

The Home Forum®

A president chats with a king

Here's what President Theodore Roosevelt said to Britain's King Edward VII on Jan. 18, 1903, during the first transatlantic wireless communication between the United States and Europe.

*His Majesty, Edward VII
London, Eng.*

In taking advantage of the wonderful triumph of scientific research and ingenuity, which has been achieved in perfecting a system of wireless telegraphy, I extend on behalf of the American people most cordial greetings and good wishes to you all and all the people the British Empire.

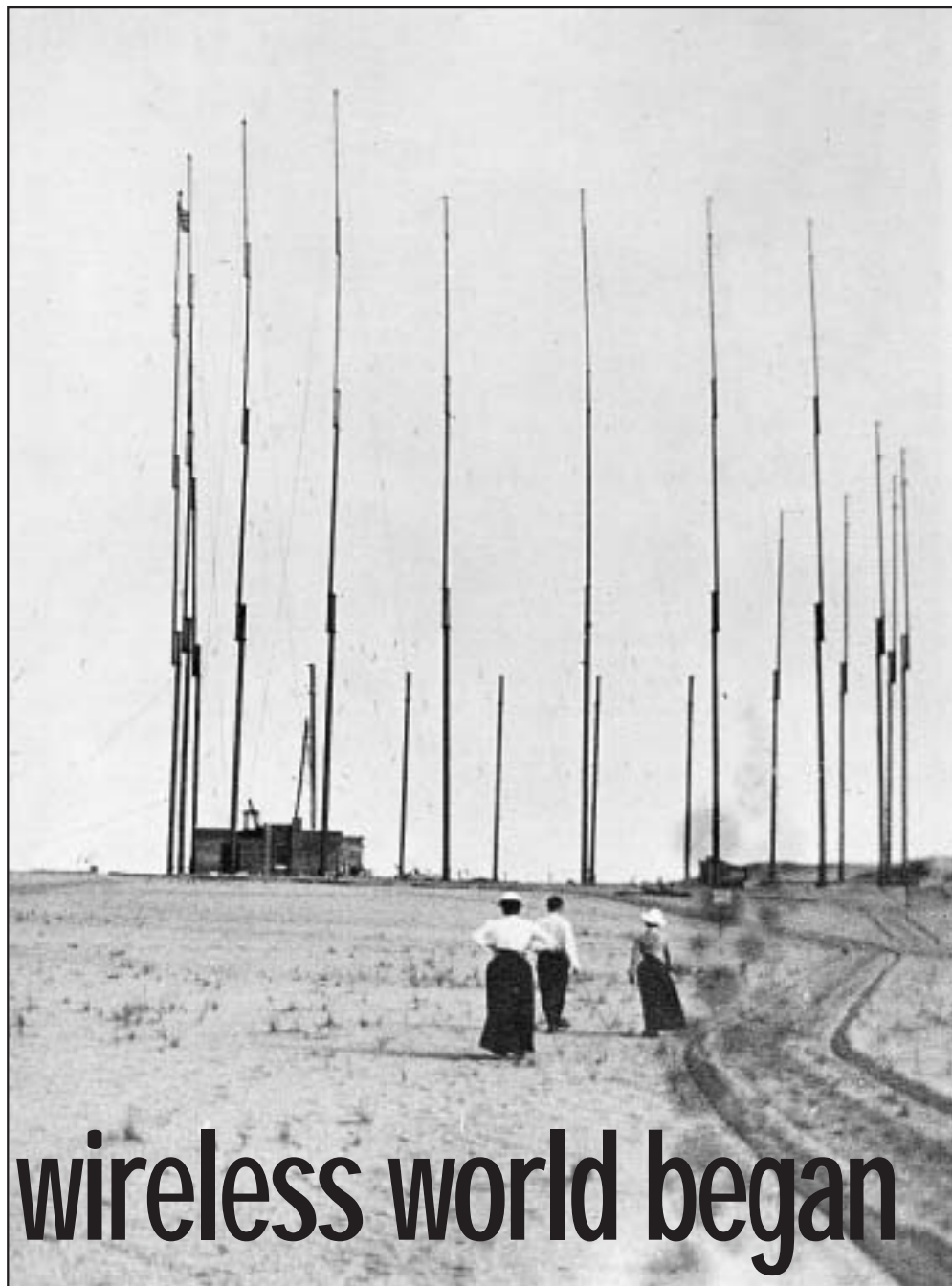
Theodore Roosevelt

This was King Edward's reply:

*The President,
White House, Washington, America*

I thank you most sincerely for the kind message which I have just received from you, through Marconi's trans-Atlantic wireless telegraphy. I sincerely reciprocate in the name of the people of the British Empire the cordial greeting and friendly sentiment expressed by you on behalf of the American Nation, and I heartily wish you and your country every possible prosperity.

