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Walker in the Wireless City

By TOM VANDERBILT

IT is a late autumn day in Bryant Park. Red and yellow leaves swirl around clusters of green folding chairs. People sit in the thin afternoon light, talking on cellphones, to others, to themselves. The scent of a piquant cigar mixes with the crisp tang of fall.

As I sit in this verdantly genteel place, a whole other flurry of movement and social interaction is going on around me, one invisible to the eye. I watch it on my laptop, the modern equivalent of Jimmy Stewart in a wheelchair, binoculars in hand, in "Rear Window." In the small browser window of my iBook's Airport card, an antenna of sorts, I find myself at the nexus of any number of the wireless networks that have come to blanket the city.

There is one called "theorywireless1," another that says "Wlan," another labeled "www.nycwireless.net" and one called simply "X." I select the penultimate choice and within seconds have a free broadband connection to the Internet, something, it is estimated, found in less than 10 percent of American homes.

While most people were not watching, New York has become host to yet another layer of infrastructure, a random, interlinking constellation of what are called "wireless access points." A survey last summer found more than 12,000 access points bristling throughout Manhattan alone, many open to anyone with a wireless card, many others closed and private, and still others available for a fee.

None of these were laid down by city workers. No streets were torn up. No laws were passed. Rather, this network has been made possible by the proliferation of ever more affordable wireless routers and networking devices, which in turn transmit the low-range, unlicensed spectrum (a wild frontier, home also to baby monitors and cordless phones) known as 802.11b, or, more genially, Wi-Fi.

Walking the streets of New York today means walking amid an unseen tangle of Wi-Fi. The hum of Internet traffic mingles with the jostle of pedestrians. Data "packets" whiz by like bike messengers. In no place are the emerging social and urban aspects of this fact made clearer than Bryant Park, which last spring became what its operations director, Jerome Barth, calls "the first park to have installed a dedicated system that provides coverage throughout its entire footprint."

Not that you would notice. A thin antenna rising from the park's office serves as access point, while two similar antennas, on top of the bathrooms and the pizzeria near the Avenue of the Americas, function as what are called repeaters. These minor appurtenances drape the eight-acre park in high-speed Internet access.

The people who run the park now report that daily users of its high-speed access number in the high two figures. Come spring, they expect the daily figure to swell to several hundred. Internet sessions

often last more than an hour.

"We are intent on loading the park with users and increasing what we call their `dwell time,' or how long they stay in the park," said Daniel A. Biederman, president of the Bryant Park Restoration Corporation.

The idea of Internet access surfaced at one of the corporation's regular meetings more than a year ago, Mr. Biederman recalled: "What can we do to make people stay in the park? Why do they have to go back to their offices at 2? They have to go back to get on the Web. Why don't we give them the Web?"

The idea of fixed connections seemed discordant with the park's philosophy. "They were in portions of the park that didn't seem amenable enough, too noisy," Mr. Biederman said. "We wanted to have the same thing as we have with our seating: a random distribution of the function."

Enter NYC Wireless, an ad hoc group committed to the creation of free wireless access in public spaces throughout the city. Bryant Park would be the perfect showcase for their vision.

With some clever engineering and hardware from Cisco Systems and Intel, the wireless park was born. Just as park users could sit wherever they liked, so too could they gain access where they liked. The eight-megabytes-per-second connection was as free as the sunshine and the green grass.

"When we first started the group, we were concerned about the proliferation of paid hot spots in coffee shops, hotels and airports," said Anthony Townsend, a co-founder of NYC Wireless, using the popular term for a wireless access point. "We realized that if we could deploy a free hot spot at a given location, there would be no incentive for a commercial provider to ever set up a network there. People are always going to choose the lowest-cost option."

The group began small. The other co-founder, Terry Schmidt, set up a free network in the New World coffee shop downstairs from his Upper West Side apartment. But with Bryant Park as its flagship effort, and Madison Square and Tompkins Square Parks among its other areas of coverage, the group is building a loose network of free Wi-Fi throughout the city. Apart from its centralized efforts, the group's Web site is filled with announcements from those who have set up their own access points, a do-it-yourself response to the paid Wi-Fi found at Starbucks.

