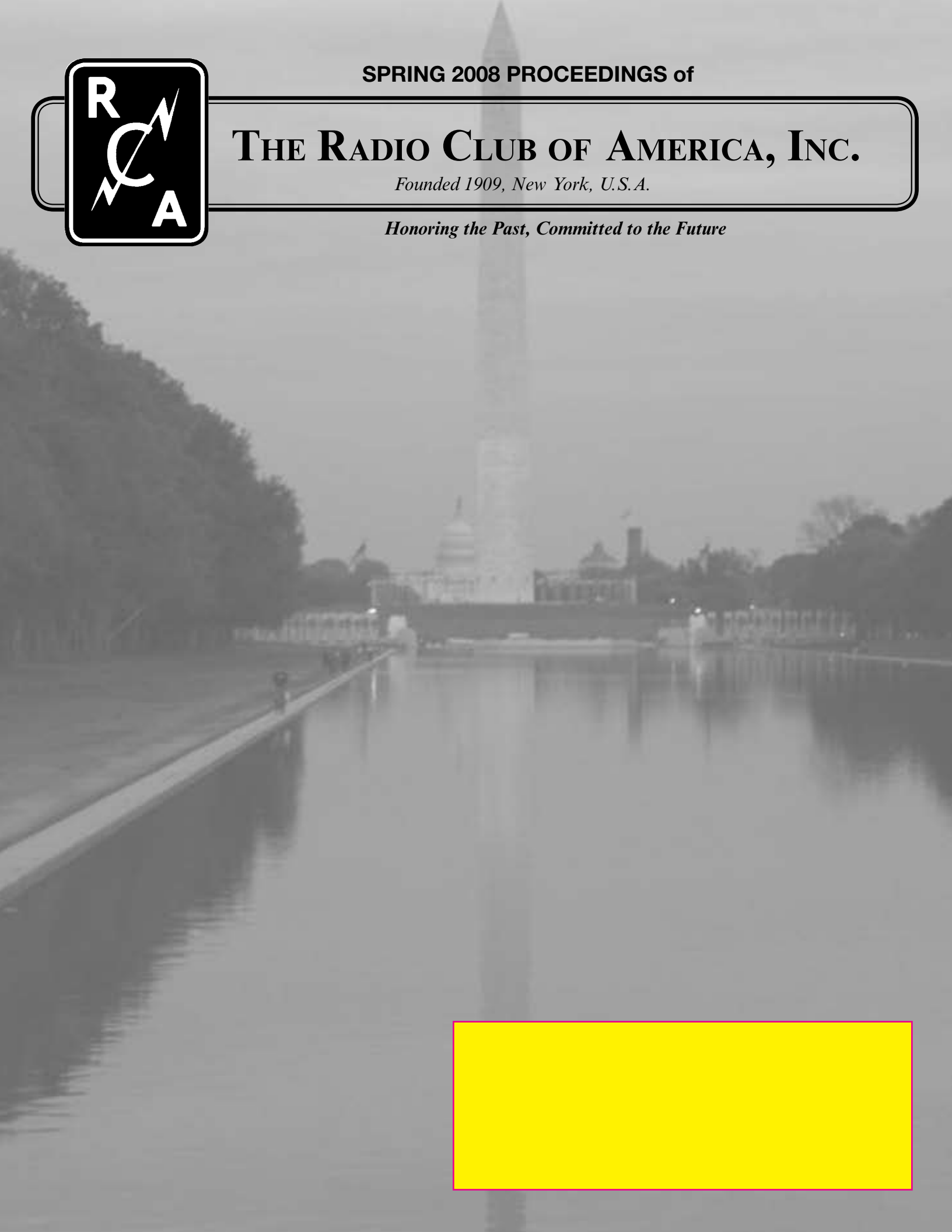

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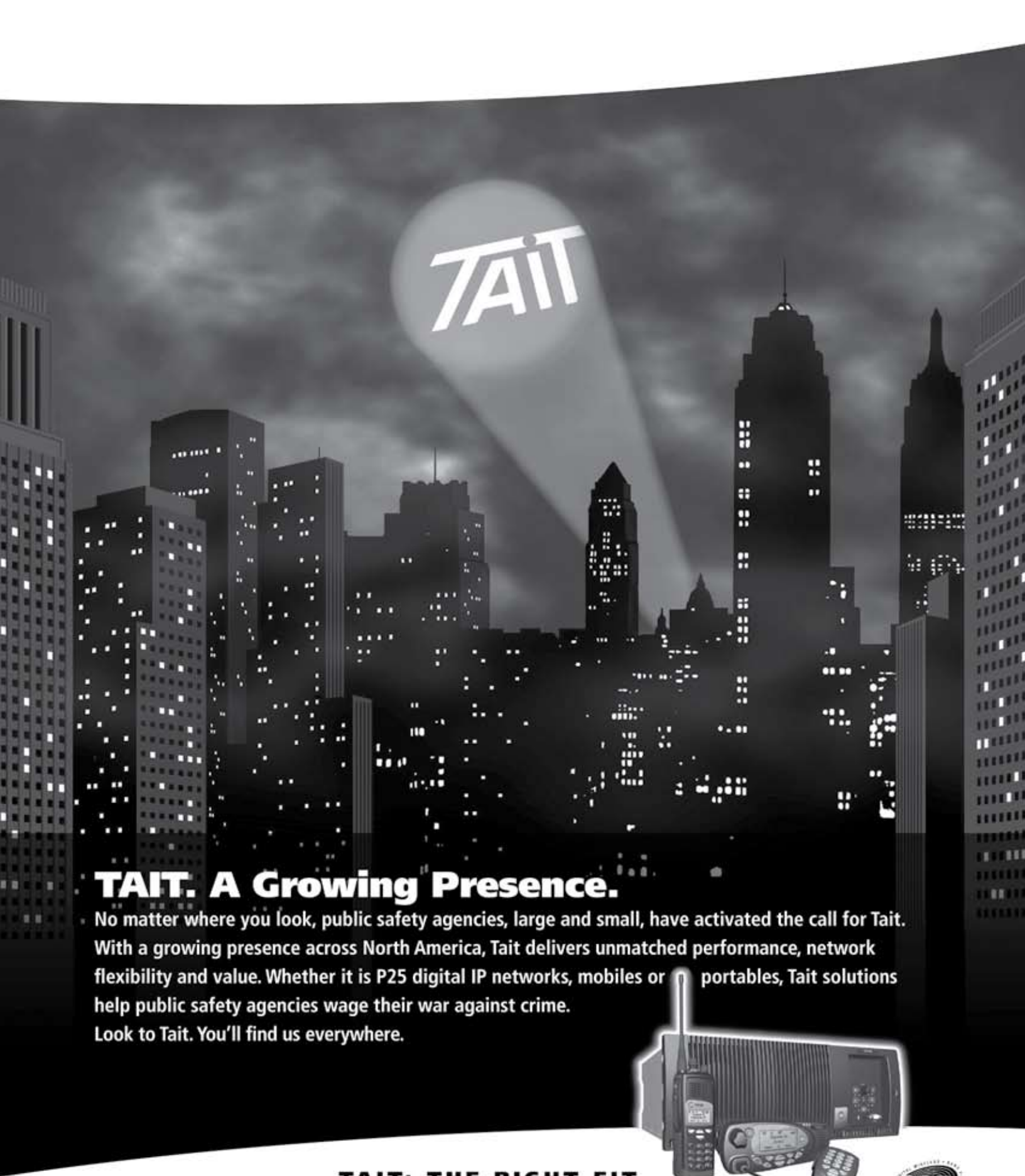

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A Message From Phil

Honoring the Past, Dedicated to the Future. Those words express a great deal of what the Radio Club of America is all about.

