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Founded 1909, New York, U.S.A.

SPRING 1998



IN THIS ISSUE:

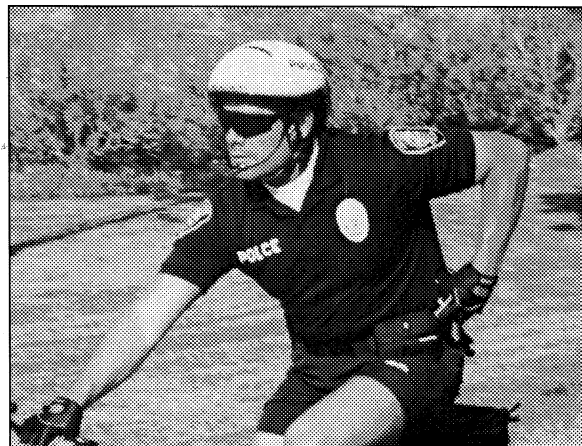
- *Jim Hawkins' Radio Room*
- *1997 Banquet Coverage*

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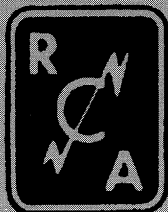
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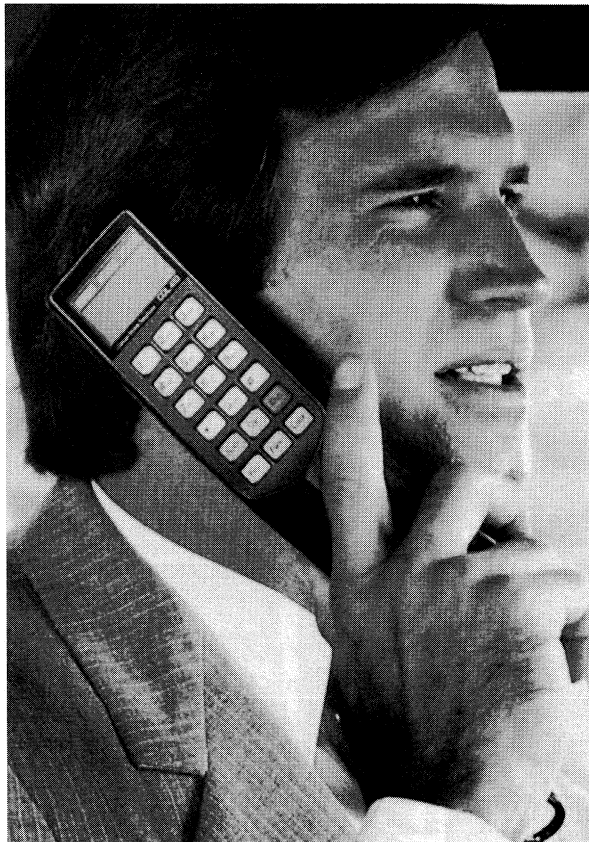
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By Don Bishop

The World Wide Web brings you Jim Hawkins' Radio Room

Tour radio broadcast station transmitter sites using your computer and the Web. Broadcast enthusiast Jim Hawkins provides descriptions of transmitter technology and pictures of sites that he visits in person.

Using computer software and equipment that gives them access to the Worldwide Web, people visit "Jim Hawkins' Radio Room" Web site to tour broadcast radio station transmitter sites. The Web site includes almost 200 pictures and information about several stations, with its content constantly growing as people contribute more photos and information.

The Web site owner, James P. Hawkins (M), WA2WHV, originally started the site as a place to publish computer artwork. Hawkins is an accomplished computer programmer. But maybe the story begins with his interest in electronics and radio.

"When I was 10 years old, the intercom in my grandmother's house in Jacksonville, FL, went bad," Hawkins said. "I watched the repairman fix it. I saw an interesting object in the box and said, 'What's that?' He said, 'It's a rectifier.'" That's Hawkins' first recollection of electronics.

Amateur radio

Several years later, in his hometown of River

Edge, NJ, Hawkins noticed an electronics magazine in a store and asked his father to buy it for him. In the magazine, he saw an advertisement for a Knight-Kit Span-Master shortwave receiver and told his father that he wanted it. Guess what was the 15-year-old Hawkins' Christmas present? "A picture of that receiver model is on my Web page," he said.

While building the kit, Hawkins ran out of solder. His father said, "You can get some from a fellow down the street." The fellow turned out to be Emil Rudat, a radio amateur and an RCA engineer. "He gave me solder and offered me help with the kit if it didn't work," Hawkins said. "It didn't. So I took it down the street, and he had a look. There was only one wiring mistake, and it was due to a mistake in the assembly instruction book." Rudat became an important mentor for Hawkins and introduced him to amateur radio. Hawkins later obtained a license.

After high school, Hawkins took the three-year T-3 electronics course at RCA Institutes. "It's comparable to a bachelor's degree, and in some ways, better," Hawkins said. "I consider it



You can visit Jim Hawkins' *virtual* radio room—and many broadcast stations—on the Worldwide Web. This is Hawkins in his *actual* radio room. The computer is displaying one of the WLW pages. The Web site resides in a desktop computer.

an electrical engineering degree without the liberal arts."

First WABC tour

In 1966, one of Hawkins' friends told him that he had visited the transmitter room in Lodi, NJ, for New York radio station WABC. "The way he described it, the tubes went all the way up to the ceiling," Hawkins said. "I had to see it. Another friend and I just dropped in one day. Those were the days when an engineer always was present. We drove in past the 'No trespassing' sign.