Rather than a paid telecommunications service, its founders regard wireless as an urban amenity with untold implications for a city's vibrancy. "Cities wouldn't work if we didn't have networks," Mr. Townsend said, "for moving people, goods, information."

"This technology flies in the face of all the `death of distance' and `end of geography' rhetoric of the 90's fiber optic boom," added Mr. Townsend, a doctoral student in urban planning at M.I.T. and a researcher at the Taub Urban Research Center of New York University. For regulatory reasons, the ranges of Wi-Fi transmitters tend to be within several hundred feet.

"It's a very intimate technology, very local," he said. And perfect for New York: the denser the city, the greater the number of people who can gain access to a network. "It's easier to achieve a critical mass. When we got to 50 hot spots, that looked like a lot more than Los Angeles or Atlanta. You could actually walk between them."

Rather than the death of place, it serves to reinforce place. "Places that have it will become special," he said. This in effect causes a kind of reimagining of the city's geography — i.e., where can I go to find a hot spot? — although interestingly, places with access already tend to be vital urban places.

BRYANT Park is an example of what the geographer Kevin Lynch, in his classic 1960 book "The Image of the City," called a node. Nodes, as he defined them, "may be primary junctions, places of a break in transportation, a crossing or convergence of paths, moments of shift from one structure to another." They help give "legibility" to the city, help us to orient ourselves. Node is also a word synonymous with hot spot — a junction of Wi-Fi signals — and the electronic nodes are turning up in the same parks, airports and public gathering places that Mr. Lynch considered physical nodes.

For Mr. Townsend, there is much possibility, and still much to be learned, in the relationship between the physical Bryant Park and its virtual twin. For example, should there be some physical manifestation of the Internet activity in the park, like a light that grows brighter with more users? Should information about park events, dining options and other local information be posted on the Bryant Park portal?

Conversely, should the virtual park reflect the real one? "When the park closes, do we close the network down?" he asked.

Plans are in the works for a Bryant Park chat system, where users could meet online. This location-based service, as with other virtual meet-and-greet applications, represents a striking effort to overcome the social distancing augured by wireless itself: Why talk to the person next to you when you've got the world at your fingertips?

For Mr. Biederman, the wireless program is part of the evolving mission of Bryant Park, one of the world's most heavily trafficked (900 people per acre) and intensely managed public spaces. The park has kept track of its Internet users with the same vigor with which it sends two employees with clickers (one for men, one for women; a close male-female ratio is vital to its vision of a vibrant public place) to measure park attendance each day at the peak hour of 1:15 p.m. On daily walkthroughs, the park managers approach laptop users.

"We look over their shoulders a lot," Mr. Biederman said. "When I see someone using a laptop and I run up to them and say, `Hi, I'm the guy who runs the park, and I wanted to see what your reaction is to this,' it's almost like parental guidance."

That raises the issue of what is on people's screens at the park.

"We want to give users the greatest privacy possible in the usage of the system," Mr. Barth said. "We believe that just as Bryant Park is a very lawful place where people are extremely civilized, this will link in a manner to their Internet usage; that you won't feel comfortable surfing the Internet for reprehensible Web sites or pornography, because the social pressure around you will make it an unpleasant experience."

Call it "eyes on the net," an updated version of William H. Whyte's classic idea of "eyes on the street," espoused in books like "The Social Life of Small Urban Spaces" (1980). Whyte, whose time-lapse studies of pedestrian behavior and treatises on the desirability of movable chairs are the foundation stones of Bryant Park's revival, died in 1999, before the advent of the wireless park. And yet New York's emerging wireless citizens, like the cellphone users before them, would certainly have been germane to his studies of street-corner conversations, plaza footpaths and spatial relations.

Even if the Blackberry-armed New Yorker can check e-mail anywhere, Whyte might have noted that this behavior had its own distinct patterns, that people would feel more comfortable doing so in inviting public places like Bryant Park.

Whether or not Whyte would have envisioned the wireless park, Mr. Biederman thinks it is true to his thinking. "Anything that got people into parks, made them more pleasant — he would have thought this was terrific," he said.

