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TELECOMMUNICATIONS

INTERVIEW

SIBER-TALK

One of the gurus of wireless communications holds forth on why we are entering a new age of Internet access

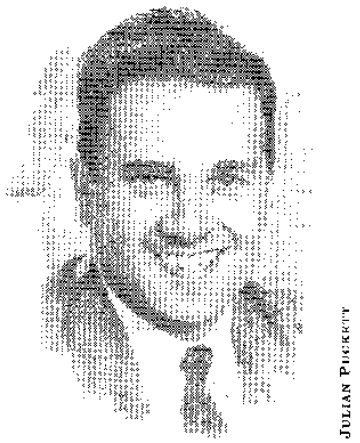
By G. CHRISTIAN HILL

TO THE WIRELESS industry, Richard Siber is akin to Zelig, the character in the Woody Allen movie who seemed to pop up everywhere. As world-wide managing director of Andersen Consulting's wireless-communications practice, he averages 200,000 air miles a year, jetting off to Helsinki one week, Tokyo the next and Kansas City after that, hosting workshops, attending conferences or hobnobbing with wireless CEOs in one-on-one strategy sessions.

His main job is to keep abreast of the most effective innovations among wireless carriers and equipment makers, with the help of the other 7,000 Andersen consultants specializing in communications, and then help his clients adopt these practices. Andersen works with every one of the world's top 100 communications companies.

In the past several years, Mr. Siber has focused more intently on the blooming of wireless data services in Europe and Japan. He predicts that connecting businesspeople and consumers to the Internet wirelessly, for news, entertainment or vital corporate data, will become a major source of revenue for wireless carriers and an effective way for them to hang onto their fickle customers. He expects wireless data to explode after the carriers deploy Internet-ready digital phones and higher-speed networks, starting next year.

Mr. Siber has been covering the wireless revolution for 15 years as an analyst, after five years with a wireless-equipment retailer and the wireless division of what was formerly Nynex, or New York Bell. It wasn't supposed to work out that way. He was a premed student at Boston College who graduated with a degree in psychobiology. After graduation but before medical school, he was hired to work on a research project on the aging process. To study cellular energy, he found himself spending most nights driving to slaughterhouses, cutting out several hundred pounds of hearts from cow carcasses, and then spending hours in a 33-degree lab trying to get an ounce or two of protein out of the bloody mess. About that time, he read about the nascent wireless industry and decided to switch from cellular research to cellular sales.



JULIAN PUCKETT

'We have educated and conditioned the youth of America, Europe, Asia, to go wireless'

—RICHARD SIBER

From the start, one of his key advantages has been a relentless energy. Despite his constant travels, Mr. Siber, 38 years old, finds time to teach a marketing course at BC, play pickup ice hockey one or two nights a week during the winter, build a summer house in Martha's Vineyard and, with his wife, Sheryl, raise his young son and daughter. One possible fuel source: He chain-drinks Diet Cokes.

"He's tenacious," says a hockey teammate, Jerry Di Iorio. "He's absolutely an overachiever for someone who didn't play organized hockey." Mr. Siber's clients notice the same trait. "He's dogged, he's determined," says Andy Sukawaty, head of Sprint PCS, the big digital wireless network. "In the area of wireless data, we had a lot of questions based on developments in other parts of the world. We brought these issues up two years ago, and he kept coming back to us with ideas that we thought were very useful and informing."

Recently, Mr. Siber sat down with Wall Street Journal Senior Editor G. Christian

(over please)

Hill to discuss what happens when wireless connectivity intersects with the Internet revolution:

THE WALL STREET JOURNAL: *We've been talking about the approaching explosion in wireless data—that is, the use of wireless networks for things other than voice—for more than a decade. We had pen computing, the personal digital assistant, Motorola's handheld wireless device, proprietary wireless data networks such as Ardis and RAM and AT&T's current cellular data network, and they've all flopped. Why has wireless data not taken off when so many people promised so much?*

MR. SIBER: The primary reason was a lack of standards. We confused the marketplace by offering multiple choices with very limited support, no identified point of distribution and very confusing pricing. With the first wireless data networks, prices were very high and there was very limited perceived value because the through-put speed [to send and receive information] was so slow. It was not unusual to buy a package in the $1,000 to $3,000 range. [And the first modem for wireless devices] was larger than the PDA devices that it was connecting to. It was as large and as heavy as a brick.

So it was cumbersome, it was expensive, and again, with limited through-put speed, it just didn't create the excitement or the interest level.