Edward R. and I.



When the wireless world began

American Samuel F.B. Morse invented Morse Code in the 1830s. It uses dots and dashes (short and long pulses of sound or light) to represent letters. In 1851 a simplified version became the International Morse Code, below.

A	• -
B	- • • •
C	- • - •
D	- • •
E	•
F	• • - •
G	- - •
H	• • • •
I	• •
J	• - - -
K	- • -
L	• - • •
M	- -
N	- •
O	- - -
P	• - - •
Q	- - - •
R	• - •
S	• • •
T	-
U	• • -
V	• • • -
W	• - -
X	- • • -
Y	- - • -
Z	- - • •



CAN YOU IMAGINE a world without television and radio? Not to mention cellphones, cordless phones, radar, microwave ovens, remote-control cars, and baby monitors?

All these devices rely on the transmission of radio signals through the air. And it was 100 years ago this Saturday that a young Italian inventor showed the globe-girdling potential of his wireless telegraph, or radio transmitter.

On Jan. 18, 1903, Guglielmo Marconi sent the world's first wireless two-way message across the Atlantic. This historic exchange between a president and a king (America's Theodore Roosevelt and Britain's Edward VII) instantly bridged the 3,000 miles from Cape Cod, Mass., to Poldu Station in Cornwall, England.

Electrical telegraphs had been around since the 1830s. Alexander Graham Bell had invented the telephone in 1876. But they relied on wires to carry the electrical signals. And when there was a large body of water in the way, that meant huge underwater cables and enormous expense.

The son of an Italian landowner father and an Irish mother was not your typical scientist. He never had any formal education, for one thing. He was mostly tutored at home and failed an entrance exam to the



PHOTOS COURTESY OF THE NATIONAL PARK SERVICE

GUGLIELMO MARCONI: Above, the Italian 'father of radio.' At top is his Cape Cod, Mass., station, from which he sent the first transatlantic two-way radio message on Jan. 18, 1903.

Italian Naval Academy at age 12.

At 16, he failed another entrance exam, this time for the University of Bologna, Italy. Not only that, he was getting into trouble with his teachers for turning in poor and incomplete homework assignments.

But Marconi loved science. He pored over books on chemistry and physics. He read everything he could about electricity, from the ancient Greeks and Chinese to the modern scientists of his age.

He did lots of experiments, too. Once, after reading about Benjamin Franklin's ex-

periments with lightning rods, Marconi and a friend erected a spearlike zinc rod on the roof of his house. They connected it to a bell inside using a wire. Then they waited for a thunderstorm. They thought the lightning would travel down the wire and vibrate the bell, ringing it. (This was a very dangerous experiment.) Finally a storm hit, lightning struck, and the bell jingled!

Marconi's youngest daughter, Princess Elettra Marconi, told the Monitor in a phone interview from Italy that her father "experimented with everything ... sticks, brooms, plates, forks, spoons, and knives." To Marconi's father, she adds, "It looked like he was playing jokes, but he was really experimenting and learning...."

"His mother was very confident that he would do something great," Princess Elettra continues. "But his father wasn't so sure. He was very worried about him."

No more experiments, his father says

The elder Marconi decided to put an end to his teenage son's research when Guglielmo tried to copy another of Franklin's experiments and destroyed dozens of dinner plates in the process.

Marconi's mother believed in him, though. Annie Marconi helped to arrange private science lessons for him.

Then one day, while on vacation in the Alps with his mother, Marconi read an article describing the work of German scientist Heinrich Hertz. Hertz had proved that electrical waves could travel from one place to another through the air.

Marconi immediately thought of using electrical waves to carry messages. For the rest of the vacation, he sketched diagrams of how this might be done. As soon as he got home, he rode to visit his physics professor, Augusto Righi,

who was not impressed.

Experienced scientists had been studying electrical waves ever since Hertz had proved such waves existed, Professor Righi said. You don't know enough to contribute anything.

But instead of being discouraged, Marconi read all he could on electric waves. He was determined to duplicate Hertz's experiments.

In his attic laboratory, Marconi experimented with batteries, induction coils, electrical conductors, and receivers.

He worked with electricity and with electromagnetic waves, formed by the interaction of electricity and magnets.