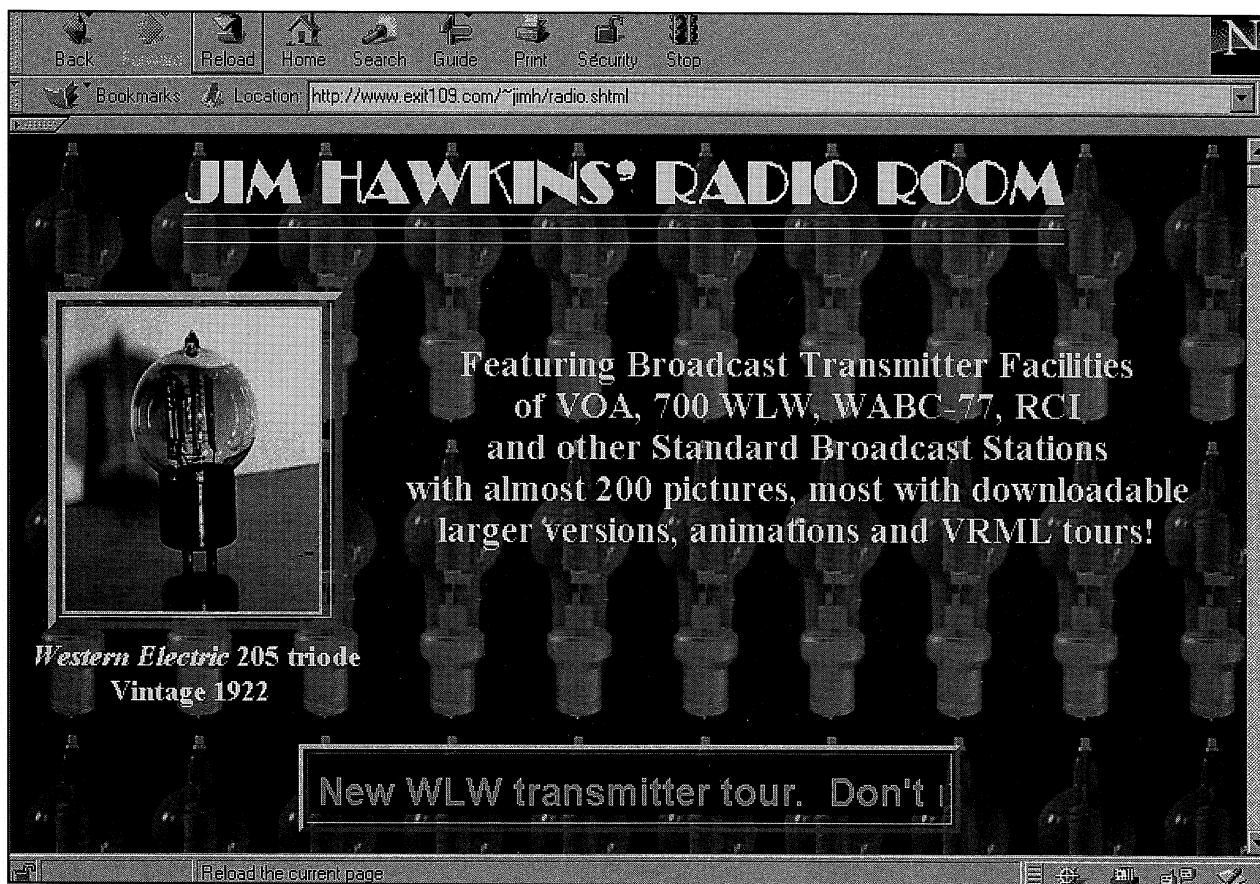
"The engineer was happy to see us. He showed us around the transmitter and other equipment. I was impressed with the way professional equipment was built. Subsequently, my friend and I toured a lot of the New York sites, and I took a lot of pictures. I modeled my homebrew ham equipment on what I saw at the broad-

cast facilities."

The pictures went into storage, and Hawkins entered the Air Force, not to think about touring broadcast stations again for many years. But the pictures, with their historical importance, would wait. "Little did I realize that what I was seeing was '40s-vintage equipment. Had I known how important that would be, I would have taken even more pictures. I had no idea that the technology would advance as fast as it did," he said.

Computers, computers

After his tour of duty, Hawkins went to work for Singer corporate research. "This was in 1975, and I became fascinated with the computers they had," he said. "My supervisor allowed me to get more involved with programming. I became part of an integrated circuit design team, using an integrated circuit test system with a PDP-11 gen-



The top of the main page of Jim Hawkins' Radio Room as seen in Netscape Communicator 4.

eral-purpose computer. I started programming that."

Hawkins became friends with the software manager, Clive Knowles, whom he considers his mentor for programming. He received a transfer to concentrate on programming.

After five years with Singer, Hawkins went to work for Bell Laboratories, where he developed test programs for power systems and worked on a multimedia project for EPCOT (Environmental Planned Community of Tomorrow) at Disney World. During his last year, he interned in language development, which gave him experience with compilers, disassemblers and interpreters. He stayed with AT&T for five years.

Voice of America visit

"I didn't make any more visits to broadcast station transmitter sites for a long time,"

Hawkins said. "I got married to Gretchen in 1991, and we made plans to visit her parents in Ohio. At about the same time, I read a story about the Voice of America transmitter in Bethany, Ohio, and thought it would be a good place to visit. We took the whole family.

"That's when I started seeing some of the newer technology and transmitters. The following year, I went again. I started getting more fascinated with it. I found that, during my visits, I began applying the writing and graphics skills I had learned at Bell Laboratories to gather information. I don't know what happened, but I realized I was virtually interviewing the transmitter engineers."

Worldwide Web

In 1994, Hawkins returned to work at AT&T, this time in Windows programming and Web development for the Sales Support Division. He



From 1934-1939, legendary AM station WLW, Cincinnati, broadcast with 500,000 watts. Personal tours of the station are difficult to arrange—it isn't a museum. These are pictures from the virtual tour.

already knew about the Internet, but that's when he learned about the Worldwide Web. After seeing other people's Web sites, he decided to create one of his own.

The first images that Hawkins was motivated to place on his Web site were his computer artwork. "I have a whole section on that," he said. Then he thought of putting up a radio page, using his transmitter site photographs. "That's when I decided I would share my pictures with the world."

And that's when things really started rolling.

"I put more on the Web site than just a bunch of pictures," Hawkins said. "I was getting information from many people and doing more research. I wanted to know more about the equipment I took pictures of. I started getting e-

mails from engineers."

Feedback helped Hawkins to improve his Web site pages, too. "I started realizing what my pages were lacking, and I started becoming more prepared. This year, I toured WABC again and brought an audio tape recorder. I went with the idea in mind to publish something on a Web page," he said.

In 1996, he visited Radio Canada International. "I heard that they were in trouble, so I panicked and thought I'd better get up to see the site before it was too late." This year, he visited WLW, Cincinnati.

Jim Hawkins' radio room

During the past year or two, Hawkins has become more and more interested in broadcast

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The Voice of America facility in Greenville, NC, uses massive transmitters to deliver shortwave programs around the world. These are some pictures of the broadcasting equipment displayed on the virtual tour.

transmitter sites and their history. "Even though I've never been in the business, I've been corresponding with people who are," he said. "The Web site has drawn people to write to me, and I've made a number of cyber friends."

The Web site is divided into subsections. "My main page has a table of links to subpages," Hawkins explained. "The first page is the table of contents. It lists subpages, such as 'WABC in 1966,' 'WABC now,' 'VOA in Ohio' and 'VOA in North Carolina.' If you make a selection, you'll go to a subsection that's one of the stations I visited."

"People are more interested in the Web site if they can participate. 'Jim Hawkins' radio room' isn't interactive, but if they contribute to the content, I give them credit. The first page lists contributors and what they've contributed. It also gives

credit to the engineers who have given me tours."

The page includes links to other Web sites, including other radio pages and sites owned by transmitter manufacturers. It may have a "feature of the month," too. "I make the first page a general page on radio," Hawkins said.

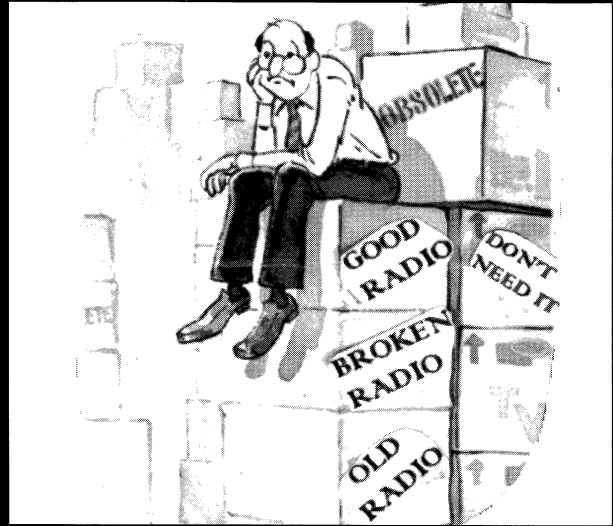
Lots of people have visited broadcast station transmitters. Depending on which stations, they may have the muddy shoes to prove it. The difference is, Hawkins has documented his visits and has made the information and images available in a way that wouldn't have been possible a few years ago. He gives you the opportunity to visit some stations without leaving home.