WSJ: *Why should we believe the wireless-data revolution is upon us now?*

MR. SIBER: First, there's the catalyst of the Internet. The development of the Internet, and in particular the World Wide Web, created a source for potentially thousands of specific applications that consumers could embrace. It's absolutely a driving force. Fundamentally, it's done several things. One, it's created [an interest in all the data available] for the average person.... Second, it's conditioned user groups that data access needs to be part of your everyday lifestyle. Third, it's created a demand, and if you think about who is exposed to the Internet, it's everyone from kindergartners through the rest of the educational system to other segments of society.

So we have a group of new users coming out of high school and college who've become accustomed to using data access for any type of information requirements, whether it's the weather, whether it's to trade online, get concert tickets, electronic commerce. All of this will be available on wireless devices here, and already is in Europe and Asia. So the fact is, we have a group of potential users we didn't have five or 10 years ago.

WSJ: *What about that standards problem?*

MR. SIBER: In terms of networks, data can ride on top of the latest digital cellular networks, so you get voice and data on one device. There are two other important standards. One is for sending applications over the networks, which is WAP, or the wireless application protocol. The other, code-named Bluetooth, is for wirelessly connecting [Internet-ready] smart phones to other devices, such as Palm Pilots or laptops [allowing them to function wirelessly]. Consortiums made up of major computing and communications companies have agreed on these standards, which are essential to make this a successful industry. Significantly, the most recent member of WAP is Microsoft, and they joined this summer.

Making the Call

WSJ: *Are there any reliable estimates of how big the wireless-data market will be in five or 10 years?*

MR. SIBER: No. We have been awaiting the explosion literally for 12 years, and each year industry analysts would say it's coming, it's big, invest in it, build your network, get ready, and it never emerged. So anything that I see that looks out five or 10 years now, the market will be so different, so radically different, I have no faith in any of those estimates.

WSJ: *Let's go one year out. A research firm, Strategy Analytics Inc., estimates that 134 million Internet-ready wireless phones will be shipped next year, more than the number of PCs. Does that sound plausible?*

MR. SIBER: I do believe that there will be that many [Internet-ready] phones sold because beginning in the third and fourth quarter of this year, just about every cellular phone that is being manufactured will have microbrowser capability [which enables callers to surf the Web with a pared-down browser on the screens of their cell phones]. So, fundamentally, yes.

WSJ: *But whether people actually will use the Internet capabilities of these smart phones is still up in the air.*

MR. SIBER: Whether they're used or not is absolutely a question.

WSJ: *I suppose demand will depend on how useful the applications are?*

MR. SIBER: Voice is still predominantly the killer application today. But through paging and through using the Web, we see a huge need for information that serves fundamental purposes or satisfies fundamental needs. The weather, OK? If you're traveling, you need to know what to pack, how to pack, what to expect. Or you might follow a portfolio of stocks or investments. So [there's a market for] very specific information needs, which suggests that we need to provide information in a very personalized and customized way. We've seen just in the last three months probably a dozen companies enter this space, where they will provide customized wireless content to you as the user.

WSJ: *Both through paging devices and cellular devices?*

MR. SIBER: That's correct. It started with paging in the U.S. and with the GSM [global system for mobile communications] digital phone in Europe, pushing information out [to users over their cell phones and pagers]—horoscopes, weather, CNN Business Roundup, whatever. From a U.S. perspective now, several of the wireless carriers are creating value-added services through partnerships [with big Web portals]. Sprint PCS with Yahoo; Excite At Home Corp. is involved with a number of carriers.

From an end-user or functional perspective, the consumer can access 30 to 50 information sources today through these devices. One of the practical applications beyond the weather and stocks would be "Is my plane on time?" I can send out a request through a two-way pager today to check on a flight—American Airlines Flight 109. Is it arriving on time at 2:10 from London Heathrow? And within 20 seconds I get the status. Flight 109 is in, it's at Gate 32, it came in at 2:14.

So there's lots of applications based on access to the Web that these devices provide you. It's two things: the ability to push information to you, and the ability for you to customize the information you receive from the Web through a microbrowser. All the phones coming out later this year are Web-based phones.

Wireless Gatekeepers

WSJ: *So Yahoo, Excite and others would format and customize a lot of their information on their sites to fit the wireless mode?*

MR. SIBER: That's correct.

WSJ: *And users would get bursts of timely information, such as news updates?*

MR. SIBER: That's correct. So it may not be graphics-intensive at that point. There would be a Web clipping service providing you with the factual information you need to address your inquiry.

WSJ: *So we already have news headlines, stock-quote alerts...*

MR. SIBER: Stock-trading capability from Fidelity via a two-way pager [which allows a user to send as well as receive brief text messages].

