

## Marconi, Guglielmo

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### Guglielmo Marconi

 Video/Animation



Italian physicist and inventor Guglielmo Marconi pioneered in the development of wireless (radio)

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(1874-1937). The brilliant man who transformed an experiment into the practical invention of radio was Guglielmo Marconi. He shared the 1909 Nobel prize in physics for the development of wireless telegraphy.

Guglielmo Marconi was born on April 25, 1874, near Bologna, Italy. Even as a young boy Marconi was interested in science. He was particularly fascinated by physics, chemistry, and electricity. The boy was privately tutored and received his later scientific education at the University of Bologna.

In 1894 young Marconi read an obituary of Heinrich Hertz, the discoverer of Hertzian waves, which are now known as radio waves (see Hertz). The young man's imagination was stirred by the account given of Hertz's work, and the idea occurred to him that Hertzian waves might be used in communication. He set to work on apparatuses for sending and receiving telegraph messages through the air and soon was able to transmit coded signals more than a mile. Marconi offered his invention to the Italian government, but it was rejected. In 1896 he went to England and took out a patent, the first ever granted for a practical system of wireless telegraphy. The next year a company was formed (later known as Marconi's Wireless Telegraph Company, Ltd.) to exploit wireless commercially. Its success made Marconi wealthy.

One of the first practical applications of wireless came in 1898, when Marconi followed the Kingstown Regatta in a tugboat and flashed the results in code to the offices of a Dublin newspaper. In 1899 the value of wireless telegraphy in saving lives at sea was first demonstrated. The East Goodwin Sands lightship was rammed in a fog, and aid was summoned by wireless.

In 1901 Marconi achieved a dramatic success when he transmitted signals across the Atlantic Ocean by wireless. Other scientists had thought this

impossible, believing that radio waves traveled only in straight lines. Marconi, however, thought that the long waves he used would follow the curvature of the Earth. This was proved when, on Dec. 12, 1901, he received signals in St. John's, Newf., sent from a transmitter in Poldhu at the southwestern tip of England.

Marconi continued to improve his basic devices, sending messages farther and farther. In 1910 he was able to receive signals at Buenos Aires, Argentina, from Clifden, Ireland, and in 1918 he sent a message from England to Australia. Other scientists added their inventions such as the vacuum tube amplifier and the audion tube (see Radio). By 1921 Marconi's wireless telegraphy had become wireless telephony, the voice radio of today.

As long-wave broadcasting became practical, Marconi turned his attention to short waves. By 1922 he had perfected the transmission of short waves by focusing the waves with a parabolic reflector behind the antenna. This system is employed now by most worldwide communications systems. Among his other useful inventions was the radio direction finder (RDF) by which ships and airplanes can fix their positions using radio signals. In 1934 Marconi demonstrated equipment that made instrument navigation of ships possible (see Navigation).

Another of Marconi's inventions, the autoalarm, picks up distress signals when radio operators are off duty and sounds a loud alarm. He was also a pioneer in the use of ultrahigh-frequency (UHF) waves for voice radio communication over short distances.

In 1929 Marconi was created a *marchese* (marquis). He lost the use of his right eye in an automobile accident in 1912. Politically Marconi was a Fascist, and until his death in Rome on July 20, 1937, he was in charge of scientific research under Benito Mussolini.

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MLA style:

"Marconi, Guglielmo ." *Compton's by Britannica*. 2008. Encyclopædia Britannica Online School Edition. 30 Oct. 2008 <<http://www.school.eb.com/all/comptons/article-9275687>>.

APA style:

Marconi, Guglielmo . (2008). In *Compton's by Britannica*. Retrieved October 30, 2008, from Encyclopædia Britannica Online School Edition:  
<http://www.school.eb.com/all/comptons/article-9275687>