That Web site address?



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Bringing Communication to Education Since 1980

By Don Bishop

1997 Club Banquet

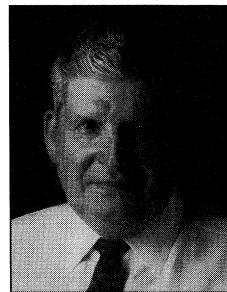
The 88th Anniversary Dinner and Awards Presentation, along with a Communications Symposium, was held Nov. 21, 1997, at the New York Athletic Club in New York.

At the afternoon Communications Symposium, Ray Minichiello delivered a talk entitled "From Hertz to Kilocycles to Hertz." Robert Everett, Ph.D., delivered a paper entitled "Digital Broadcasting in the AM Radio Band." Paul Anuszkiewicz delivered a paper entitled "The Evolution of CDMA and the Promise It Holds for Personal Communications Networks." Andrew Singer, chairman of the symposium committee, introduced the speakers.

At the evening banquet, Pat Campbell, executive vice president of corporate strategy and business development of Ameritech, delivered the keynote speech. Vivian A. Carr presented certificates and plaques to members who were elevated to Fellow, and Anthony Sabino delivered the Response for Fellows. Emmett B. "Jay" Kitchen served as master of ceremonies.

Beginning in 1935, the club has made awards to members to recognize individual achievements, contributions to the advancement of the radio art, and service to the club. The following members were given awards at the banquet, with the exception of Norm Chalfin and Leslie Geddes, who were unable to attend. The award

recipients' comments come from interviews conducted prior to the banquet.

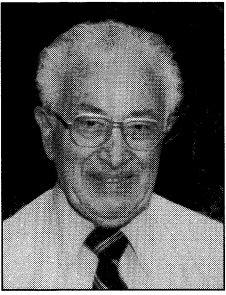


William O. Hunt-Sarnoff
Citation. Given for significant contributions to the advancement of electronic communications. Hunt's citation reads: "For major regulatory and business contributions to the wireless industry."

Hunt said, "I'm very flattered to receive this award. Over the years, I've watched many people for whom I have an enormous regard receive this award and never expected, with all due humility, to receive it. Two people I remember are Clayton Niles and Jerry Stover of Communications Industries, a company where I worked for seven years. Clayton and Jerry were the founders and had been with predecessor companies, and they were giants to me. To receive this award in somewhat the same vein is about as good as it can be. There are many people in this industry who would deserve this award equally as well or more so than me."

Hunt is chairman and chief executive officer of Intellicall, and he is a director of several other companies, including Allen Telecom.

Norman L. Chalfin—*Edgar F. Johnson*

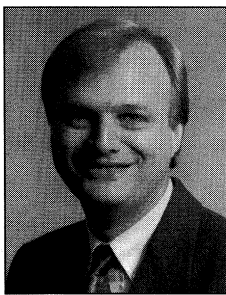


Pioneer Citation. Given to long-time members who have contributed substantially to the success and development of the club or to the art of radio communications. Chalfin's citation reads: "The spirit of good fellowship and the free interchange of ideas

among all radio enthusiasts." Chalfin was chosen for his long-term contributions to electronic developments and patents.

Chalfin said, "This award comes a surprise to me, and I appreciate it very much. I've been in this field for a long time, and somebody's recognized the fact that I'm involved." Chalfin retired from the Jet Propulsion Laboratory, where his last job was involved with new technology derived from the space program, including radio communications. "Almost every field you can think of was involved in space technology," he said.

Steven L. Aldinger—*President's Award.* Given



for unselfish dedication to the support of the club. Aldinger's citation reads: "For support in the advancement of club activities."

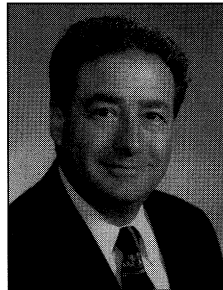
Aldinger said, "It's a great honor. Ray [Trott] thinks I'm doing these wonderful things, and I'm not sure I am.

It's nice to have activities be recognized. I've spent most of my time trying to increase the membership and get it to be more active in the industry, with more younger members and those involved on the training side of things. Apparently this is important to others in the club, too, as this recognition would note."

Aldinger has served on the board of directors since June 7, 1997, and he chairs the membership committee. Through his employer, the Celwave Division of Radio Frequency Systems, Aldinger has donated to the club the proceeds of entry fees

for competitions, such as foot races and driving golf balls, that he has organized as benefits at trade shows.

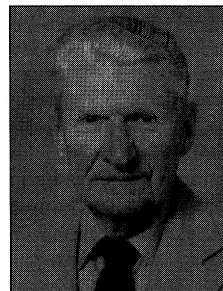
Stanley Reubenstein—*Special Services*



Award. Given for substantial contributions to the support and advancement of the club. Reubenstein's citation reads: "For significant contributions to the advancement of radio communications."

Reubenstein said: "I'm pleased to be recognized by my peers. I've always felt the Radio Club was a way to give recognition to people within our industry, and I am just pleased to be able to assist." Reubenstein served on the board of directors in 1997. He is one of the owners of Aurora Marketing, a radio equipment manufacturers' representative.

Leslie A. Geddes, D.Sc., Ph.D.—*Henri*



Busignies Memorial Award. Given for contributing substantially to the advancement of electronics for the benefit of mankind, which is how Geddes' citation reads. He was chosen for his major contributions to biomedical instrumentation. "This

award is a pleasant surprise," Geddes said.

"My biomedical work has been in the cardiology area, including cardiac pacemaking, ventricular fibrillation and ventricular defibrillation. I'm also active in electrical safety. I'm an expert witness in that area and board certified by the National Academy of Forensic Engineers, so I testify in court often."

A professor at Purdue University, Geddes has been involved in amateur radio and broadcasting, too. "For a time I was the youngest amateur radio operator in Canada. I came on in 1935—and had to go off in 1939 because of World War II. My call letters were VE2LR," he said.

Continued on page 18

By Pat Campbell

Keynote Speech

This is the text of the speech delivered by Pat Campbell, executive vice president of corporate strategy and business development of Ameritech. He was introduced by President Emeritus Mal Gurian.

Thank you, Mal. I'm delighted to join you this evening. It's an honor to address America's oldest—and most prestigious—wireless association on the occasion of its 88th anniversary.

As someone who works for a communications company, I'm hard-pressed to think of a technology more important to the way people communicate than wireless.

Past, present and future

In fact, for the past several weeks, I've been spending a good deal of time thinking about what I wanted to say to you today. One obvious idea was to capitalize on the 30th anniversary of the invention of cellular technology. I thought it might be interesting to explore how three dedicated engineers at Bell Labs, working together, helped set in motion a complete revolution in the way people communicate.

But that sparked another thought: How about looking at all of the fast and furious advances in technology that are transforming today's communications industry? Computing power is explod-

ing. Bandwidth is expanding. Networks are converging. And it's clear that tetherless communications will play an increasingly important role in that transformation.

And that, in turn, started me thinking about the future. Why not really let fly with some ideas about the future of wireless voice and data? Of course, I realize there's an inherent danger in that—who can forget IBM's legendary founder, Tom Watson, who made the bold prediction that someday there might be a worldwide market for about five computers?