WSJ: *And, of course, any information you can view on the screen of a pager can also be viewed on a cell-phone screen.*

MR. SIBER: That's correct. In terms of what's happening in Asia and Europe, they're further ahead because they adopted a single standard, GSM, which included a short messaging service that allows bursts of data to your mobile phone. SMS has been available since GSM's inception.

And what that has led to is a couple of things: great application development and a conditioning of the subscriber base to use it. The carriers use it to push information to their customers, such as an overdue-bill notification. They can send you out customized information that you've asked for. They can tie it to the Global Positioning System [a satellite location service] so that if we were in Brussels and wanted to know where the closest Chinese restaurant was within a mile, we'd be able to access that.

WSJ: *Is that possible now?*

MR. SIBER: It is possible now.

WSJ: *And third parties began to develop applications around the short messaging service. Give me an example of, say, two or three third-party applications that were developed to run on top of this.*

MR. SIBER: Banking application. You get a message to your phone that says, "I have your gas bill or your electric bill, and it's £111. Would you like to pay it now, yes or no?" "Yes, I would."

WSJ: *Is that an existing application?*

MR. SIBER: Existing application, in the U.K.: "Would you like me to debit your checking account or your savings account?" "Checking account." "OK. Please await confirmation that the bill has been paid." And within 10 or 15 seconds, it has gone from your device through an authorization process to the bank, to the utility company. The utility company has said, "Thank you very much. I have payment," told the bank, the bank has told you.

WSJ: *Now, this is a big deal. Everyone knows what a pain it is to pay 40 bills a month, with 40 envelopes and 40 stamps.*

MR. SIBER: We're seeing electronic bill presentment finally start to come into the U.S. In Europe, electronic payments have been around for much, much longer than in the U.S., as an option. It saves time and money, and it's encrypted so it's safe. In Asia, karaoke to your mobile phone is very popular, as is off-track betting.

WSJ: *Betting I can understand. But karaoke on your phone? How does that work? Does the phone play a song?*

MR. SIBER: Yes, and the words appear on the screen. They sing along in a bar, or in their car. In Japan, teenagers spend a huge amount of time playing games with each other on mobile phones, over SMS. In Europe, horoscopes are very popular in certain countries.

WSJ: *Sounds kind of weird.*

MR. SIBER: Each culture in each country or continent has some unique developments specific to wireless data and specific to the rate of adoption and conditioning to use it. In July 1998, in Finland, wireless [usage] exceeded [traditional wireline phones] for the first time. And the penetration is a little bit above 60% of the entire population. And part of that is because Nokia [the biggest handset maker] is there, and is the largest employer, which creates a lot of pride and identification with the company and the technology.

Second, it's been around longer than in other countries. Third—and there are studies to support this—if you're between approximately 10, 12 and 18, if you don't have a mobile phone, the studies suggest that your grades are lower in school, you date less, and you're more likely to not be successful. So when you're in Finland, you see kids skateboarding while talking on their phones, you see kids walking by phone booths with their phones up to their ear or using the hands-free microphone attachment, using the wireless phone for paying for your car wash, using it to order up songs through the jukeboxes in restaurants, which is another popular thing. We're seeing enormous segments conditioned to embrace this.

Machine Language

WSJ: *We've been talking about the human demand for wireless data. But some people believe machine-to-machine communication, or telemetry, may be even bigger. What do you think?*

MR. SIBER: Well, several of the equipment manufacturers, like a Motorola, believe this is an enormous market, and I have to agree with them. The applications can be as simple as having a modem in a vending machine that allows the owner of the vending machine to know how much money is in it, if it's working properly or if it's out of Diet Coke and needs to be restocked.

WSJ: *Which is important to you, of course.*

MR. SIBER: Of course. It could be me buying a luxury automobile, having the ability for it to be diagnosed when I'm pulled over on the side of the road with a problem, remotely.

'We're taking the power of computing and benefits of communications and putting them in a form factor that you can carry, you can wear, you can use wherever you are,' says Mr. Siber

Today, through several of the services tied to GPS, I know where the car is within a 50- to 100-foot area. If the air bags are deployed, it automatically calls 911. If the keys are locked in the car, I can wirelessly unlock the car. And now, taking it the next step further, I have a mechanical or electrical problem, I'm stuck, the service-support center is able to call into the vehicle, diagnose the problem, not only send out the appropriate person to fix it but the appropriate person with the appropriate part. So that impacts lifestyle, safety, convenience.

