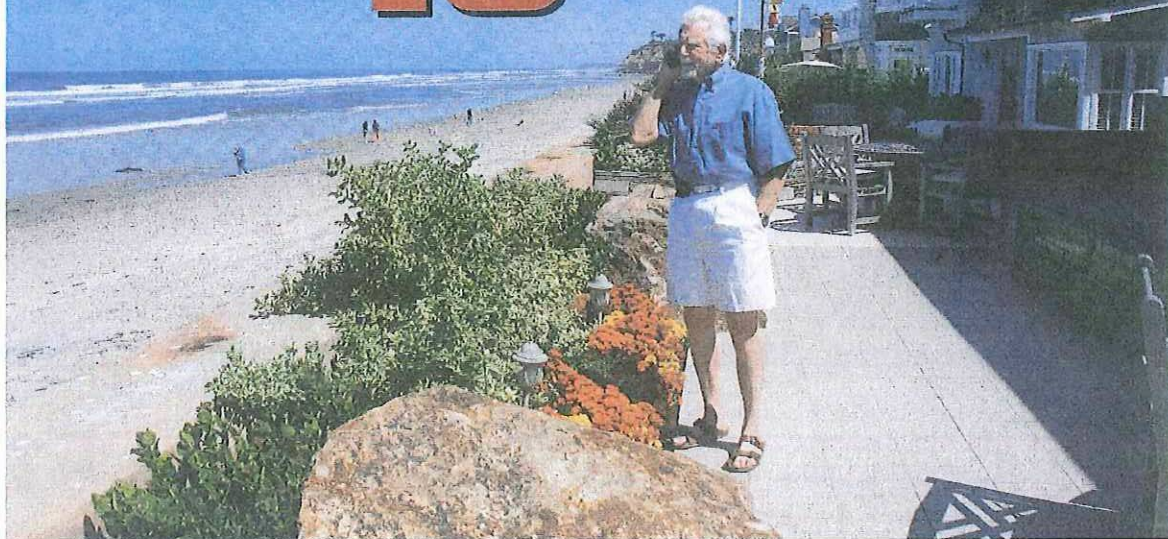


EXHIBIT D

THE CELL PHONE TURNS 40



Marty Cooper chats on his cell phone at his Del Mar home. The inventor remains active in telecommunications, though he enjoys his "Del Mar Uniform" — shorts and sandals.

Del Mar's Marty Cooper Invented the Cell Phone in 1973

by Mary G. Marschner

Currently, the earth has 7 billion humans and well over 6 billion cell phones. Teenagers certainly couldn't imagine life without cell phones, but it wasn't that long ago that cell phones had not been invented and the idea of the cell phone was in the realm of science fiction.

One man instrumental in the development of the cell phone is Del Mar resident Martin Cooper, known as the "Father of the Cell Phone." He is a nationally known inventor/entrepreneur, holding a number of patents and receiving many prestigious awards for his work. He is a sought-after speaker and consultant and has received local and national press coverage including a CBS *60 Minutes* segment last year.

Wife is Heavyweight in a Man's World

Marty is only one-half of a "power couple," having been married to Arlene

Harris for 34 years.

Arlene is a major player in the wireless business in her own right. Arlene has founded a number of wireless companies and also holds several patents. She became the first woman ever inducted into the RCR Wireless News Hall of Fame in 2007. Arlene's contributions include innovations in the automation of managing paging as well as mobile telephone and cellular businesses in the fledgling wireless industries. Later she founded SOS Wireless, a cellular service for emergencies, and most recently launched the *Jitterbug* phone in 2006 in partnership with Samsung.

"Wild & Crazy" Idea

In 1973, Marty along with his team at Motorola, demonstrated the first hand-held cell phone on the streets of New York City. The invention was Marty's big idea; some thought he was tilting at windmills. Prior to the cell phone, radio car phones allowed the caller to be connected by radio transmission to a telephone operator who would then connect you. AT&T's researchers were concentrating on improving the car phone while

Marty's team was convinced that a different kind of telephone was the future—a personal telephone that could go with you as you went through your day from home to office and back again.

The choice of the personal telephone seems obvious now but, at the time, the idea was a "wild and crazy idea" that flew in the face of the largest telephone company's research and vision.

The Roots to Success

Marty was born in Chicago, the son of Ukrainian immigrants who taught him the importance of education and reading. After completing a degree in engineering, he spent 3½ years in the Navy, which included working as a submarine officer. After that, Marty started his career in the telecommunications industry, first with Teletype, a subsidiary of the Bell system, but then spent 29 years at Motorola, eventually holding the position of vice president and director of research and development. After leaving Motorola, he and Arlene have been "serial entrepreneurs" starting and selling several companies.

Arlene has deep roots in Southern California. Her family owned a radio telephone company in Los Angeles. Her parents eventually bought a place in Del Mar that would later attract Marty and Arlene to put down roots in Del Mar where they bought a house on the beach in 1980.

Marty and Arlene, both wireless inventors, have been "serial entrepreneurs."