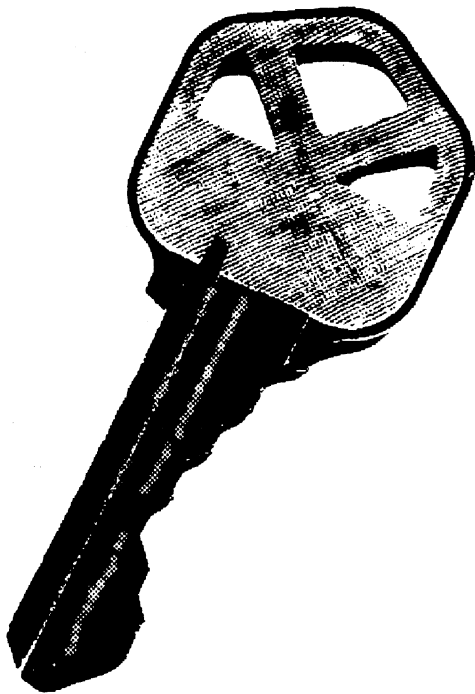
But personally, I relish the opportunity to look into the future—that's where the really fun stuff is! And even if I'm wildly wrong in my expectations, that's okay, too. Because you never know when a wrong prediction from me will start someone like you thinking along a radically new path.

After mulling it over, it occurred to me that the three thoughts were actually very closely related.

If it weren't for those pioneers at Bell Labs, we wouldn't be where we are today.

And if it wasn't for the convergence of networks and other technological advances, we certainly wouldn't have the opportunity to make blue-sky

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predictions about what the future might hold.

So I decided to combine these three ideas into a single speech, one that touches on the past, discusses the present, and takes a fearless look into the future.

First, a little history.

Mobile radio

In 1967, mobile radio was a sleepy little backwater at Bell Labs—and with good reason. Although there were two very similar mobile telephone systems in operation at the time, the technology left a lot to be desired.

One system had 11 channels that operated at 150 MHz, and the other offered 12 channels at 400 MHz. As some of you will remember, both required bulky equipment—the receiver was the size of an attache case. You couldn't put it under the seat; you had to put it in the trunk of your car. And both were unavailable outside the major metropolitan areas.

But the real killer was that these systems had extremely limited capacity. Signals from mobile operations in nearby cities would interfere, which meant that you couldn't use all the frequencies in any given location. For example, of the 11 channels in the 150 MHz band, customers could only use three in the New York City area at any one time—because Newark, or White Plains, or somewhere else would interfere. The same problem occurred in most major metropolitan areas.

Talk about making it rough on customers! Here was a system that had several hundred people subscribing, several thousand more on a waiting list, and yet only three subscribers could speak at once! Whenever someone tried to make a fourth call, the little red light would come on indicating that all the channels were busy.

Cellular communications

As it happened, three members of Bell Labs' technical staff were working on the design of a cellular communications system at about the same time. Among them was a former colleague of mine at Ameritech, Joel Engel, whom some of you may know.

The cellular concept itself wasn't revolutionary—in fact, it had been kicking around for many years. But Joel and the others were diligently working to design a system that would be suitable for mass deployment.

What Joel and his colleagues discovered was a way to carve an area into radio cells small enough so that they wouldn't interfere with each other. At the same time, they figured out a way to hand-off calls between these cells and to locate a mobile unit anywhere within a given area. Suddenly, these breakthroughs made mass market wireless a very real possibility.

Now, I won't bore you with a blow-by-blow description of the regulatory process—or why it took a dozen years for the FCC to finally allow cellular telephony to come to market. This is, after all, a festive gathering, and I don't want to spoil the party with those grim details.

Technical challenges

Nor will I attempt to explain all the technical hurdles Joel and his partners had to overcome, because, frankly, those waters are way over my head. What's important is that these pioneers kept at it. And because of their efforts, the cellular revolution began in Chicago on Oct. 13, 1983.

Since that first cellular call, we've come farther than anyone could have anticipated. Joel once told me that a market research firm hired by AT&T concluded that there was no market for cellular—at any price. They predicted customer penetration rates might hit about 1% by the year 2000.

Well, they were a little off. As of last year, penetration rates stood at around 20% in the United States. And I'm confident they will more than double by the year 2005, with penetration rates reaching 45%.

But that only goes to show the inherent problem of trying to extrapolate tomorrow's reality from today's. When the paradigm shifts—as it inevitably does—everything changes.

Telecom revolution

And that's a perfect lead-in to a discussion of

what's happening today in telecommunications.

On any number of levels, my industry is in the throes of a complete revolution.

Thanks to the Telecommunications Act of 1996, competition among local, long distance, and cable companies is now a reality. Obviously, that means more services at better prices than ever before. But it also means an age of unfettered innovation, of players breaking out of the box and really working to serve customer needs.

Another sea change is convergence. Advances in technology are tearing down the walls between entire industries. Computers, communications, software, entertainment—all of these previously separate businesses are blending together. As a result, we're heading toward the creation of one industry: the information industry.

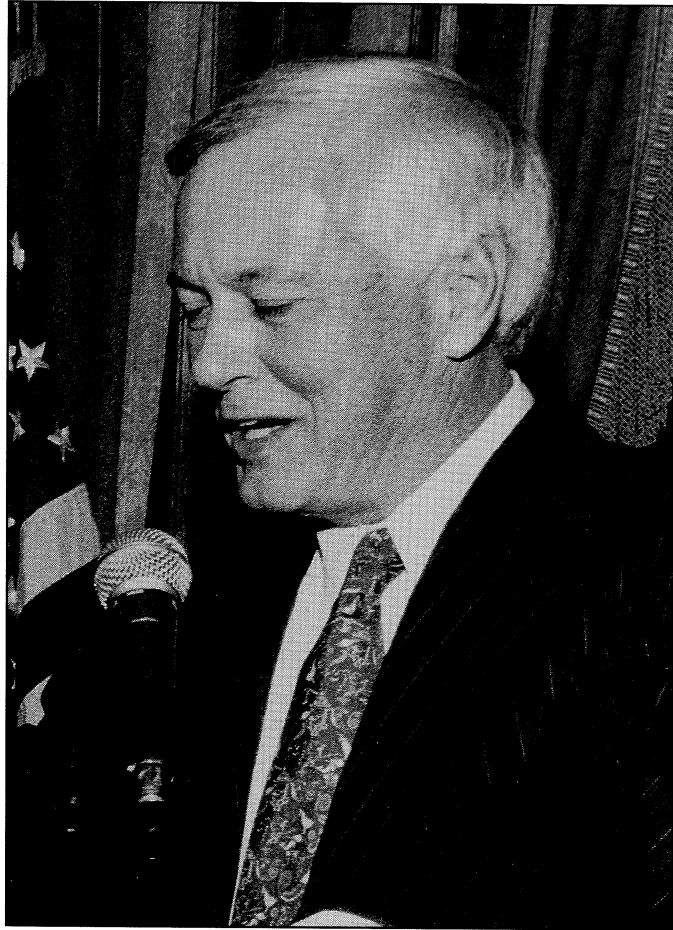
As industry categories are blurring, so too are distinctions between communications networks. Voice, data, and video are all evolving to the point where, for all practical purposes, there will be no real difference between them. Data networks will carry voice traffic, as we're seeing with Internet telephony. Copper networks will carry more data, especially as new technologies like ADSL make it possible to transmit data 50 times faster than a 28.8 modem. And wireless networks will carry voice, data, and video.