Both of those examples are somewhat consumer-oriented. You know, they're easy. You can get into monitoring of nuclear power stations, oil pipelines, gas fields, remote agricultural environments. It does a couple of things. One, it's much more efficient from a cost standpoint than sending a person out, especially to remote areas. Two, because some of these are unfriendly environments to humans from a safety standpoint, there's a benefit right there. If you're rolling into a substation where there are alarms going off, you have the ability to go in remotely and interact with that facility. So from a facilities standpoint, and in particular the utility industry, machine-to-machine wireless communications could be enormous.

WSJ: *We tend to think this is far-fetched, but this is already what the telephone company does with its wired lines, what computer-network managers already do with remote diagnostics. So it's not at all far-fetched that a car can be rigged with wireless sensors, all of which communicate to a transmitter, which communicates with the wireless network, even for problems like underinflated tires.*

MR. SIBER: Absolutely.

WSJ: *Do you think there will come a day when this technology makes car thefts extremely rare?*

MR. SIBER: Well, [wireless] already changed how cars are stolen. There's a company called LoJack based here in Dedham, Mass., that sells a popular wireless service for tracking a stolen vehicle. The transmitter is located somewhere in your car, and they don't tell you where it is. What's happened to car thefts recently, because of the ability to monitor, is that cars end up either chopped up immediately and the parts are sold for five times the value of the actual assembled car, or they're put in containers and they're shipped to South America or other parts of the world.

WSJ: *This must be quick.*

MR. SIBER: Very quickly, within hours. So it has already had an impact.

WSJ: *So this eliminates your 18-year-old amateur car thief.*

MR. SIBER: Absolutely.

WSJ: *There are already a couple of million wireless electric-power meters out there.*

MR. SIBER: Meter reading, remote monitoring, parking meters, and I mentioned vending machines, are all very large areas where we'll see machine to machine. And it would not be unusual for my washing machine in three years to call Maytag up automatically and say, "Come in and tighten up the belt." It removes a lot of the consumer/owner requirements that today exist for diagnostics. So this is happening. It's just a question of when it enters the marketplace in a larger scale.

In a Flash

WSJ: *We've been talking about applications that don't require much speed, but a lot of people are very excited about broadband wireless, or networks that operate at speeds fast enough to enable wireless videophones and other futuristic devices. Is this going to happen anytime soon?*

MR. SIBER: There are going to be evolutions in data speed, first in GSM phones. GSM carriers in Europe and elsewhere will be moving first to a technology called GPRS [gen-

eral packet radio services] and then to one called EDGE [enhanced data rate for global evolution]. Basically, what we're going to see in the GSM community is a much faster through-put speed this year. In a couple of years, some countries will be deploying what's called third-generation, or 3G, networks, with speeds up to two million bits a second.

WSJ: *But we're going to see high speeds in the interim, this year?*

MR. SIBER: This year.

WSJ: *And how fast will they be?*

MR. SIBER: GPRS is about 115,000 bits a second, and EDGE about 384,000, compared with up to 14,400 bits a second now for CDPD [cellular digital packet data, a data-only network used in the U.S. on top of cellular voice networks] and 28,800 for Metricom [another data-only network in the U.S.].

WSJ: *That's fast enough for videophone capability.*

MR. SIBER: That is video. That's right.

WSJ: *This is just a tweaking of the present system rather than a vast new investment?*

MR. SIBER: That's correct. [In contrast, 3G networks have to be built from the ground up, at a cost of billions of dollars.]

WSJ: *And what kind of applications will be developed to take advantage of such speed?*

MR. SIBER: Well, again, a lot of it will be centered around the Web. There's still a question about the importance of graphics to a mobile phone. Graphics in the form of a map will be very important. Graphics in the form of pictures that may or may not be relevant will have less importance. And even though there'll be a graphics capability, the display screen is still too small, although many of the newer phones will have larger display screens and there is one on the market that provides color [from Siemens AG].

WSJ: *This is in Europe.*

MR. SIBER: In Europe.

WSJ: *Do you see any kind of demand for videophones?*

MR. SIBER: I do. As part of the specifications, 3G requires high-speed data and Internet access, and full-motion video in your mobile phone. So the question from a carrier perspective is, who's going to buy this? How do you sell it? Through what channel? And how do you support it?