For those of us who attended last November's Awards Banquet and Technical Symposium, you know how well we honored both the present and the past. It was one of the most exciting Awards Banquets in recent memory. The award recipients as well as our candidates for Fellow all were exceptional and deserving individuals. There was a "buzz" in the air that day at the New York Athletic Club. Many thanks to all our members who worked hard putting that outstanding Radio Club event together.

What I'd really like to talk about today is our core value, "Dedicated to the Future." Having one of our scholarship recipients present at the banquet added to the evening's success. She is very bright and highly motivated, and she will one day soon be an excellent addition to our industry. We should be proud of the small part we played in her education.

The definitive word here is "small." We are a prestigious association with a long history of having successful and prominent members. We have a scholarship program that has been languishing when it should be thriving. Why are we all not more excited about this important core Radio Club of America value?

Our membership committee always is lamenting the fact our "aging" membership makes it difficult to grow our net numbers each year (we have close to 290 members who are 70 years or older). It got me thinking: If we have several members die each year and if I've been on the board for 10 years, then how come I can remember only one member who left a donation to the Radio Club in his or her will? That is a sad commentary on us and our scholarship program. If we as a group are "Dedicated to the Future," then what better way is there to do so than to support young people? We need to encourage them to follow in the footsteps of our many outstanding members who impacted the world with their achievements in wireless communications.

As we get older, there always is the danger that we will start looking more to the past than to the future. We are too vibrant an association to let that happen to us. We need to stay true to all our core values. The fact that the Radio Club transcends the past into the future is what makes us special as a group. We have a unique perspective when it comes to the wireless industry these past 99 years. We should strive to expand our impact on our industry and on the world for the next 99 years.

Please look inside your hearts (and your wallets) and take ownership of our scholarship program. Do not wait, if you're financially able, to start a scholarship fund in your name or to honor a respected colleague with one. The rest of us can open our checkbooks and make a donation to the fund in any amount that we can afford.

What do I think would be a good goal for us? How about if we increase our ability to give scholarships tenfold in the next 10 years? If we were able to achieve this, we would be making a significant impact in the lives of many more young people. The wireless industry has been generous to many of us. It's a good thing to be willing and able to give back!

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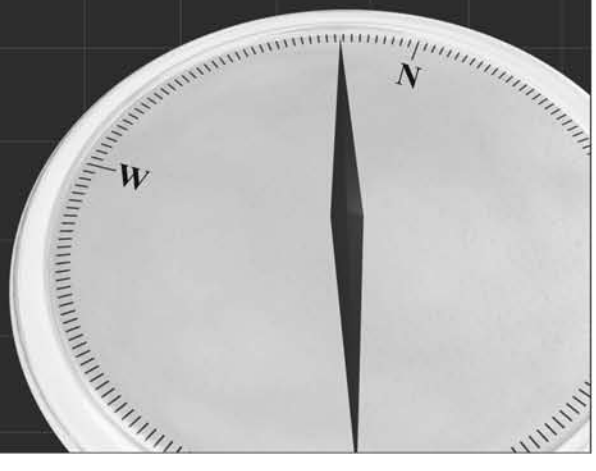

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Surviving And Thriving

Making Sure The Radio Club Of America Grows

We, the members of the Radio Club of America, are an eclectic group. We are engineers and scientists, marketers and businesspeople, lawyers and regulators, professionals and amateurs, lobbyists and educators, military people and administrators – and not infrequently, combinations of these. We share an interest in radio, its history, its evolution and its technology. And we support the objectives of our Club: the scholarships, the collegial and technical meetings and publications, the preservation of the history of radio, and the awards that recognize contributions to the advancement of radio.

Martin Cooper, Radio Club of America vice president, and Steve Largent, president and CEO of CTIA-The Wireless Association, exchanged awards at Wireless 2008 in Las Vegas earlier this year. Largent gave Cooper an award commemorating Cooper's contribution to creating the first handheld cellular phone and demonstrating it in New York City on April 3, 1973 – 35 years ago. Cooper presented a replica of that phone to Largent in appreciation of his leadership of the cellular industry.

That is what the Radio Club of America is today! We may not have started that way but, then, none of us was around 100 years ago when our club took root. We don't really know what the exact intentions of our founders were, and that really is not important. What is important is that our combined efforts are achieving the Club's objectives now, and that we continue doing that for the next century and beyond – that we keep the Club healthy and growing with the expanding radio community.

We are what we are! If there are members who are unhappy with this reality, they have remedies. They can join the group of selfless and hard-working volunteers who keep the Club machinery running. They can join the committee members and committee heads, directors and officers who help to perpetuate our Club and its functions. There are processes in place, democratic and disciplined, that provide for modifying the way we do things, for changing what we are to something different and, I hope, better.

With the publication of this opinion, we offer still another vehicle for change. Let us know your opinions, your suggestions and your criticisms. We can't promise to address them all but they will ALL get attention. We will air, in future opinions and in letters from the Club president, those matters that appear to be of interest to the membership.

We don't have to agree with each other, but it is important that we deal with each other respectfully, with appreciation for the efforts of our team and with tolerance for our imperfections. That positive energy is the one constant in the history of our Club – an energy that will keep the Club relevant and that will represent its evolving constituency. Only with mutual and sincere respect will our Club continue to flourish, to grow and to succeed.

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How Wireless Caught Up With and Surpassed Wire

By Ira Brodsky

Europe's digital mobile-phone standard is one of the greatest success stories in the history of technology. In just 15 years, the number of subscribers using the global system for mobile communications (GSM) standard soared to more than two billion. Roughly 100 years after British physicist William Ayrton predicted ubiquitous personal communications, it has come to pass. GSM drove down the cost of mobile phones and networks, and brought telephone service to the masses.

In developed countries, the mobile-phone market is nearly saturated. Looking ahead, most subscriber growth is expected in developing countries such as China, India, Brazil and Russia. Thanks mainly to GSM, the number of mobile-phone subscribers worldwide is expected to hit three billion by 2010.

GSM delivered more than basic telephone service. It transformed the mobile phone into a handheld computer capable of composing and receiving text messages; downloading and playing games, music, and even short videos; and accessing the Internet. The spectacular success of GSM, a second-generation (2G) mobile-phone technology, inspired the development of third-generation (3G) wireless technology based on code division multiple access (CDMA).

The GSM story began in 1982. The organization of European telecom operators, the Conference Européenne des Postes et Télécommuniçations (CEPT), allocated spectrum in the 900 MHz band for a pan-European mobile-phone standard originally dubbed "Groupe Spécial Mobile (GSM)." Though the goals included "high spectrum efficiency" and "state of the art" subscriber devices, the leap to digital radio technology was by no means a given.

Digital cellular has two key advantages: It enables wireless to exploit the ongoing price/performance gains of integrated circuits described by (Gordon) Moore's Law, yielding products that are at once more capable and more affordable. It also ensures more aggressive use of the radio spectrum as described by (Martin) Cooper's Law, which says that the number of conversations that can be conducted in the same area via radio-frequency communications doubles every 30 months.