Competition and convergence are part of a much larger transformation, one that is steadily remaking our society as a whole. Futurists have dubbed it the Information Revolution.

The signs of that revolution are everywhere. Computers have left the office to become a commonplace home appliance. PC penetrations rates currently approach 40% in the U.S. And Internet usage continues to double every year. Right now, one out of every four Americans regularly goes online.

Technology 'sparks'

In short, the notion of the Information Superhighway has moved from metaphor to real-



ity. And I'm convinced that the pieces are in place for society to finally begin reaping the benefits. The logs and kindling are in the fireplace; all they're waiting for is a spark. And in this case, I think the spark will come from three sources.

The first involves *computing power*. Recent breakthroughs in chip design by IBM and Intel will result in microprocessors that are smaller, cheaper, and faster than anything on the market today. IBM expects its chip to run at speeds of 1 GHz, almost three times faster than today's fastest PC chip.

And Intel's chip will use flash memory to store two bits of information on each transistor; the current generation can only store one. Scientists think this is just the tip of the iceberg. Some expect we'll be able to store four or even more bits on each transistor.

Just like that, the raw power behind the Information Revolution will get turbo-charged. The impact on technology is going to be profound.

The second spark is an *increase in portability*.

Not only will information devices become smaller and more powerful, they will have access to a variety of tetherless delivery systems, including cellular, satellite, PCS, and other broad spectrum pipelines. It won't be long before we're able to access any information from any location. We'll be able to surf the Net from a handheld computer; access e-mail and corporate LANs from a digital cell phone; complete entire transactions with vendors, customers, and bankers from wherever we happen to be. The potential is limitless.

The last remaining spark is *bandwidth*. And we're well on the way to striking that match as well.

Bandwidth determines how much data can be pumped down the information pipeline. For example, somewhere around 6 MHz is needed to transmit a single channel of full-motion video. HDTV-quality content is possible at 30 MHz. To put that in perspective: The fastest analog modems today currently operate at 56.6 kbs--when you can find an Internet Services Provider that can accommodate them. Obviously, there is little incentive for content creators to produce high-bandwidth programming when virtually no one can access it.

But let's look at that from another angle. Remember when we were accessing data at 14.4? Then it was 28.8. Now, it's 56.6. Each of those were just incremental increases. Yet even so, each step brought with it a noticeable leap in consumer benefit. We were able to download more information, it was quicker to do so, and that in turn opened up new frontiers.

Today, we're standing on the threshold of an increase between 1.5 and 3 megabits. That's not a baby step; that's a giant's leap! Forget for a moment what that means about speed of delivery. The real revolution will come in what content providers--whoever becomes the digital-era Steven Spielberg--will be able to do with all this raw clay. The implications for business and personal use are staggering.

Internet

One example of that potential is the network

navigator.

Anyone who visits the Internet today knows that finding information--the right information--can be a frustrating, often fruitless endeavor. The reason, of course, is that the Net is a vast information jungle with few signposts or trustworthy guides. That explains why the most popular Websites continue to be search engines like Yahoo! and AltaVista.

With the explosion of available bandwidth and the increases in raw computing power, the Internet as we know it today is on the brink of reinvention. I believe we'll look back on these days the way our fathers looked back on the horse and buggy: quaint, but functionally obsolete.

Instead of the simple graphical displays of today's Internet, we'll have a medium that's a lot closer to virtual reality. With it, for instance, we'll be able to stroll the streets of Paris, shop Rodeo Drive, or scuba dive the Great Barrier Reef--all without leaving our homes.

The key to that--in addition to sufficient bandwidth and computing power--is the creation of an intuitive navigational device. On its most simple level, the navigator will be your interface between the PC and the Internet. It will take you where you want to go and find whatever it is you want it to discover. In this way, it will become a kind of super search engine, one capable of retrieving exactly the materials you would have chosen yourself--if you had the time.

Virtual reality

But I suspect there's a bigger role that the navigator will play. In this virtual reality world, it will literally act as your surrogate. Every time you turn on a computer, you'll see a lifelike avatar of yourself. You'll be able to send that avatar anywhere. Let's say you want to walk down Madison Avenue between 68th and 75th. You'll be able to stop in the Hermes store, or duck into the J. Crew. You'll be able to browse the aisles, try on a sweater, and see how it looks on you. You'll even be able to raise your avatar's arms to see whether the sweater fits.

Such a development is not as far away as you might think; Ameritech's partners at Walt Disney are working along these lines right now. And when it's perfected, I believe the navigator will have an impact not only on the way we use computing power and bandwidth, but on the way our entire economy operates. Physical shopping malls might go the way of the drive-in theater. And overnight delivery services might emerge as blue-chip economic powerhouses.

Ultimately, I believe that navigation devices have the potential to profoundly change society as well. Imagine the impact on education and health care delivery. Or how cheap computing power and easy-to-use avatars can close the gap between the information haves and have-nots. For these reasons, and for reasons we can't even imagine yet, I'm convinced we're standing on the brink of a major paradigm shift, a true revolution in the way we live, work, and spend our leisure time.

I've been talking about the future from a big picture perspective. Before I conclude, let's narrow the focus and take a quick look at what the Information Revolution might mean for wireless.

Continuing digital trend

The primary trend is obvious: Wireless will continue moving to a digital format. Although there will always be a market for analog, the superior quality, security, and call management features will push the majority of users to digital. Ameritech has adopted the CDMA standard for our digital service, called ClearPath, which we've rolled out in Chicago and Detroit. We believe CDMA is far and away the best digital technology on the market, both in terms of voice quality and capacity. And our customers couldn't agree more.

Just as we've seen voice and data co-existing on wireline networks, so too will they co-exist on wireless. But digital service opens the door to more robust wireless data applications. And here's where things get really interesting.

We've already seen the introduction of smart

cell phones—devices that combine the functionality of telephone, personal digital assistant, and computer.

But these devices largely piggyback on the cellular voice networks. And speed is an issue: Smart phones are rated to deliver data at a maximum of 19.2 kbs.

For simple applications, that's certainly sufficient. But for sophisticated solutions, it leaves a lot to be desired. However, as more networks go digital, as more bandwidth becomes available, and as computing power continues to surge, the possibilities increase exponentially.

Next breakthrough

I suspect the breakthrough will be something on the order of LMDS, or Local Multipoint Distribution System. This wireless delivery vehicle will make it possible to beam 28 GHz of spectrum to a mobile unit. That's enough bandwidth to provide high-speed data, television, and telephone—simultaneously.

Imagine what that does to telecommuting! Anyone will be able to work anywhere. And that, in turn, has a number of implications for cities. When it's possible to function as efficiently from the mountains of Montana as it is from the canyons of Manhattan, we'll see more people making choices based on the quality of life, not the quantity of jobs. All things being equal, I suspect we'll see a green migration as these technologies come on line.

I really believe that wireless information is going to be a primary driver in the Information Revolution. We won't be tethered to homes or offices, we'll be empowered to work wherever we want. If we need to check inventory, we'll plug into our company's wireless LAN. If we want to research a competitor, we'll send our navigator off to comb the Internet. If we have to close a deal face-to-face, we'll dial up a video-conference. And we'll be able to do this, and much, much more, from wherever it's most convenient.