WSJ: *And the answer is?*

MR. SIBER: No one knows yet. And in terms of demand for video capability, there is for a certain segment. First, you'll be able to have a video conference call. And there are times when that will be a requirement or almost an imperative because of cultural differences that you can't pick up, but you can through body language or inflections or whatever it might be. Second, because of the personalization of that video call, it may eventually cut down on air travel. [That's] some of the same rationale for today's office wireline video-calling capability. Third, it may not just be limited to video calls. There's nothing that says I wouldn't be able to order up a pay-per-view movie and watch it streamed into my display screen while I'm stuck in the airport because I had a flight canceled.

WSJ: *Sounds ideal for pornographers and grandparents. I've always been dubious about the appeal of videophones.*

MR. SIBER: It's never really taken off because it was catch and receive. You need one, I need one. We need to agree on the time and the place to make the call and so on and so forth. But wireless is becoming prevalent world-wide. In developing countries it's leapfrogging fixed wire. Why bother putting it in? Just go wireless. Second, I'm going to come back to the conditioning aspects. We have educated and conditioned the youth of America, Europe, Asia, to go wireless. Ask a group of high-school kids today to describe a rotary telephone to you and they can't. Because they're used to touch-tone and now digital and now wireless. And the expectations are there.

WSJ: *Well, we did do an article about Web cameras popping up everywhere on the Internet, so I can see that. Depending on the prices for these things, it might become second nature just to show things to everyone you're talking to, like the sunset in Hawaii. But is this going to evolve very slowly, depending on the quality of the screens, the quality of the camera, the quality of the video compression and the cost of using the spectrum?*

MR. SIBER: All very true, but again, I go back to the next wave of adopter, and what their experience is today, and it's Web, it's youth and they're already using Web cameras today.

Coming of 3G

WSJ: *Talk more about 3G.*

MR. SIBER: As part of the built-in specifications, 3G will provide really four stand-alone devices in one. You have digital voice capability, it will have Palm Pilot capability, meaning scheduling, organizer. Third, you will have high-speed data capability and Internet-access capability. And, finally, you will have full-motion-video capability. So it's a multifunction single device that also will eventually allow for global roaming.

WSJ: *And when will these systems be built?*

MR. SIBER: Spectrum is going to be allocated for this. You also have individual countries going ahead with network development and deployment. Finland and Japan will probably be the first two countries that offer 3G, within the next 18 months to two years.

WSJ: *And will this spectrum be auctioned in the U.S., or will it be given to the existing carriers?*

MR. SIBER: Well, that's a political hot potato. Each member country of the International Telecommunications Union gets one vote, and each is allowed to make recommendations, including on spectrum requirements. It's being discussed and debated. Really what I would focus on in 3G is it has been very politically oriented; it was originally driven by the manufacturers and is now really being influenced strongly by the carriers, the ones who have to make the investment; and from a consumer perspective the applications are as endless as the imagination, because we're taking the power of computing and the true benefits of communications, both voice and visual, and putting them in ultimately a form factor that you can carry, you can wear, you can use wherever you are.

And we can use it for airport security, we can use it for e-commerce, we can use it to take a picture of the wilderness to send in real time back to family and friends. I think a thousand applications are in the minds of developers, maybe it's ten thousand. But by combining the power of these mediums—the Internet, visual, video, voice—the sky is truly the limit in what this can do.

WSJ: *And what do you say to the people who say we don't need speeds faster than 384,000 bits a second?*

MR. SIBER: I'd say there's truth in that statement, that there may be limited need. There are other challenges. There are going to be distribution challenges. How do you distribute such a complicated product when most of the wireless distribution is through very simple retail channels or a direct sales force who have mostly voice experience? No data, no Internet, no video. So distribution's critical. Second, how do you bill for it, when I'm talking to you during a digital voice call, and you say, "Hey, let me see where you are. It sounds beautiful in the wilderness." And I switch to a video call simultaneously.

WSJ: *The bandwidth requirement goes way up, and you've got to track and bill it, right?*

MR. SIBER: You have to track and bill it. Not only do you have to distribute and bill me for it, but how do you support me when I call into customer care, and I have an Internet-access question which shifts to a data-transfer question which shifts to a video question? From an organizational-design standpoint, are you going to transfer me to four customer-care reps, one for voice, one for data, one for Internet, one for video? Or do we cross-train our customer-care reps so they're data and Internet and voice and video experts, and make that investment?

WSJ: *Will there truly be enough capacity for such high-speed uses? Seems like it would require an awful lot of bandwidth.*

MR. SIBER: We don't know yet. That's the short answer. Theoretically, we know, but in actuality we don't know. Even today, with just digital voice capability, we see some of the national digital providers run into capacity constraints in major cities today because of the demand. CDMA originally promised 30 times analog capacity. We're approaching 10 times now, after five years of implementation. I'm just cautious.