
CURRENT SCIENCE 50 YEARS AGO

MARCHESE MARCONI

GREAT as were Marconi's contributions to the technical side of science, his steady allegiance to the ideal that science is beyond the nations and above the power of creeds to dominate or to stultify was perhaps an even more significant gift to civilization. We look back on his serene beauty of spirit with a poignant regret that its like is becoming rarer in the world of science to-day. To Marconi it was so obvious that knowledge and wisdom are not the prerogatives of any sect, any creeds or any nation that he rarely put his instinctive sanity into words. In contrast to those among scientists who insist that the pursuit of science is a form of self-expression and therefore an end in itself, Marconi steadfastly adhered to the view that all scientific work has for its fundamental aim the promotion of human welfare and prosperity. We contribute our testimony to the honour of the great departed scientist.

At the time of his death the Marchese was only 63 years old. He passed away peacefully at 3-30 A.M. on Tuesday, the 20th July. In him the world of science has lost a distinguished investigator and thereby sustained an irreparable loss.

Guglielmo Marconi was born on the 25th of April 1874 at Bologna. His father was an Italian country gentleman while his mother was an Irish lady. He was the younger of two sons and was privately educated at Bologna, Florence and Leghorn. While still a student he was attracted by the researches of Hertz and his ideas were shaped by the work of Righi on the newly discovered electromagnetic waves. He was convinced that this radiation could be used for signalling over long distances, and his life is a brilliant record of the triumph of his faith. Beginning as an unknown inventor, he became the world renowned father of wireless. His perseverance against great odds in the beginning of his career is a heartening example to the sagging spirits of any investigator, young or old. His first experiments were carried out at his father's country house with very simple apparatus. One simple idea, *viz.*, that of elevating one end of the spark-gap of a Hertzian emitter to form an aerial raised his apparatus immeasurably over those of his predecessors in its radiating power. He substituted a Branley coherer

for the spark-gap receiver of Hertz and thus fashioned a much more sensitive detector. His earliest experiments of 1894 and 1895 showed the possibility of wireless communication over the length of a mile and a half. In 1896 Marconi went over to England and receiving the encouragement of Sir William Preece, the Engineer-in-chief to the British Post Office, he was enabled to demonstrate his method to the postal authorities on Salisbury Plain where he succeeded in sending signals over a length of eight miles. The first patent for wireless apparatus was taken out by him on June 2, 1896, and in 1897 "The Wireless Telegraph and Signal Company, Ltd." was formed to develop and exploit his patents. In 1900, the Company's name was changed in "Marconi's Wireless Telegraph Co., Ltd." and continues by that name even to-day. Marconi continued his researches and developed the magnetic detector in 1902 and the horizontal directional aerial in 1905. The range over which communication could be carried out was slowly but surely being widened when in 1901 Marconi astonished the scientific world by achieving what was then thought to be an impossibility.

The theorists of that day thought that there was a very narrow limit to the range which could be covered, on account of the curvature of the earth. They thought that the waves would travel out to space and be lost. Marconi never troubled himself about their theories; he never wavered in his faith. Nature conspired to reward his perseverance and on December 12, 1901, Marconi and his assistants stationed at Newfoundland faintly but surely heard the signals sent across the Atlantic from the powerful station at Poldhu in Cornwall. Once this was accomplished, long distance wireless was securely established and has since then grown apace. The invention of the triode valve in 1913 entirely changed the scope of wireless. From mere signalling, it has since developed into broadcasting of speech and music and the possibilities of television are yet to be explored. In all this advance the Marconi Company has taken a leading share. The disaster of the Titanic in 1912 showed the blessings of Wireless in no mistakable manner. It would now be idle to expatiate on the amenities it has brought into the lives of people all over the world.

In 1916 Marconi came forth with another fundamental discovery, in the course of his attempts to serve the Italian Government during the war. This was the directional effect of short waves and their extraordinary range. It is now a common place for amateurs to correspond with one another over more than half the globe with only a power of two or three watts, thanks to this peculiar property of the short waves. Marconi had fitted up his yacht *Elettra* for these investigations and during his voyages he first discovered the fact that wireless waves carry farther at night than during the day. He was still engaged in further researches at the time of his death.

The uses to which wireless has been put and can be put during peace and war cannot be enumerated here. But we must not forget that Marconi himself was strongly against the use of scientific inventions for destructive purposes. Although he placed his vast resources and experience at the disposal of the Italian Government during the Abyssinian War, we would still cherish his sentiment that the utilization of scientific genius for the barbarous and horrible

purposes of war might ultimately result in the destruction of all that is worth while in our inheritance from the past.

Plenty were the honours Marconi received. He was awarded the Nobel Prize in 1909, the Albert Medal of the Royal Society of Arts, and the Franklin and John Fritz Medals. He was nominated a Member of the Italian Senate and became a Marchese. He represented his country at the Peace Conference in 1919 and later at the Commission of Mandates. The honours showered on him by learned societies are too numerous to mention. In 1905, he married the Hon. Beatrice O'Brien and had one son and two daughters by her. In 1924 this marriage was dissolved, and in 1927 he married the Countess Bezzi-Scali by whom he had a daughter.

As long as his inventions continue to bring solace to troubled humanity, so long will his name be blessed. And if the perverse genius of man utilizes the fruits of his labours for destructive purposes, may we not expect that his spirit will send out an unmistakable reproof?

NEWS

CALORIE-AND-CHOLESTEROL-FREE SPE

.... "It sounds too good to be true: a product that allows you to stay slim even while you're devouring the most sinfully rich foods. But Procter & Gamble's olestra—a calorie-and-cholesterol-free substitute—promises just that. While the substance is probably at least a year or two from completing its government review, it is capturing the imagination of marketers, health researchers, and anyone who dreams of consuming ice cream and potato chips without paying the price. What's more, research shows that the fat substitute—known by scientists as sucrose polyester, or SPE—also eliminates some cholesterol already in the body. That could make olestra or similar substitutes a still bigger diet breakthrough. And because SPE apparently passes through the body without being absorbed, it may pose fewer health questions than a product like the

sugar-substitute aspartame, which is taken into the bloodstream.... With SPE, 'food would become low-calorie by definition just if it's cooked or fried' in the substance, says David Williams of the New England Consulting Group in Westport, Connecticut.... Still, there are areas for concern that the Food & Drug Admin. will have to address. One of the first questions: Does any amount of the SPE—no matter how minute—get absorbed by the body? If so, safety issues could become more complex.... Another concern is whether SPE removes certain fat-soluble vitamins from the body." [(Jolie Solomon & Richard Koenig in *Wall Street Journal* 11 May 87, p. 29.) Reproduced with permission from Press Digest, *Current Contents*®, No. 25, June 22, 1987, p. 8. (Published by the Institute for Scientific Information®, Philadelphia, PA, USA.)]