WHERE IT ALL STARTED

Modern communications theory traces back to the pioneering work of Harry Nyquist, Ralph Hartley, Norbert Wiener, Stephen O. Rice and Claude Shannon. In the 1920s, Nyquist developed what is now known as the Nyquist sampling theorem. The sampling theorem says that to faithfully recreate a continuous (analog) signal, such as voice, using digital encoding, the analog signal must be sampled at a rate of at least twice its bandwidth. For example, an analog telephone channel usually occupies 4 kilohertz of bandwidth. The Nyquist theorem says it should be sampled at least 8,000 times per second. Nyquist's colleague at AT&T's Department of Development and Research (the precursor to Bell Laboratories), Ralph Hartley, authored the paper "*Transmission of Information*" for the *Bell System Technical Journal* in 1928.

Wiener's classic 1930 paper "*Extrapolation, Interpolation and Smoothing of Stationary Time Series with Engineering Applications*," also known as "Yellow Peril" due to the color of its cover and the subject's difficulty, discussed signal prediction and optimization. Wiener's most important contribution was showing how to optimize the filtering of signals out from noise and interfer-

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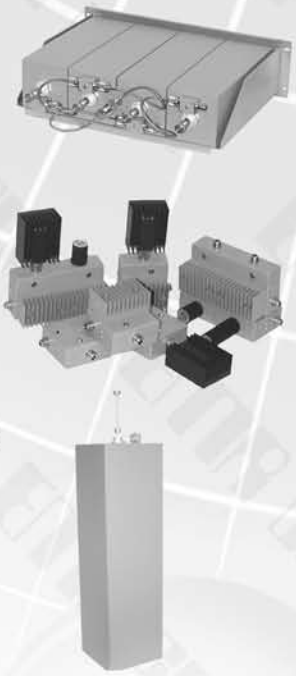

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ence. Wiener is best known as the father of cybernetics, the study of feedback and control in engineering, biology and society. Born in Columbia, Mo., in 1894, Wiener was a child prodigy, earning his B.A. in mathematics from Tufts College at the age of 14 and a Ph.D. from Harvard at age 18.

Wiener's parents did not tell him about his Jewish ancestry; he learned the truth by accident. However, his parents did help arrange his marriage to German immigrant Margaret Engemann, who became a fervent Nazi supporter during the 1930s. They remained married until Wiener's death in 1964.

Rice's 1944 paper "*Mathematical Analysis of Random Noise*" in the *Bell System Technical Journal* examined the mathematical probability of receiving a signal in the presence of noise.

Distantly related to Thomas Edison, Shannon is widely considered "the father of information theory." The impact of Shannon's work ranges from genetics to digital circuit design to telecommunications. Among Shannon's many classic papers, two became particularly influential. "*A Mathematical Theory of Communication*" was written for the *Bell System Technical Journal* in 1948. Using elements of probability theory developed by Wiener, this landmark article examines the most efficient ways of encoding information for transmission over a communications channel. It employs the concept of "information entropy" for measuring the uncertainty in a message. Shannon also examined the number of bits per second that can be accurately transmitted over a noisy or otherwise impaired communications channel. Shannon's 1949 paper "*Communication Theory of Secrecy Systems*" was a major contribution to the field of cryptography.

Shannon joined Bell Laboratories during World War II and, starting in 1956, served on the faculty of the Massachusetts Institute of Technology (MIT) for more than 20 years. In addition to his prodigious theoretical work, Shannon was interested in juggling, unicycling, chess and whimsical inventions. One such invention was the "Ultimate Machine," a featureless box with a

(Continued on p. 12)

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single switch on its side. When the switch was turned on, the lid opened and a mechanical hand reached around the side of the box to flip the switch off, disappearing back into the box as the lid shut. Shannon was a creative thinker with a sense of humor. He died in 2001 at the age of 84.

VITERBI'S CONTRIBUTIONS

The use of statistical communications theory to enhance performance is illustrated by the famous algorithm developed by Andrew Viterbi. The Viterbi algorithm helps decode faint signals received over noisy channels. It's implemented in virtually all cellphones and satellite receivers, and it has found use in applications including deep space communications, speech recognition and DNA sequence analysis.

Viterbi came to America at the age of four, when his parents decided it was time to flee Italy and Benito Mussolini's increasingly anti-Semitic policies. They arrived just in time; five days later, Germany invaded Poland to start World War II. Viterbi made up his mind at an early age that he wanted to attend nearby MIT and to become an engineer. After earning a B.S. and M.S. in Electrical Engineering, he accepted a position at the Jet Propulsion Laboratory (JPL) in Pasadena, Calif., where he worked on the problem of acquiring signals from distant spacecraft — work to be used in conjunction with the United States' first successful satellite, Explorer 1. It was an exciting time at JPL: Three months after Viterbi started, the Soviet Union launched Sputnik and the space race was on.

As with many great inventions, the Viterbi algorithm came somewhat unexpectedly. After obtaining his Ph.D., Viterbi accepted the position of assistant professor at the University of California, Los Angeles in 1963. He was looking for a simpler way to teach students about extracting digital signals from noise. With only that in mind, he developed a proof for the superiority of one error-correcting tool (convolutional codes) over another (block codes) for a given amount of decoding complexity. A colleague pointed out that his method could be used to improve the performance of actual communication systems — assuming the complex hardware needed could be built. At the time, it required racks of electronics; by the mid-1980s, the Viterbi algorithm could be readily implemented on a microchip.

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POINT/COUNTERPOINT

Project 25 Responds to GAO Criticisms
In April, the General Account Office (GAO) released a scathing report criticizing the Project 25 (P25) standards process, along with the Department of Homeland Security (DHS) Safecom program, which has a goal of furthering public-safety communications interoperability. In this interview with *MissionCritical Communications*, Craig Jorgensen, co-chair of the P25 steering committee, responds to the GAO's report findings. *Photo courtesy EFJohnson.*
Full Story

TOP NEWS

Bay Area Plans Regional Network
Bay Area officials are putting $32.5 million in Department of Homeland Security (DHS) funding to use for a new communications network that will use 700 MHz and VHF spectrum. *Photo courtesy San Francisco CVB.*
Full Story

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www.fcca-usa.org
September 30–October 3: 20th Annual APCO Canada 2007, Calgary, Alberta, Canada. APCO Canada, ConventionALL Management: 403-244-7821
www.apco.ca
October 13–17: 114th Annual IACP Conference, New Orleans. International Association of Chiefs of Police: Susan Brown, 703-836-6767, ext. 271
www.theiacp.org
October 25–26: Enterprise Wireless 2007, San Antonio. E Comm International: Elaine Walsh, 520-620-0063
www.enterprisewireless.org

More Events

The Viterbi algorithm works with any sequence of symbols that follow what is called the "Markov model." This is any sequence in which the probability of the next state depends only on the present state. The game of baseball can be used as an example. The current state may be defined in terms of the runners on base and the number of outs. There are only certain possible next states, and there are different probabilities associated with each. The same thing applies to data that has been run through a convolutional coder. The Viterbi algorithm is a computationally efficient way of identifying the most likely sequence. It gives a receiver trying to decode a weak signal a boost. It's important to mobile phones because mobile signals constantly fluctuate between being weak and strong.

THE DEVELOPMENT OF AIR INTERFACES

By the mid-1980s, the analog cellular-telephone market was growing, with the United States firmly in the lead. By 1987, laboratory tests conducted in Europe confirmed that digital cellular offered significant advantages over analog cellular and was technically feasible. CEPT members agreed on the key technical parameters of GSM. Specifically, narrowband time division multiple access (TDMA) was selected as the GSM radio technology or "air interface."

TDMA was a reasonable choice for GSM because computers and telephone networks had been using time division multiplexing for years. TDMA also gained popularity in satellite applications during the 1970s. Using voice encoders (vocoders) running 13,000 bits per second, GSM promised about three times the capacity of analog cellular networks.

