important: practically, scholarly and politically. The answers have not yet been found. The questions are just starting to be formulated.

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[7]The ultimate in this is Isaac Asimov's science-fiction world (1957) where all contact is by virtual reality because in-person meetings are taboo. By contrast, in recently-developed "cybercafes," people physically get-together in cafes equipped with Internet access. This creates a situation where strangers are sitting side-by-side, each separately interacting on-line with members of their respective virtual communities. Presumably the physical proximity and similar interests will encourage some café denizens to get to know those sitting near them.

[8] Of course all intergroup contact may not be benign. The Guardian Angels, a volunteer group formed in 1979 to patrol public spaces in New York City, have recently created "CyberAngels" to patrol the Net for "suspicious activity" that might indicate crimes against children or intergroup hatred. As the privatization of in-person community has emptied the streets, the Guardian Angels are going where the action is (Atlanta Journal-Constitution 1995).

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