Marty is now 84 years old but looks younger and acts much younger. He credits his amazing level of energy to his mother, saying that "the secret of successful aging is to have good genes and to show a lot of respect for the genes." Vail, Colorado is a favorite getaway spot where he is known to ski the slopes, with Arlene trying to keep up with him even though Arlene is nearly 20 years younger.



All photos courtesy Martin Cooper, unless otherwise noted

The first cell phone, 9" tall, is shown at life-size.

He named the original handset the DynaTAC (DYNamic Adaptive Total Area Coverage). It was gigantic by modern standards, weighing in at 2.5 pounds, and measuring 9 inches long. People called it "the brick" or "the shoe". Improved technology would soon shrink the massive battery needed to power the original phone and multiply battery life, but the original was still an impressive engineering feat.

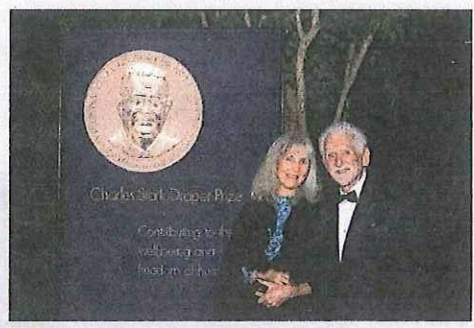
Cell Phones Are Here to Stay

Though younger people can't imagine life without a cell phone, the older folks among us remember life without them and often complain — confusing buttons and menus, the dropped calls, bad reception,

and even resentment about the intrusion of the cell phone into our lives.

However, in my interview with Marty, he looked at me with a somewhat bemused but confident look and asked, "Would you give it up?" With barely a pause, I had to answer that, "No, I would never give it up!"

Go to page 14 to read an interview with Marty Cooper.



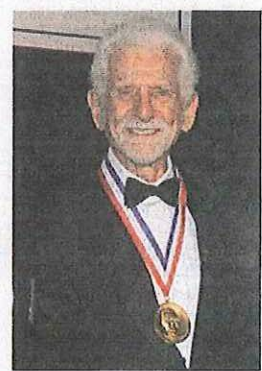
Martin Cooper seen here with his wife Arlene. Forty years to the day after he helped launch the age of portable mobile telecommunications, the Marconi Society has announced that Martin Cooper is the recipient of the 2013 Marconi Prize, considered the pinnacle honor in the field of communication and information science.

National Academy of Engineering to Present \$1.5 Million for Engineering's Highest Honors

Martin Cooper Receives The 2013 Marconi Prize

The engineering profession's highest honors for 2013, presented by the National Academy of Engineering (NAE), recognize three outstanding achievements: creation of first generation cellular telephony; advancements that enabled LASIK and PRK eye surgery; and a bold new way of educating engineering students. The awards will be presented at a gala dinner event in Washington, D.C., on Feb. 19, 2013.

Martin Cooper will receive the Charles Stark Draper Prize—a \$500,000 annual award given to engineers whose accomplishments have significantly benefited society—"for their pioneering contributions to the world's first cellular telephone networks, systems, and standards."



Mr. Cooper will receive the Marconi Prize at an awards dinner on October 1, 2013 in Bologna. He also will deliver the keynote address for a three-day conference preceding the awards gala, jointly sponsored by the Marconi Institute for Creativity and the Marconi Society.

The Charles Stark Draper Prize

Cellular telephony is an exceptional technological achievement that has enabled us to communicate from virtually any location and access a myriad of information at the touch of a button. The device connects people, provides security, and bridges

Shortly after the cellular network was developed, Martin Cooper, who was working at Motorola at the time, unveiled the first portable hand-held cellular phone. After conducting in-depth research and filing several patents on technologies needed for the device, Cooper and his team produced a fully functional phone that utilized radio waves and frequency reuse to enable mobility and operability over a wide area. In 1973, Cooper made the first mobile telephone call on his cell phone prototype from a New York City street to a landline phone at Bell Laboratories. The phone call was answered by Engel.

Martin Cooper worked as a division manager and head of R&D for Motorola during a 29-year tenure. After leaving Motorola in 1983, he co-founded several business ventures including ArrayComm LLC., GreatCall Inc., and Dyna LLC., where he now serves as president. Cooper is also a member of the Technology Advisory Council of the FCC and serves on the U.S. Department of Commerce Spectrum Advisory Committee. Cooper is a member of the National Academy of Engineering.

"Today, what Marty foresaw seems pretty elementary," says Vint Cerf, vice chairman of the Marconi Society and himself a Marconi Prize winner. "But the idea of making telecommunications 'person-centric' instead of tied to a particular place—a car, home or telephone booth—caused a tectonic shift in the industry."

Marty Cooper Talks About the Cell Phone continued from pg. 13

Dream Villager interviewed Marty Cooper to talk with him about his inventions and career. No texting, blogging, or phone conversation could replace a face-to-face meeting.