DOWN the street from my house in Carroll Gardens, Brooklyn, a Linksys wireless router sits in the window of the apartment of Kevin Milani, a 28-year-old engineering school dropout and marketing consultant. As one of the far-flung band of people who have posted listings on the Web site of NYC Wireless, he invites those within range to use the bandwidth streaming into his house through a D.S.L. account provided by Panix, a New York company. It is one of many "stoop networks" to be found in Brooklyn.

"I have a lot of bandwidth I'm not using, so I might as well share," he said.

This is the remarkable idea at the heart of the free wireless movement. It's as if he invited people within 150 feet to watch whatever cable stations he happened not to be watching at the moment.

Nor is he overly concerned with the risks of leaving his electronic front door open. "A person could actually do quite a bit of damage if they wanted," he said. "I have backups. I am at risk just being connected to the Internet." As for his potential redistribution of the bandwidth provided by Panix, he said: "I don't think they really care. They're a bunch of techies."

But Panix does care. For residential accounts, says the company's president, Alexis Rosen, this is "strictly prohibited." For business users, it is "strongly discouraged." Predictably, large providers like Time Warner also take a dim view of bandwidth sharers. "The fact that the technology exists to go a couple of hundred feet is irrelevant in our minds," said Joseph DiGeso, vice president and general manager for high-speed online services at Time Warner Cable of New York. "The ability to tap into a phone line or cable box has existed for years, but it doesn't make it legal."

A larger concern for Mr. Rosen is security. The spread of broadband Internet has resulted in scores of connected computers that are, in effect, servers unto themselves. Mr. Rosen worries that such wireless arrangements are vulnerable to hackers or "script kiddies," less technically pro- ficient users who simply use code-breaking software.

"If you open your network to any fool who's got a wireless card in their machine," Mr. Rosen said, "they can use your machine to execute a bandwidth attack, or they can be the victim of a script kiddie and be used to execute an attack. And we can't even figure out who they are. We can only trace it back to you."

The electronic city is still fairly porous, as was demonstrated by a recent series of expeditions of the World Wide War Drive. War driving means cruising through the city logging unsecured access points. Christopher Blume, the 16-year-old New York coordinator of the war drive, trolls through Manhattan like a Baedeker of the ether.

"You learn to look for the abbreviations as you're driving by," he says. "Take `Bndemo.' You wouldn't think anything of that. But where I drive by, that's Barnes & Noble." (This summer, after the magazine 2600 published a log of the bookseller's network activity, including credit card numbers, the network was closed.)

Mr. Townsend of NYC Wireless concedes the additional security risks of a public wireless network, but adds that any network has its vulnerabilities. "I can sit here in my office and sniff the traffic going over the local network," he said. As for al Qaeda or child pornographers using Bryant Park, he argues that there is nothing anyone can do on a wireless network that couldn't be done at the public

library.

With all their promise and peril, the emerging wireless networks raise the perennial questions about the dynamics and very nature of urban space. Can public life ever be made truly safe? How do you balance private and public space? What does the geographic distribution of the wireless networks say about the socioeconomic makeup of a city, especially one as large and complex as New York?

Quite a lot, as Marcos Lara, founder of the Public Internet Project, found out this summer. He and a research team, using a global positioning system, a laptop and an antenna, conducted a four-month survey of all wireless access points in Manhattan (www.publicinternetproject.org). Mr. Lara, 28, formerly of NYC Wireless and part of the Bryant Park initiative, is now working to bring broadband access into underserved communities. He also sells the results of his findings, correlated in a plotted, thematic map that, as he puts it, represents a "one-of-a-kind look into the use of wireless technologies in daily consumer life."

His drive also cast cold digital light on the notion of urban social disparity.

"It's one thing to hear about it," he said. "It's another thing to actually see it occurring on your screen as you drive down the block. You see the economically depressed areas. You think: `Well, maybe they have computers. Maybe they have technology.' Then you look down on the screen, and you have this unique portal into their world, and it's a desert."

Tom Vanderbilt is author of "Survival City: Adventures Among the Ruins of Atomic America."