He was confident. "My chief thought," he said later, "was that the idea was so elementary, so simple in logic, that it seemed difficult to believe no one else had thought of putting it into practice.... From the first, the idea was so real to me that I did not realize that to others the theory might appear quite fantastic." No less a visionary than Thomas Edison, the inventor of the light

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bulb, thought that wireless communication was absurd.

Every tiny thing he observed, and every tiny change he made, Marconi recorded. He tried hundreds of combinations of metals. It took time, but he stuck with it.

Then, in the fall of 1895, Marconi sent his brother, Alfonso, out of sight of the house with a radio-wave receiver. Guglielmo stayed in the attic. If Alfonso heard anything, he was to fire a gun in the air. Guglielmo tapped out the letter S in Morse code, and waited.

Immediately, Alfonso fired the gun. The wireless telegraph had worked!

Marconi worked on his machine until he could send signals as far as a mile. Then he wrote to the Italian telegraph authorities. Were they interested in funding his research? No, they were not.

Scientists scoffed at the idea

Britain was, however. Marconi and his mother went to London. On July 27, 1896, he demonstrated his device publicly for the first time, transmitting signals from the top of the General Post Office in London. He was 21 years old. Soon, the young inventor from Villa Grifone was a household name.

People called Marconi's invention "the wireless." Today, we call it the radio. At first, it didn't carry voices or music - just Morse Code. But it delivered important messages, such as cries for help. (See story on the Titanic, this page.)

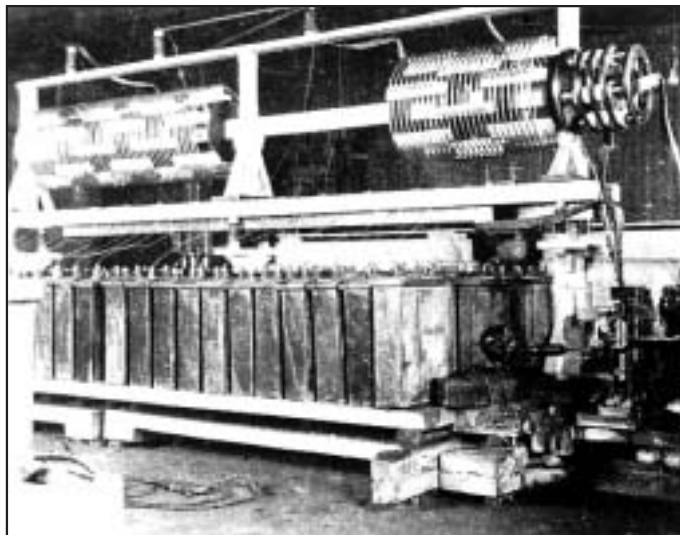
At 23, Marconi started his own company. He had big dreams for his invention.

"He hoped the different countries around the world would communicate together to avoid war," Princess Elettra says. "He thought that if people could communicate, they could explain their thoughts and understand each other better."

A real test of his invention would be to send a wireless message across the Atlantic Ocean. Most scientists said this was impossible. The Earth is curved. How could radio waves travel around it? (Answer: Radio waves bounce off the Ionosphere. But neither Marconi nor anyone else knew that at the time.) Marconi was confident.

Marconi erected tall radio antennas in Cornwall, England, and on Cape Cod. Both were destroyed by storms at different times and had to be rebuilt. Finally, on Jan. 18, 1903, the first transatlantic two-way wireless conversation was held. (See transcript on facing page.)

For that and all his other efforts at wireless communication, Marconi received the Nobel Prize for Physics. He was 35. Not bad for someone who never went to college.



EARLY RADIO: Huge tuning coils (at top) and electrical capacitors (below) at Marconi's station on Cape Cod, ca. 1910.

Marconi and the Titanic

ON THE night of April 14, 1912, inventor Guglielmo Marconi saved the lives of 705 people.

They were survivors of the Titanic, rescued thanks to Marconi's invention.

That night, the Titanic's wireless operator had frantically tapped out this message in Morse code: "CQD require assistance position 41.46 N 50.14 W struck iceberg Titanic." The ship had collided with an iceberg at 11:40 p.m. and was rapidly taking on water.

CQD was the international distress signal before SOS became widely used. CQ meant "All stations, I have messages for you." "D" stood for "distress."

The Marconi operator on the passenger ship Carpathia, 58 miles away, was about to shut down. Before he did, though, he wired the Titanic that the wireless station on Cape Cod was trying to contact them. The Titanic replied with its CQD call, and the Carpathia immediately headed for the scene. It arrived at 4:15 a.m. to find 16 lifeboats and four rafts holding 705 passengers. The Titanic had sunk two hours before.