These are all reasons why I think communications is the red-hot industry for the 21st century.

We're facing what Andy Grove of Intel calls a strategic *inflection point*, a time when everything changes and all the old models cease to apply. This particular inflection point revolves around the combination of the three elements I mentioned at the start: *computing power, portability, and bandwidth.*

Together, they have the potential to transform our world. How significant will these changes be? I've seen estimates suggesting that the Information Revolution could impact at least 50% of this country's GDP. I also suspect that those estimates are way on the low side. But whatever the final result, one thing is clear: This is where the action is! And I know, once again, that the pioneers in wireless will be out in front leading the charge.

Thanks for this opportunity.



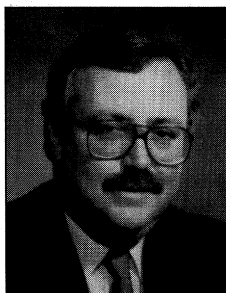
W. Patrick Campbell is executive vice president of corporate strategy and business development for Ameritech. He oversees video services and wireless personal communications services. He began his career in the entertainment industry in September 1984 when he became president of what was then RCA/Columbia Pictures International Video. He continued in the chief executive post until January 1989 when, upon integration of that company's Domestic and International Ventures divisions, he became president of the worldwide company. He served as president of Columbia TriStar Home Video, a Sony Pictures Entertainment company, from 1989 until he joined Ameritech. He has also held positions with SCM, McGraw Edison and North American Philips.

1997 Club Banquet

Continued from page 11

"Then I did a stint as studio and transmitter engineer for CBM, Montreal. That was all over after the war. I haven't been doing much in broadcasting since then except, in Houston, I did a midnight talk show ("Midnight With Manetta") on television for a while with a lady interviewer."

John E. Brennan—*Fred M. Link Award.* Given



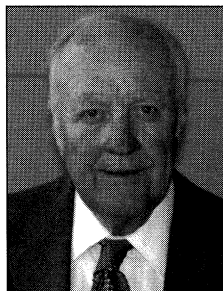
for contributing substantially to the advancement and development of land mobile radio communications, which is how Brennan's citation reads.

Brennan said, "I'm honored. I don't think there's a better person than Fred who symbolizes the Radio Club. To me, it is quite an honor to get his award. It's also nice to be recognized by my peers for what I've done in the radio industry. Not being an engineer, my role has been to bring the engineers' ideas to the public. It's a mutual understanding between what the engineers invent, what the public wants, and what's presented to the public. That can only be done

with everyone working together."

Brennan is executive vice president of the club, and served as a director for several years before becoming an officer.

Charles A. Higginbotham—*Jack Poppele*



Broadcast Award. Given for important and long-term contributions to the improvement of radio broadcasting, which is how Higginbotham's citation reads. He was chosen for long-term contributions to the

improvement of radio broadcasting as chief of the Safety and Special Services Bureau of the Federal Communications Commission. Prior to his work in that bureau, Higginbotham was a part of the staff that regulated FM broadcast radio.

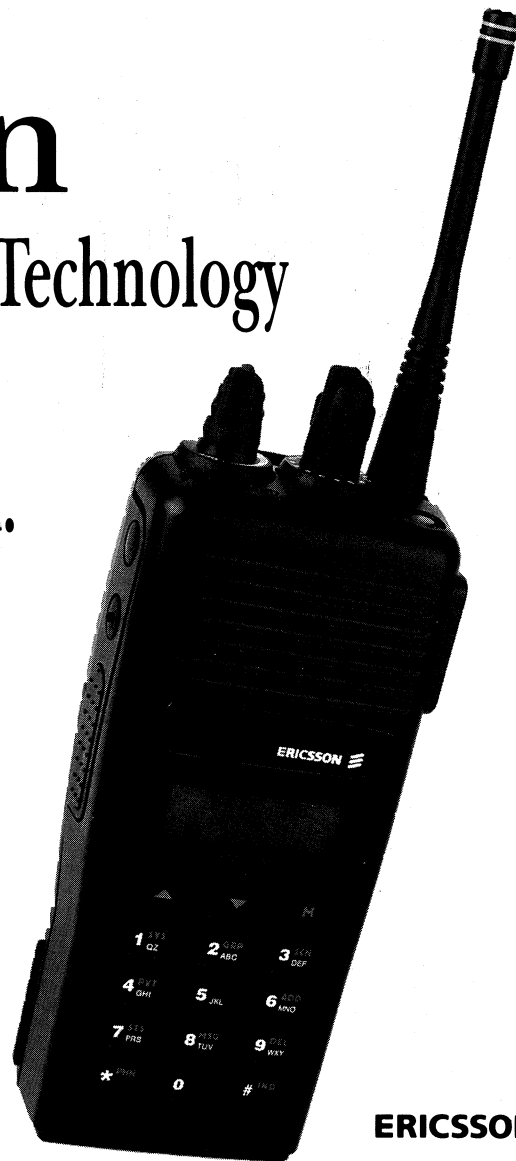
Higginbotham said, "I'm very pleased about receiving this award. Not only was Jack Poppele a good friend, but I think it's a prestigious award. That makes me very happy."



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By Tony Sabino

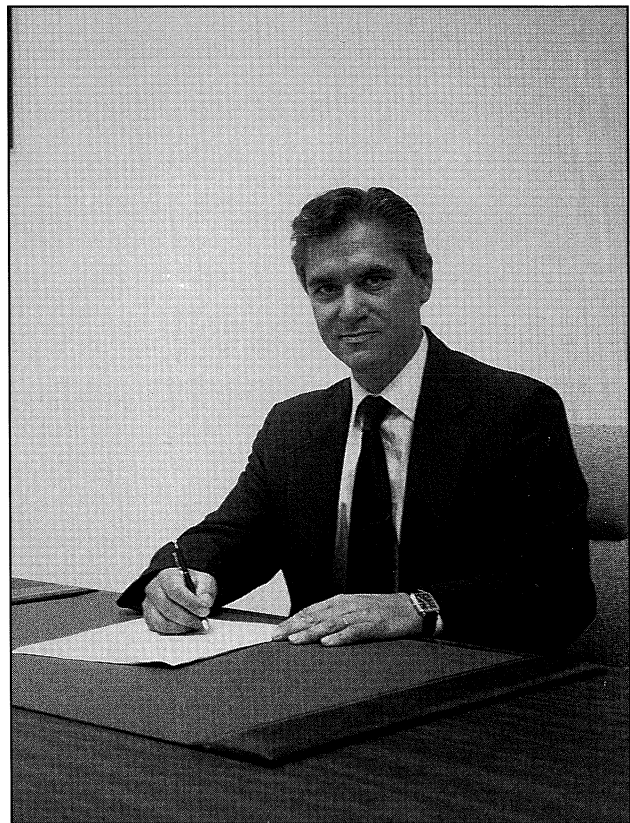
Response for Fellows

President Trott, directors, members and distinguished guests:

I am doubly honored tonight, once for being selected for elevation to Fellow of the Radio Club of America and again to have the opportunity to speak on behalf of all the 1997 Fellows being elevated tonight. It is not often that someone gets to respond on behalf of such a prestigious group of individuals.