A high-quality GSM standard was achieved in an acceptable time frame thanks to committee leaders adept at cutting red tape. For example, many delegates lacked the formal authority to make decisions. If delegates waited for guidance from their national administrations, the standard could have been delayed by years. The committee leaders pushed delegates to make tentative decisions, knowing that the longer each decision stood without challenge the more it would harden like concrete.

Though GSM was developed by committees, there were still individual heroes. For example, Stephen Temple of the U.K. Department of Trade and Industry suggested that operators sign a "Memorandum of Understanding" (MoU) underscoring their commitment to implement GSM by 1991.

GSM turned the corner when 14 operators in 13 countries signed the MoU, assuring manufacturers there would be a market for GSM networks and phones. While anyone could produce a paper standard, GSM had firm business commitments.

There were technology innovators, too. Dr. Jan Uddenfeldt of L.M. Ericsson received the Edward Rhein Prize, one of Germany's highest scientific awards, for his contributions to the development of GSM technology. Uddenfeldt's team recognized that mobile TDMA required solving the "delay spread" problem. When a digital transmitter sends information, it produces a waveform (also known as a "symbol") containing one or more bits. The delay spread is the time period over which an individual symbol is received. It becomes spread out in the mobile environment because signals take different paths of different lengths — causing different delays.

Uddenfeldt's group found the delay spread was between 10 microseconds and 15 microseconds — rather long, considering that each symbol was only about 4 microseconds in duration. It meant that, at any given moment, the receiver is likely to see multiple symbols. Uddenfeldt led development of the GSM adaptive equalizer, a device that tests the channel and then adjusts the timing of received waveforms to reduce symbol overlap.

By 1988, there were 10 signed contracts for the construction of GSM networks. Three years later, trial networks were up and running. Though GSM was not yet in commercial operation, the industry was already beginning to think about the next step in wireless evolution (third generation or "3G" wireless).

A number of GSM "firsts" were achieved in 1992. The first GSM network launched commercial service. The first handheld GSM phones were introduced. And the first GSM international roaming agreement was signed. Given growing interest in GSM beyond Europe, the acronym was preserved but the words were changed from "groupe spécial mobile" to "global system for mobile communications."

GSM experienced its share of birthing pains. Because it required new networks built from scratch, there were huge coverage gaps; GSM phones worked in some locations but not in others. Audio quality was sometimes poor, and acceptable at best. However, the biggest

(Continued on p. 16)

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problems were shortages and high prices of mobile terminals. Some wondered if GSM stood for "God send mobiles." All of the problems were gradually solved. One year after launch, GSM reached one million subscribers. Two years later, GSM boasted 10 million subscribers. After five years, GSM had 70 million subscribers in 100 countries. From that point on, GSM experienced explosive growth, reaching the 500 million subscriber mark in 2001. By 1998, Nokia had become the world's leading supplier of mobile handsets.

THE U.S. MOBILE PHONE INDUSTRY

The U.S. mobile phone industry, meanwhile, made the mistake of being too cautious. Though the U.S.'s analog standard performed poorly by today's standards — the service was plagued by dropped calls and noise — it worked from coast to coast, and the number of subscribers continued to grow. Performance was slowly improving, and operators feared that upgrading to a new technology might disrupt business. New spectrum would not become available for years. The near-term plan was to replace analog technology with digital technology in the existing spectrum, but as slowly and carefully as possible.

Networks in the largest cities were getting crowded. In late 1988, the Cellular Telecommunications Industry Association (CTIA) published a series of digital cellular recommendations. The goal was to choose a digital technology that could deliver 10 times the capacity of analog cellular with minimal disruption.

In early 1989, the Telecommunications Industry Association (TIA) selected a narrowband TDMA technology dubbed digital AMPS (D-AMPS). D-AMPS promised a three-fold increase in capacity, though that assumed vocoders running just 8,000 bps. Engineers were optimistic that a half-rate vocoder (4,000 bps) with acceptable audio quality could be developed that would double capacity again, providing a cumulative six-fold increase over analog. It wasn't the 10-fold increase that had been sought, but it was a significant improvement.

THE RISE OF QUALCOMM

Around the same time, a small company based in San Diego, Calif., proposed a radically different digital cellular technology: code division multiple access (CDMA). It was successfully using CDMA in satellite applications. One of its engineers, Klein Gilhousen, realized that, in theory, CDMA could multiply the capacity of cellular-telephone networks. Assuming specific technical challenges could be solved, CDMA would allow every channel to be reused in every cell. (In Douglas Ring's original cellular scheme, described in a Bell Labs internal memorandum, a given frequency could only be used in one out of every seven cells.) On paper, that suggested CDMA would deliver up to a 40-fold capacity increase over analog cellular (assuming half-rate vocoders).

It was a bold proposal. Here was a small company telling the U.S. cellular telephone industry that the D-AMPS technology it just selected was too little, too late. But there was also something compelling about CDMA. If it worked, it would leapfrog Europe's GSM technology.

Given the small company's engineering pedigree, it was a good bet. Its roots trace back to Linkabit, a company founded in 1968 by a trio of modern communications heroes: Irwin Jacobs, the former MIT professor and University of California at San Diego (UCSD) engineering professor for whom the School of Engineering is named; Andrew Viterbi, for whom the University of Southern California (USC) School of Engineering is named; and Leonard Kleinrock, the University of California at Los Angeles (UCLA) professor who pioneered packet switching and ARPANET, the predecessor to the Internet. Jacobs and Viterbi left Linkabit after it was purchased by M/A-COM and founded their new company in 1985. They named it Qualcomm.

Rebuffed by the CTIA, Qualcomm took its CDMA proposal directly to wireless operators. William C.Y. Lee at PacTel Cellular was intrigued. PacTel operated a cellular network in Los Angeles and had one major reservation about D-AMPS: There was a real risk — given the subscriber growth rate — that by the time the upgrade was completed, the company would be facing another capacity crisis.

Qualcomm set out to demonstrate CDMA in San Diego. The field test proved that CDMA works and could increase capacity. However, it also revealed that the projected 40-fold capacity gain over analog was unrealistic. Qualcomm revised its CDMA capacity claim to between 10 and 20 times analog, assuming use of 8,000 bps vocoders.

Qualcomm's CDMA concept evoked strong reactions: People either loved or hated the idea. About half of U.S. cellular operators in major cities were

so impressed that they decided to wait for CDMA. South Korea embraced the technology, sensing an opportunity to develop, manufacture and sell CDMA equipment worldwide. Others were extremely skeptical of Qualcomm's claims. Some commentators accused Qualcomm of fraud.

One professor stated that CDMA was an attempt to "violate the laws of physics," that Qualcomm's lawyers prevented him from publishing papers in respected engineering journals debunking CDMA, and that the first commercial CDMA network was a fake. A British consultant compared the CDMA industry to a British woman who claimed to have given birth to 17 rabbits.

THE RISE OF CDMA

The fledgling CDMA industry received a boost in 1993 when the Federal Communications Commission allocated 160 megahertz in the 1,900 MHz band for the new Personal Communications Service (PCS). Though the FCC did not mandate a specific technology, it did stipulate that PCS operators must use digital rather than analog technology. A number of PCS operators — most notably PrimeCo and Sprint — chose CDMA as their technology.