Q: There are well over five billion cellular telephones in the world today. Most people would say they can't live without their cell phone. Did you ever imagine that would happen in your lifetime?

A: We knew, even in 1973, that someday everybody would have their own personal telephone. We believed that the wired telephone was an aberration, that it was unnatural to require a person to be wired to the wall or to their desk when they wanted to call someone. And we, and others, had created the technology that could make this practical. On the other hand, even 10 years after my public demonstration of the cell phone, the first commercial portable cellular telephones cost \$4,000. We could never have predicted that in only 20 years phones would be free to anyone who agreed to pay their monthly bill. That first telephone weighed 2 1/2 pounds (40 ounces) and all it did was dial, talk, and listen. The battery lasted only 20 minutes per charge, but that wasn't a problem since no one could hold that heavy phone to their ear longer than that.

Q: Why have we become so addicted to the cell phone?

A: Freedom! People need the freedom to be where they want to be and still be in touch. In the old days, if you wanted to be reached, you were trapped in your home or chained to your desk to be near a phone. People are more active now, and more productive. The concept of distance has disappeared from communications. But the biggest difference is that a telephone number used to reach a place—now, when you call a cell phone, you expect the person you called to answer.

Q: Do you think being able to communicate so freely and easily is always a good thing?

A: Advancements in technology always have unintended consequences and these are often negative. It can be annoying to be so reachable all the time, but I remind you that every cell phone has an on/off switch. You

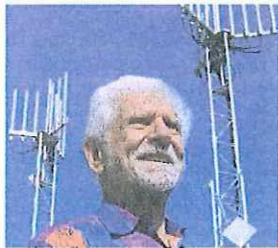


In the 1987 movie, *Wall Street*, high roller Gordon Gekko, played by Michael Douglas, holds his very expensive status symbol, the Motorola DynaTAC 8000 cell phone.

make the choice; no one forces you to answer a cellular telephone call. People should not become slaves to any technology, but I think we will adapt, in time, and learn how to let the cell phone make our lives easier without being addicted.

Q: There's no question that the personal phone was revolutionary. What do you think about how it has become a universal device?

A: The *Smart Phone*, with its ability to text, email, take pictures, play music, browse the Web, play games and more, is a wonderful technical achievement but it is hardly revolutionary. Each of these functions can be performed by a separate dedicated device that will almost always do a better job than a smart phone. Having them combined into one device is a great convenience for some people but that, in itself, is not revolution-



Currently, Mr. Cooper is co-founder and Chairman of Dyna LLC, in Del Mar, California, one of the many successful entrepreneurial ventures he helped create in the 30 years since leaving Motorola.

ary. Revolutions result in important changes in the lives of people and in their behavior. The freedom that results from being able to communicate wherever you are is revolutionary and even today voice is still the "killer app" on cell phones, with texting being second.

"I try to help students develop a passion for science and technology."

Q: You lived most of your life in Chicago. Why did you move to Del Mar?

A: San Diego is an ideal place for someone like me. I don't have to mention the weather or the cultural activities; your readers know they are superb. But San Diego is now the wireless center of the world. Every major wireless company is represented here and there are many hundreds of start-ups as well. Of course, the real reason I live here is that my wife made that decision, which demonstrates her superior intelligence.

Q: I understand that your wife is also an inventor and entrepreneur.

A: Arlene is brilliant, creative, and energetic. She founded the GreatCall company, which offers the *Jitterbug* phone and service that are designed for people who appreciate

simplicity. She created every detail of that extraordinarily complex business and she continues to invent and to start new important businesses.

Q: What kind of cell phone do you have now?

A: I always have the latest cell phone and often use more than one. I had an *iPhone* for a while (I gave it to my grandson), then moved to the *Motorola Droid* and *DroidX*, both of which were excellent phones. I am now evaluating the *HTC Thunderbolt*, the first fourth-generation phone. And, of course, I use the *Jitterbug*, which is still the easiest to use.

Q: Did you always want to invent?

A: I have invented things as long as I can remember. When I was eight years old, I conceived of a train that traveled in a vacuum, magnetically levitated over the roadway to eliminate all friction. Magnetic propulsion is just now becoming practical. But thinking of an idea is not "inventing." You have to know how to make the idea work and how to build it to call it an invention. That's why education is so important.

Q: Have you invented anything besides the cell phone?

A: I have been granted ten other patents besides the cellular phone. They are all in the wireless field, although one has to do with using fuel cells to operate a cellular phone. I have conceived lots of other devices but never bothered to patent them.

Q: You are 82 years old. Isn't it time to retire?

A: My idea of the ideal life is one where I can wake up in the morning and do exactly what I want to do; no more—no less. I am very grateful for the fact that I can do that and still contribute. I serve on a committee that advises the Secretary of Commerce on telecommunications policy, I serve on several boards of directors, and I speak a lot to corporate groups and to students. The cell phone is a common subject for science projects. I try to help students develop a passion for science and technology as an extension of their interest in cell phones. And, of course, I work alongside Arlene in her ventures. **AV**