In reviewing the Club's history, I found the following words frequently used to describe the essence that permeates our membership and has bonded us through out the years: fellowship, curiosity, spirit, sharing, unselfishness, goodwill, desire to grow, create and explore. Some say words are but labels. To be a member of the Radio Club and be labeled as such is one of the finest honors. With the label comes responsibility and hard work. As Fellows we accept our responsibility and will endeavor to promote the ideals and goals of the Club.

We are members of "the world's first and oldest communications society," living and experiencing a tradition which started just after the turn of the century and is about to cross into the next millennium. The Club, through its strong fellowship, continues to help hand down the baton to each new emerging generation of radio communications enthusiasts. We accept the baton that rep-



resents our acknowledgements and agreement to carry forward the traditions and ideals of the club into the unknown of a new century.

Radio, or wireless as it is once again called, is an area where we must always be prepared to face change. After all where else but radio can you find a technology where in its infancy was dri-

Continued on page 25

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Raymond C. Trott, P.E., President

By *Kenneth M. Miller*

1997 Grants-In- Aid

Thank you, Jay, and a very good evening ladies and gentlemen. As in over the past decade it is once again a pleasure to present to you our Grants-in Aid Scholarship Grants report.

I am pleased to report to you that at our board of directors meeting this morning, your board unanimously endorsed our committee's recommendation to provide 14 financial aid grants ranging from \$750 to \$1,000 each to 10 organizations. The dollars for these 14 grants are provided by the interest earned from the investment of over \$198,000 contributed by many of our members to our Grants-In-Aid program.

Our club's constitution defines that these grants are given to need and worthy students pursuing their study of technical communications. In achieving this objective, 14 grants were approved today by our board of directors for the following 10 organizations:

From the GIA General fund to:

Rankin Technical College
Southern Methodist University
Capitol College
Polytechnic University
Stevens Institute of Technology
Georgia Institute of Technology
Embry-Riddle University

From the Fred M. Link Fund to:

Virginia Polytechnic Institution
and State University

From the Capt. Wm. Finch Fund to

The University of Cincinnati

**And to the Foundation for Amateur Radio
from the funds provided by:**

The Jack Poppele Family
Stuart Meyer
Leo Meyerson
J. Alan Biggs
Richard Somers

Each of these 10 recipient organizations have established carefully structured programs to aware 100% of our grants to individual college students in need of financial assistance to assist in paying their tuition and related college expenses.

This evening we wish to give special recognition to just a few of the many generous donations provided recently.

These include one of the two largest contributors to our GIA Fund, Richard G. Somers, with whom I had the opportunity to be associated with professionally during a period we shared in our careers with out mentor, Bill Lear. Mr. Somers is currently president of Sigma Telecommunications Inc. We have established a special Grants-In-Aid

fund in honor of Mr. Somers and his multi-thousand dollar contribution. Thanks to Mr. Somers' generosity, a new grant to the Foundation for Amateur Radio has been awarded this year.

Also, we thank the internationally known antenna manufacturer, the Celwave Division of Radio Frequency Systems, Inc., who generously this past year has made another important financial contribution to our GIA program.

And we are pleased that once again Mercy Contreras has made another sizable contribution to the Fred M. Link Grants-In-Aid Fund.

Lastly, we must recognize the significant multi-year contributions provided by the family of Jack Poppele who have supported our Grants-In-Aid program in memory of their father, Jack Poppele.

In summary, compared to one year ago the number of grants is up 8 percent. The amount of dollars granted is up 9 percent.

These contributions and many others are the

strong foundation of what has made this program one of the finest and most successful in our electronics industry—setting an example to others—by offering an outstretched hand to assist the young men and women who are about to open the gate which will lead to a lifelong successful profession in our industry.

Perhaps the hand we offer today will increase their odds in reaching their goals.

This completes our 1997 Grants-In-Aid report.

I thank you for your attention.



Kenneth M. Miller is chairman of the Grants-In-Aid Committee.

Response for Fellows

Continued from page 22

the challenge to pick out the radio signal from amongst the static and noise, and now with today's broadband schemes hides data and information in what sounds like static and noise and challenges the hackers to interfere with or decode it. Radio Club members have always enjoyed taking part in helping to facilitate change and in many cases have been the catalysts for change itself. Fred Link is just one of those catalyst-type members.

Many RCA members have helped to form the foundation upon which a large segment of today's radio communications industry is built. The drive and desire to grow, create and explore, that so many of our members exhibited over the years has helped to create a radio communications industry that is changing in the face of the world we live in. Many of today's modern communications miracles have only been accomplished as a result of the sharing of information,

technologies and research efforts. The Radio Club and its member continue the strong tradition of sharing ideas and resources, upon which much of our industry and society is built. Today we use the term partnership to describe some of the new strategic relationships that are developing through out the radio communications world. That's a good term to describe what the Radio Club of America has been doing since 1909, partnering with the radio communications industry.

On behalf of the 1997 Fellows, I sincerely thank you for bestowing this honor upon us tonight. As Fellows of the Radio Club of America, we will endeavor to continue to live up to the high standards and traditions the Club has exemplified since its inception almost 90 years ago.



Banquet Contributors

We acknowledge with thanks the support of the following persons and companies whose contributions are attributed to the success of the banquet.

AMTOL Radio Communications Systems

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Aurora Marketing Co.

Authentix Network, Inc.

Beam Radio, M. Alvarez

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TREASURER'S REPORT FOR FISCAL YEAR 1997

(October 1, 1996 — September 30, 1997)

REVENUES

Dues Collected & Applied	\$21,841
Other Member Fees	2,747
Banquet - net	(3,319)
Advertising Sales	8,473
Pins & Plaques Sales	1,406
Interest on General Funds	3,394
Publications Sales & Misc.	500
TOTAL Revenues	<u>\$35,040</u>

EXPENSES

Publications	
Printing & Supplies	\$4,083
Mailing Expenses	1,972
Meeting Expenses	3,604
Office Expenses	
Printing & Stationery	2,157
Postage	2,210
Office & Computer Expenses	874
Executive Secy & Other Admin Fees	15,000
Legal & Accounting	1,100
Officers & Directors Liability Insurance	2,454
Pins & Plaques	1,062
Miscellaneous	1,002
TOTAL Expenses	<u>\$35,519</u>
NET Revenues less Expenses	<u>(\$479)</u>
Other Adjustments (net)	\$35,840
(see note -->)	
NET Increase in Fund Balance	<u>\$35,361</u>

BALANCE SHEET

ASSETS

Inventory & Receivables	\$4,663
Section & Banquet Funds	22,699
Cash in Bank - Operating	46,044
Investments - Securities	75,017
GNMA Certificates	38,152
Fed Home Loan Mtge	112,055
Fed Natl Mtge Assn	29,738
Putnam Fund	46,850
SB Money Fund	341

TOTAL Assets **\$375,558**

LIABILITIES

Prepaid Dues	\$18,233
Fund Balances:	
Scholarship Funds - Principal	198,765
For Distribution	16,013
General Funds - Oprt'g Balance	72,609
Reserve for Oprt'g Deficits	21,599
Life Member Fund	27,810
Legacy Fund	11,400
Other Assets & Liab-Net	9,129

TOTAL Liabilities **\$375,558**

N.B. Other adjustments include contributions to funds, scholarships and grants awarded, earnings on funds and changes in values of investments. Interest rate sensitive investments increased in value by \$31,711 during the fiscal year.