Another ship had been much closer. The Californian was stopped 10 miles away when Titanic wired for help. But its wireless operator had finished his routine messages and was in bed.

Wireless on ships had been a luxury. Operators gave passengers messages from loved ones or up-to-date stock quotes. At night, operators shut down.

After the Titanic, nations decided that wireless radios would be aboard passenger ships and staffed all day. "SOS" would be the distress call.

Days after arriving in New York, Titanic survivors presented Marconi with a gold medal. Without his invention, they said, all might have perished.

TODAY'S ARTICLE ON CHRISTIAN SCIENCE

Bringing a spiritual perspective to daily life

When the teacher isn't right

A THIRD-GRADER LOSES a creative writing contest. Instead of pointing out a few strengths in the story, her teacher shrugs and explains she just isn't a creative writer. Jamie spends the rest of her school years believing this.

Jamie's teacher didn't mean to limit her. I'm sure she said thousands of helpful and encouraging words in the classroom. Unfortunately it was this negative statement that Jamie (not her real name) remembered.

The point isn't to blame adults for kids' perceptions. Jamie didn't have to believe she was incapable just because somebody else said it. Your view is yours. It isn't your teacher's view or your mother's view or the coach's view. What you think about yourself and how you act is up to you. But if you think negative things about yourself, you can change how you think any time.

Jamie really had to face her fear of creative failure in her senior year of high school. She was taking Advanced Placement English in order to get ready for the AP exam.

A good score meant college credits at most universities. Jamie really wanted those credits. She had worked hard in English all through high school. She was actually looking forward to the exam until she heard that one half of the grade rested on a creative writing component. Students were expected to write a fictional story on a topic given to them when they walked into the testing room. Jamie's confidence collapsed. There was no way she could write a creative story.

She felt so hopeless that she decided the only thing to do was to pray to God. Maybe He would help her feel less afraid. Day after day Jamie prayed. But nothing happened. She was still afraid, and now she was discouraged.

But what did God think?

Then one day Jamie realized why her prayers weren't working. She was starting all wrong. Here she was asking God to help her, but then she was canceling her prayers by believing that she was uncreative and incapable of writing fiction. She was praying one thing and thinking another. Who said she couldn't write? A third-grade teacher. But what did God think? That was a new question. All these years she had believed her teacher, but she'd never bothered to ask God.

How do you ask for God's opinion or advice? It's possible to quiet your thought, ask God a question, and then listen for an answer. And Jamie did that sometimes. But this time she decided to turn to God's Word. God's Word is the Bible, and the place where Jamie had found the spiritual meaning

of God's Word was in "Science and Health with Key to the Scriptures" by Mary Baker Eddy. Jamie read these books regularly. She earnestly believed that inspired writers heard God's revelations and recorded them for humanity. The books weren't fiction, but they were the highest level of creative writing ... true inspiration.

The freedom of Soul

This is the quote she found in Science and Health: "Mind is not necessarily dependent upon educational processes. It possesses of itself all beauty and poetry, and the power of expressing them. Spirit, God, is heard when the senses are silent. We are all capable of more than we do. The influence or action of Soul confers a freedom, which explains the phenomena of improvisation and the fervor of untutored lips" (pg. 89).

Wow, what an eye-opener! God created her able to express creativity. It didn't depend on education or talent or even practice. It was a natural gift from

Jamie's confidence collapsed. There was no way she could write a creative story.

God. God was informing her that she was capable of much more than she had done before. And God, divine Soul, would give her freedom of expression. She could improvise. She could paint beautiful word pictures with the poetry of divine Mind.

Confidence, inspiration, creativity

Self-doubt dropped away. Creativity didn't depend on her ability. It was God's influence and action. Jamie was confident that she could and did express the inspiration of Mind, the freedom of Soul, the creativity of the Creator.

When the day arrived for the AP exam, Jamie trusted that God knew and would communicate every idea she needed. When the time came for the creative writing component, Jamie read the topic. She closed her eyes and silently turned to God. She didn't ask for ideas or even think a thought.

Now was the time to be silent and listen to creative Mind. She listened for divine improvisation, and instantly an entire three-part story filled her mind. The complete outline, the names of the characters, the movement of plot from lust to morality to unselfed love was all there. Jamie opened her eyes, picked up her pen, and started writing. There were no erasures, no cross-outs. She had never written this way before. And she received the highest score and 15 English credits, a full semester at the university she attended the next year.

Now it's your turn to think new thoughts about yourself, to see what God has to say about your ability. "We are all capable of more than we do."