Unlike existing cellular telephone operators, the new PCS operators did not have to worry about migrating current subscribers from analog to digital. PCS operators quickly realized digital gave them advantages and they exploited them to the hilt. With the establishment of PCS, the U.S. mobile phone market was transformed from a duopoly into a vibrant market with five or more competing operators in each major city.

By the time CDMA service launched in Hong Kong, South Korea, and the United States, Europe's GSM standard had acquired an insurmountable lead in the global market. However, European vendors and policy makers worried that CDMA might eclipse GSM in capacity and emerging data applications. After considering several 3G options, including more advanced versions of the TDMA technology upon which GSM was based, Europe's GSM industry selected wideband CDMA (WCDMA) as its 3G standard.

3G wireless technology is more than just the next highest rung on the performance ladder. When the mobile-phone industry upgraded to digital cellular technology, it inspired visions of advanced products and multimedia applications. However, bringing that vision to life would require greater capacity and faster transmission speeds. Though 3G wireless services were launched in the late 1990s, they did not achieve market traction until 2007.

Nothing illustrates the mobile-phone industry's phenomenal success better than the growth in annual handset shipments. An estimated one billion handsets (GSM and CDMA) were shipped in 2006. That was about four times the number of personal computers shipped in the same period.

Digital wireless technology has spread beyond mobile phones. Cordless phones, wireless local area networks (WLANs), the Global Positioning System (GPS) and high-definition television (HDTV) also use digital wireless technology.

THE FUTURE

The astounding success of digital wireless technology raises questions about the sources of future innovation. Has technology matured to the point that further progress can only be achieved through large-scale collaboration or is there still a place for "skunk works" and even the occasional lone inventor? How important are standards — and should governments mandate compliance?

The lesson of history is that both proprietary solutions and standards play important roles. Standards help mature technologies reach the largest possible market. Proprietary solutions provide an outlet for ideas "just crazy enough to work."

Ira Brodsky was president of Datacomm Research for 19 years. He has been a regular contributor to such industry publications as *Network World*, *Wireless Review*, *Telephony* and *America's Network*. He is a graduate of Northwestern University. This article was adapted from his third book, "*The History of Wireless: How Creative Minds Produced Technology for the Masses*." He currently is writing a history of medical electronics.

photo
center
spread

to come - my scanner is not large enough

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Cronkite, Rooney Wow The Crowd With Tales Of The CBS Newsroom

By Don Bishop (L) (W0WO)

The Radio Club of America held its 98th anniversary banquet at the New York Athletic Club in New York City Nov. 16, 2007. The banquet featured two honorary Radio Club members who are celebrities: former "CBS Evening News" anchor Walter Cronkite (KB2GSD) and Andy Rooney from the CBS News program "60 Minutes." Their presence boosted attendance to include 316 Radio Club members and guests.

The Radio Club designated Cronkite an honorary member in July 2007, and Rooney was named an honorary member the afternoon of the banquet. The two attended the latter part of a cocktail reception that preceded the dinner, with Cronkite greeting members and guests in a receiving line, and Rooney sitting at a small table where the occasional visitor might approach to offer greetings. The focus was on Cronkite, who enjoyed shaking hands with his admirers and exchanging a few words with them.

During the reception, American Radio Relay League (ARRL) Hudson Division Director Frank Fallon (N2FF) presented Cronkite with the ARRL President's Award. Created in 2003, the award recognizes an ARRL member who has shown long-term dedication to the goals and objectives of ARRL and amateur radio, and who has "gone the extra mile to support individual League programs and goals," a statement from ARRL reads. Cronkite was chosen to receive the award "in recognition of his outstanding support of the ARRL and amateur radio by narrating the videos 'Amateur Radio Today' and 'The ARRL Goes to Washington,'" ARRL said.

Jerry Agliata (F) (W2GLA) from White Plains, N.Y., received ARRL's President's Award in 2004.

Shortly before 7 p.m., assembled diners were ushered into the banquet hall where dinner service began. Mal Gurian, president *emeritus* of the Radio Club of America and the banquet chairman, introduced Andy Rooney.

ABOUT ANDY ROONEY

Since 1978, Rooney has delivered more than 800 essays on the CBS network's Sunday evening news magazine program "60 Minutes." He joined CBS in 1949 as a writer for "Arthur Godfrey's Talent Scouts." He also wrote for CBS News public-affairs broadcasts. In the 1960s, as a writer and producer, he collaborated with CBS News correspondent Harry Reasoner on CBS news specials. He was a producer for Reasoner during the first few seasons of "60 Minutes."

"It's not clear whether I'm supposed to talk about radio, television or Walter Cronkite," Rooney said. "I have a lot to say about all of them. I don't know how you feel about Walter, but my attitude is not the same as most Americans. I don't revere him. I don't honor him. I just like him a lot."

Rooney delivered a speech in a style familiar to viewers of his segment on "60 Minutes," recounting his experience as an Army journalist working for "*Stars and Stripes*" during World War II, where he met Cronkite and many of those who later became his colleagues at CBS News.

"After the war, I spent a year writing a book about '*Stars and Stripes*' with Bud Hutton. We sold it to MGM for $55,000. We were out of the Army at $50 a month. We didn't know about agents then; we had an agent who took half," Rooney added.

Honorary Radio Club member Walter Cronkite (KB2GSD) received the ARRL President's Award from ARRL Hudson Division Director Frank Fallon (N2FF) at the reception prior to the banquet.

"I'm honored to be here, and honored to come and help honor my friend Walter Cronkite," Rooney said during his time at the podium.

"Thank you for accepting me as one of you and for your accomplishments in the field of communications," Cronkite said as he accepted the Armstrong Medal from Richard Somers (F) (W6NSV).

Having some difficulty selling his work as a freelancer, Rooney came to New York City and went to see Ed Murrow, one of the journalists he met during the war and who for a time was a vice president of the network.

"I never had as high regard for Murrow as a lot of people because he didn't give me a job," Rooney joked. "I met Arthur Godfrey on the elevator and told him I was looking for work as a writer. He told me to come in the next day and see his assistant. He gave me a job. We all have something in our past we want to hide, but I wrote for Godfrey for five years."

Rooney explained how he went on to write and host essays for CBS News, several during prime time and also his long-running "A Few Minutes with Andy Rooney" as part of "60 Minutes." He remembered one of his essays from 1976, "Mr. Rooney Goes to Dinner."

"I ate in the best restaurants all around the country, all on CBS. You may not think I'm very smart, but how many of you have pulled off something like that?" he asked.

Rooney said he has "the best job in TV. I work with just two people, Susan Bieber and Keith Kulin. Keith was the best cameraman CBS had for many years. He tired of the travel, so he learned how to edit, and now he's my friend and cameraman and editor. Susan does everything else. It's just the three of us, and we're happy in our work. No one bothers us."

"I'm honored to be here, and honored to come and help honor my friend Walter Cronkite," Rooney concluded.

Radio Club President Phil Casciano then addressed the banquet, detailing the Club's scholarship grants for the year; recognizing scholarship recipient Erica Emmich, who was in the audience; and announcing the 2007 election results. He also announced that Arch Doty Jr. (W7ACD) had presented the Radio Club of America "Centenarian Award" to Harry Mills (K4HU) on Sept. 19, 2007, at Mills' home in Hendersonville, N.C., on the occasion of Mills' 100th birthday anniversary.

MORE AWARDS

Richard Somers (F) (W6NSV) then presented the Armstrong Medal to Cronkite.

(Continued on p. 22)

"As his significant contribution, our award recipient has used the medium of television to keep the American public informed of the news in a manner never before imagined," Somers said. He called Cronkite "America's best-known and most respected broadcast journalist," recalling his 19 years as anchor and managing editor of TV's first half-hour nightly news broadcast, "CBS Evening News."