SCHOLARSHIP & GRANTS FUNDS

	Capital	Available for Distribution	Totals
Opening Balance Oct. 1, 1995	\$194,090	\$13,404	\$207,494
Contributions	4,675		
Interest Earned		14,109	
Scholarships & Grants Awarded		(11,500)	
Ending Balance Sept. 30, 1996	\$198,765	\$16,013	\$214,778

The U.S. NATIONAL MARCONI MUSEUM



Bedford, New Hampshire

The Guglielmo Marconi Foundation, U.S.A., Inc. & The U.S. National Marconi Museum is located in the historic district of Bedford, New Hampshire, marking the town's link with Bedford, England, where Marconi spent much of his childhood. The exhibits follow with equipment, literature, audio-visual presentations - the development of radio communications from, "Spark to Space". Displayed is early Marconi wireless equipment together with the progression of radios up to the current cellular telephone exhibit. Included too, will be displays of early medical RF therapy, broadcast, amateur, mobile two-way radio and personal communication system products.

An important aspect of the 14,000 square foot building is its John Frey Technical Library, containing thousands of radio communication periodicals some in a series dating from 1920. All the publications are indexed by subject, author, date and publisher, cataloged on CD-ROM that can be accessed by Internet on the library computer. The shelves also hold hundreds of engineering, text and reference books. The visitor to the museum will enjoy browsing through historical literature.

There is a restoration room for repair of vintage radios, a machine shop and a facility room for educational lectures to school groups, and for meetings of electronic oriented organizations. Plans are underway to house a 100 watt FM broadcast station in the educational section of the FM band, with emphasis in its programming of world scientific news.

Since the Museum is education oriented, the Marconi Legacy Fund has been established to provide scholarships to students in the pursuit of studies related to the art of radio communications. Your donation of vintage - and - modern electronic equipment, surplus to your needs, will be most welcome to benefit the Marconi Legacy Fund. As the Marconi Foundation is a non-profit corporation, all donations will be acknowledged for personal and tax records.

For more information of how to contribute equipment, participate in the Marconi Legacy Fund, or joining the Marconi Foundation, please contact:

Ray Minichiello, P.E., (W1BC) Chairman
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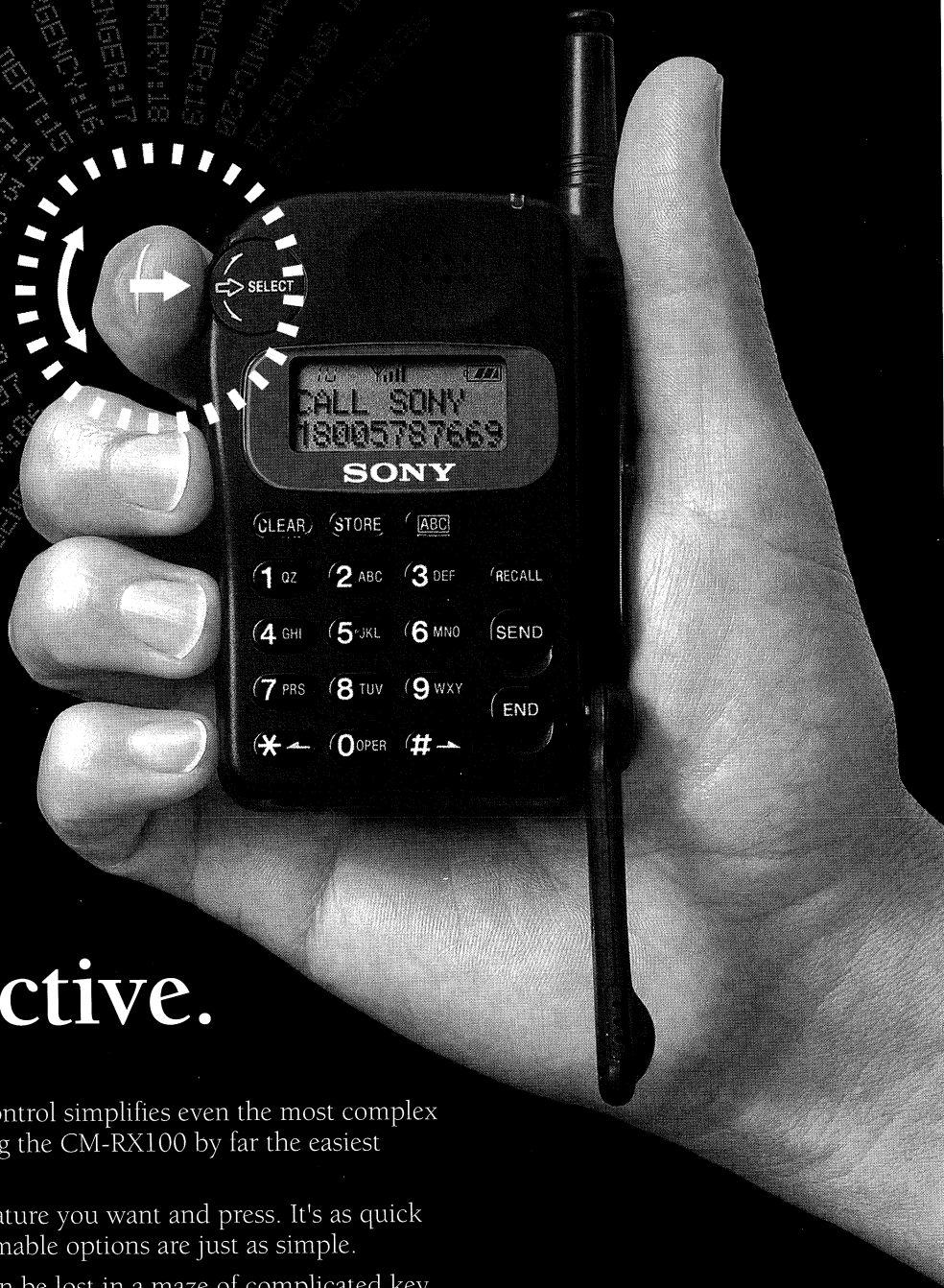
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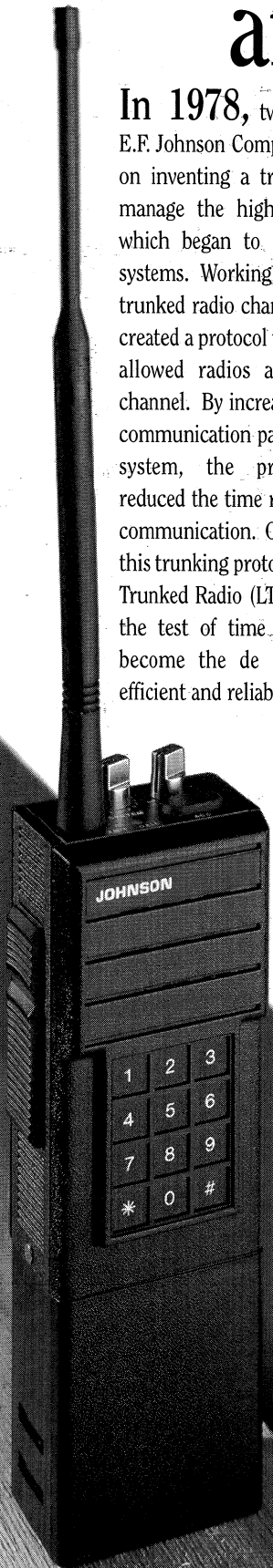
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