"Mr. Cronkite was known as 'Old Iron Pants' because of his unflappability under pressure," Somers added. "He was named the most influential person in broadcasting, and was selected as the most trusted and objective newscaster in America. After stepping down as anchorman of his nightly news broadcast, Mr. Cronkite continued as a special correspondent for programs such as 'CBS Morning News,' 'CBS Reports' and 'Walter Cronkite at Large.' He was involved in the production of 100 hours of documentaries for the Discovery Channel, PBS and other networks."

Somers concluded, "Walter, it is a great honor to present you with our highest award, the Armstrong Medal. Thank you for your contribution to the radio art, and for the honest and integrity in the way you kept us informed on important issues for so many years. You really are a living legend."

Cronkite stepped to the podium and said, "Thank you for accepting me as one of you and for your accomplishments in the field of communications."

Radio Club Vice President Marty Cooper presented a second Armstrong Medal to John S. "Jack" Belrose, Ph.D. (F) (VE2CV). Cooper cited Belrose's 55 years of service at the Communications Research Centre Canada in Ottawa, where he rose to become director of the Radiosciences Branch. "He has participated in numerous Canadian and international standards and technical groups. He has written more than 125 articles and papers on the subject of radioscience and antennas and propagation," Cooper detailed. "He wrote five papers concerned with the history of wireless communications. They are extraordinarily detailed and create an understanding of how our industry was created. For your lifetime of important communications, it is my pleasure to present you with the Armstrong Medal."

Accepting the Armstrong Medal from Radio Club Vice President Marty Cooper (F) *(left)*, Dr. John S. 'Jack' Belrose (VE2CV) said, "When I look at it, I will think perhaps I did contribute something to the Book of Knowledge."

Dr. Ted Rappaport (F) (N9NB) *(left)* presented the Sarnoff Citation to Dr. Dennis Bodson (L) P.E. (W4PWF), saying "Dennis has dedicated his career to standardizing the electronics industry."

Alfred H. Grebe Jr. (L) *(left)* presented the award named for his father to Louis J. Meyer, P.E. "I feel a kinship with your father," Meyer said upon receiving the Alfred H. Grebe Memorial Award, given for excellence in manufacturing.

Accepting the medal, Belrose said, "I am a graduate of Cambridge University…My mentor, the late John Ashford Radcliff, the head of the radio group at Cavendish Laboratories when I was studying for the Ph.D., said in pep talks to students that a good thesis — and theses written by Cambridge graduates were good — contributes one line to the Book of Knowledge, and the average thesis contributes nothing. Thank you for giving me the Armstrong Medal. When I look at it, I will think perhaps I did contribute something, rather than nothing, to the Book of Knowledge."

Belrose was elected as a director of the Radio Club in the 2007 election, the first member from Canada to be elected to the organization's leadership.

Dr. Ted Rappaport (F) (N9NB) then presented the Sarnoff Citation to Dennis Bodson, Ph.D., P.E. (W4PWF). "Dennis has dedicated his career to standardizing the electronics industry," Rappaport said. "His efforts in standards, which were required to allow components made by all manufacturers to interact with one another, were recognized by the IEEE with the Charles Proteus Steinmetz Award."

Receiving the award, Bodson said, "As I look back through my career to identify highlights as anyone might do with their own careers, it is never a singular thing one sees. There are many others who help you to achieve. To those, I also thank them. I also have a special thanks for my family and to my wife Rita because, without their cooperation and support, I wouldn't have been able to accomplish much of anything. Thank you, Rita, and thank you to the Radio Club of America."

Alfred H. Grebe Jr. (F) presented the Alfred H. Grebe Memorial Award, named in his father's honor. He said his father "was recognized for achieving excellence in the design and manufacture of electronic components and equipment. His Grebe radios are prized by collectors today. Tonight's recipient, Louis J. Meyer, P.E., has dedicated much of his professional career to the design of RF filters and antennas. The world is blessed with people like Louis Meyer, whose designs are manufactured in the United States, Mexico, China, Brazil and the Czech Republic."

(Continued on p. 24)

2007 Fellows
(L-R) Frederick M. Baumgartner, Sandra L. Black, John A. Armstrong Jr., Russell H. Fox, Morgan E. O'Brien, James W. Harris, Elizabeth R. Sachs, Donald W. Pfohl, William F. Roselle Jr.
Not included in photo: William F. Baker, James W. Hart, Joseph J. Schroeder Jr., George W. Hoeltje.

Receiving the award, Meyer told Grebe, "I feel a kinship with your father with filters and antennas that keep police and fire communications services operating 100 percent. My team has worked with numerous sites to remove congestion, like his father came up with the idea of binocular coils to reduce interference so weak signals could be heard among strong signals. It has been a pleasure to see these things work for years and years."

He continued, "Antennas often are placed where they are difficult to service, and they are exposed to everything Mother Nature can throw at them. Excellence in design and manufacturing is paramount in getting them to fulfill their intended purpose. Thank you to Al and the committee for nominating me for this, and I appreciate it very much."

Vivian Carr, chairman of the Fellows for the Awards Committee, read the names and citations for the new Fellows who were not present at the dinner: William F. Baker (W1BKR); James Hart (W0NFD); George Hoeltje (K9GWH); and Joe Schroeder (W9JUV). She then read the names and citations of the new Fellows who were present, inviting them to the podium to be recognized: John Armstrong Jr.; Fred Baumgartner (KG0KI); Sandra Black; Russell Fox, Esq.; James W. Harris; Donald W. Pfohl (W7LPA); William Roselle (W7SFE); and Liz Sachs, Esq.

THE FELLOWS' RESPONSE

Carr then introduced one more new Radio Club Fellow, Morgan O'Brien, who delivered the "Response for Fellows."

"In reviewing the history of the RCA, I was reminded again how much it is the scientists and brilliant engineers for whom the rest of us have been able to enjoy such tremendous and satisfying careers," O'Brien said. "Speaking as one of the several lawyers made a Fellow tonight, I would be the first to admit lawyers play supporting roles in the drama of telecommunications. It has always been in my view a beautiful symbiotic relationship in which the scientific and technical know-how of so many brilliant people in this room and many represented by the RCA, the relationship between those brilliant minds and those of us in supporting professions experience this miracle we enjoy every day."

In cooperation with the National Public Safety

(Continued on p. 26)

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Telecommunications Council, the Radio Club offers its banquet as a venue for the presentation of a NPSTC award, named in honor of the late Richard DeMello (F) (W8JIK) who was a founder of NPSTC, a frequency coordinator for the Forestry Conservation Communications Association, 700 MHz Regional Planning Committee chair for Michigan Region 21 and a life member of APCO International.

The 2007 recipient was John S. Powell (F) (K6UCB). "I cannot think of another person who has worked harder and longer on behalf of public safety" commented Harlin McEwen (F) regarding Powell, a retired director of communications for UC Berkeley, a past president of APCO International and chairman of the Interoperability Committee for NPSTC.

"I worked with John for many years, and I believe he is worthy of this award conveyed on behalf of NPSTC and RCA. I am pleased to present this award to John Powell," McEwen added.

Receiving the award, Powell said, "I notice there are many young people here, including my son and daughter. At some time in your life, you will be challenged by an idea or cause that will benefit your fellow man for many generations to come. It will grab you and say, 'Get involved.' When you meet that challenge, grasp it with both arms and devote the time to finding the best solution possible."

He added, "If you are successful, you will be rewarded by friends and family. When the last chapter is written, although the majority of people whose lives you touched won't know you existed, you will know you made a difference, and in the end, that's what counts. Thank you Harlin, NPSTC and RCA."

With that, the toastmaster for the banquet, Robert H. Schwaninger Jr., thanked the members and guests for their attention and bid everyone a good evening.

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E911 Funding On The Hot Seat

Who would have thought funding enhanced 911 initiatives would be a difficult task, but apparently it is, even under current world and weather conditions.

Recently, 911 officials representing counties throughout Ohio along with members of the 9-1-1 Industry Alliance and Ohio State Reps. Larry Flowers and Steven Driehaus detailed the findings of a national report on the health of 911, noting a "critical lack of funding" is compromising the safety of Ohio residents.

In March 2007, the Alliance hired ColoComm Group LLC to analyze the state of 911 services in the United States and to conduct an independent evaluation of the state of 911-related technology, governance and funding issues. ColoComm's team of experts includes Dale Hatfield (F), former chief of the Office of Engineering and Technology at the Federal Communications Commission as well as Phil Weiser and Brad Bernthal, both professors in the telecommunications practice at the University of Colorado. These authors were encouraged to survey a broad geographic cross-section of public safety agencies.

"The nation's 911 system as we know it is experiencing a massive funding shortfall," says Hatfield. "Public policymakers must develop a plan to protect and augment 911 funding sources to ensure that 911 can continue to fulfill its critical mission of saving lives."

The report says 911 offerings "must be better aligned with the expectations and demands of consumers," noting, for example, current 911 systems are not capable of handling the latest technologies consumers enjoy on their wireless devices, such as text messaging and photo sharing. As such, students at Virginia Tech assumed – wrongly – last year that they could text-message their local public safety answering point (PSAP) during the mass shooting. A next-generation 911 system would enable such technologies to be used and could also facilitate greater cooperation among PSAPs, including load sharing, Hatfield says.

Addressing both funding and governance concerns, the report said that officials must ensure that funds collected for 911 services are not "raided" for other purposes. "Clearly this raiding has got to stop," Hatfield adds. "I mean, that is just ridiculous, given the need here. Moreover, we must have a stable source, a predictable source of funding."

The finished report says a critical lack of funding has resulted in a gap between the types of communications devices people use and those able to fully benefit from access to 911 services. In Ohio, funding issues have hindered the state from completing the transition to Phase II wireless – the ability to automatically pinpoint the location of a wireless 911 caller – thus preventing those upgrades needed to support newer communications technologies and more robust life-saving applications.

"As we explain, the current communications landscape is a far cry from the one for which the current 911 system was engineered," ColoComm says. "Accordingly, we believe changes in technology, governance, and funding procedures are necessary in order to meet citizen expectations as well as public-safety and homeland-security needs."

"The health of Ohio's 911 system is already marginal and, without funding, experts say it will be terminal," said Rep. Flowers, who along with Rep. Driehaus is introducing House Bill 550 to continue funding for wireless 911. "Currently, if you call 911 from a cellphone, the technology needed to find you may not be in place. If funding is not secured, how many Ohioans are being put at risk?" The proposed legislation would seek to extend the "sunset" provision for an additional three years. If House Bill 550 is not passed, Ohio's wireless E911 funding source will expire Dec. 31, making it more difficult for emergency responders to locate those in peril in an emergency. Currently, Ohio is one of the few states in the nation that does not have a permanent funding method to handle the public's wireless calls to 911.

"If we don't have a steady, dependable funding stream in place for 911, we certainly can't address today's wireless 911 challenges, let alone implement a long-term plan to support 911 for emerging technologies like text messaging," says Bill Hinkle, chairman of Ohio's 911 Council and director of the Hamilton County Department of Communications in Cincinnati. "By securing funding now, Ohio has the opportunity to be the bellwether for other states to follow when assessing the health of their 911 system."

Some Ohio lawmakers, worried about looking like they support new taxes, have indicated they might wait until after this November's election to address E911, Hinkle says, adding, "No [PSAPs are] going to do anything in Ohio because of the uncertainty of funding. As far as I'm concerned, we're playing Russian roulette...with the public's safety."

In a recent letter to Renee J. Jenkins, secretary for the Public Utilities Commission of Ohio (PUCO), Jeff Robertson, executive director for the Alexandria, Va.-based 9-1-1 Industry Alliance, wrote, "Even though wireless phone technology is now over 20 years old, Ohio is one of only a few states that have no method for helping 911 centers across their state deal with and fund these calls, which represent over 55 percent of all requests from the public. This is also an issue the incumbent local exchange carriers (including Cincinnati Bell and AT&T) have delayed for years and has hurt Ohio's public safety ability. A competitive next generation environment in Ohio can help with new forms of technology before consumers adopt them."

Robertson says his group plans to meet with state legislators around the country to discuss the issues raised in the report.

MORE DETAILS OF THE NATIONAL REPORT

In its short summary of findings, ColoComm pointed to four things state and local governments need to know about E911:

>> Consumer technology has surpassed that of the current 911 system.

>> 911 funding is collected from consumers for 911 purposes, yet too often such funds are diverted to other general purpose uses by the government.

>>The sufficiency of today's 911 funding models is uncertain despite heightened public need for more advanced 911 capabilities.

>>State leadership in legislating, budgeting, planning and building a next-generation network is required.

"Today's 911 systems cannot guarantee that consumers will be located in an emergency and many of the dispatch centers across the country still do not have the technology to know a caller's location when they call, even though wireless handset and wireless carriers have already installed much of this costly technology," the report says. "If the primary form of communication to 911 was going to continue to be based on landline-based telephones and payphones, there would be no need for change. The 40-year-old network would be able to adequately and reliably handle these requests as it has for decades. Notably, however, the forefathers of the 911 network never expected a mobile phone, vehicles (*i.e.*, OnStar), mobile phone video cameras or automated computer alarm systems to have the ability to communicate over the 911 network."

States would not be required to pay exorbitant fees for new E911 technology because off-the-shelf commercial technology is available to handle these new forms of communication, eliminating the need for new technology to be developed, it adds. "It is our recommendation that state governments put plans in place to transition from the traditional analog network to a digital (preferably IP) network to handle these new forms of communication," ColoComm says." Additionally, we recommend that a capital savings campaign be created at the state level to fund the upgrade."

Regarding E911 funding, the analysts also recommend that, as part of each state agency's role, an audit process be put in place "to ensure the funds are being used solely to cover what the public is paying for: 911. If not used for 911, a public record should be available to provide an accounting of why 911 funds were diverted and what the money was used for."

ColoComm recommends that a single state agency handle this process rather than parsing it out to "as many as 200 separate entities in a state: "As counties compete today for limited funding, 'bigger-picture' planning that is necessary for major upgrades to a state's entire infrastructure is often overlooked. In many cases, only more densely populated counties have the latest technologies, a dynamic which fails to serve the rest of the county's citizens. Often, the citizens of

The Radio Club of America, Inc.

TREASURER'S REPORT FOR FISCAL YEAR 2006

(October 1, 2006 – September 30, 2007)

CHANGES IN UNRESTRICTED NET ASSETS	
REVENUES & GAINS	
Dues Collected & Applied	$36,245
Other Member Fees & Miscellaneous Income	3,425
Advertising Sales	21,162
Banquet (net)	2,555
Interest on General Funds	15,895
Dividend / Capital Gain Income	8,685
Contributions - general	2,725
- SW Section - members & sponsors	13,258
- Member Donations - SW Section	5,593
Net Realized Gain (Loss) on Investments	23
Net Unrealized Gain (Loss) on Investments	3,185
TOTAL UNRESTRICTED REVENUES & GAINS	$112,751
NET ASSETS RELEASED FROM RESTRICTIONS	$20,458
TOTAL UNRESTRICTED REVENUES, GAINS & OTHER SUPPORT	$133,209
EXPENSES	
Program Services	
Management & Consultant Fees	$40,783
Meeting Expense	16,575
Pins & Plaques	1,339
Postage	1,542
Printing & Stationery	650
Trade Show & Web Site Expense	2,236
Publications Printing	8,437
Publications Mailing Expense	2,262
Miscellaneous Program Expense	
Grants	18,000
TOTAL PROGRAM SERVICES	$91,824
Management and General Services	
Ballot Expense	($250)
Insurance	1,859
Legal & Accounting	2,400
Office Supplies	276
Telephone	606
Miscellaneous G&A Expense	1,537
TOTAL M'GT & GEN'L SVCES	$6,428
Transfer Interest & Dividend Income to Temporarily Restricted Funds	$27,502
TOTAL EXPENSES	$125,754
INCREASE (DECREASE) IN UNRESTRICTED NET ASSETS	$7,455
CHANGES IN TEMPORARILY RESTRICTED NET ASSETS	
Grants and Contributions	$34,929
Transfers from Unrestricted Funds	27,502
Restrictions Satisfied by Payments (Scholarships Awarded & Transfer to General Fund)	(20,458)
INCREASE IN TEMPORARILY RESTRICTED NET ASSETS	$41,973
Increase in Net Assets	$49,428
Net Assets at Beginning of Year	493,097
NET ASSETS AT END OF YEAR	$542,525

BALANCE SHEET	
ASSETS	
Current Assets	
Cash-Operating	$83,790
Cash-Banquet & Section	35,365
Prepaid Banquet & Operating Expenses	5,960
TOTAL CURRENT ASSETS	$125,115
Other Assets	
Investments	$443,025
Inventory	3,341
TOTAL OTHER ASSETS	$446,366
TOTAL ASSETS	$571,481
LIABILITIES	
Current and Long Term Liabilities	
Accounts Payable	
Prepaid Dues & Advertising - Current	$17,391
Prepaid Dues - Long Term	11,565
TOTAL LIABILITIES	$28,956
Net Assets	
Unrestricted	($8,209)
Restricted	550,734
TOTAL NET ASSETS	$542,525
TOTAL LIABILITIES AND NET ASSETS	$571,481

SCHOLARSHIPS AND GRANTS FUNDS

	Capital	Available for Distribution	Totals
Opening Balance October 1, 2006	$394,792	$17,908	$412,700
Contributions & Additions	33,739		33,739
Interest Earned		19,028	19,028
Scholarships & Grants Awarded		(17,500)	(17,500)
Ending Balance September 30, 2007	$428,531	$19,435	$447,966

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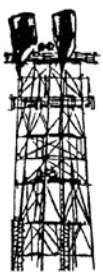

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The Radio Club of America was founded in 1909 by a group of the industry's pioneers, and is the first active electronics organization in the world. Its roster of members is a worldwide Who's Who that includes many who founded and built the radio industry.

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Recommendation of sponsor: (optional)

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Sponsor Signature: _____

Date: _____

REV-042007

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Date: _____

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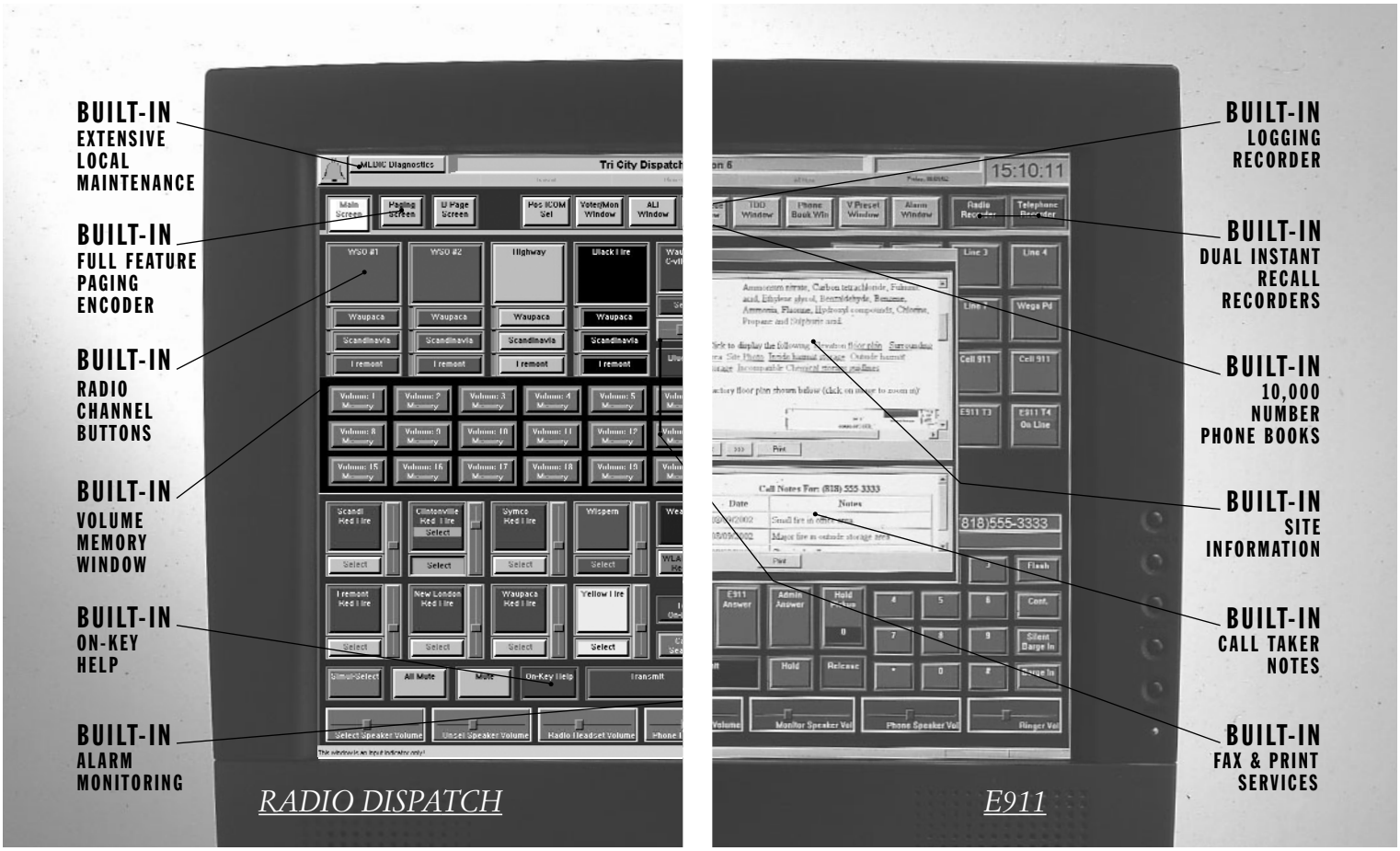

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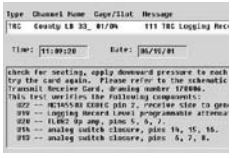

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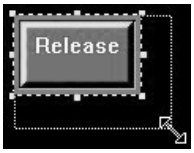

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