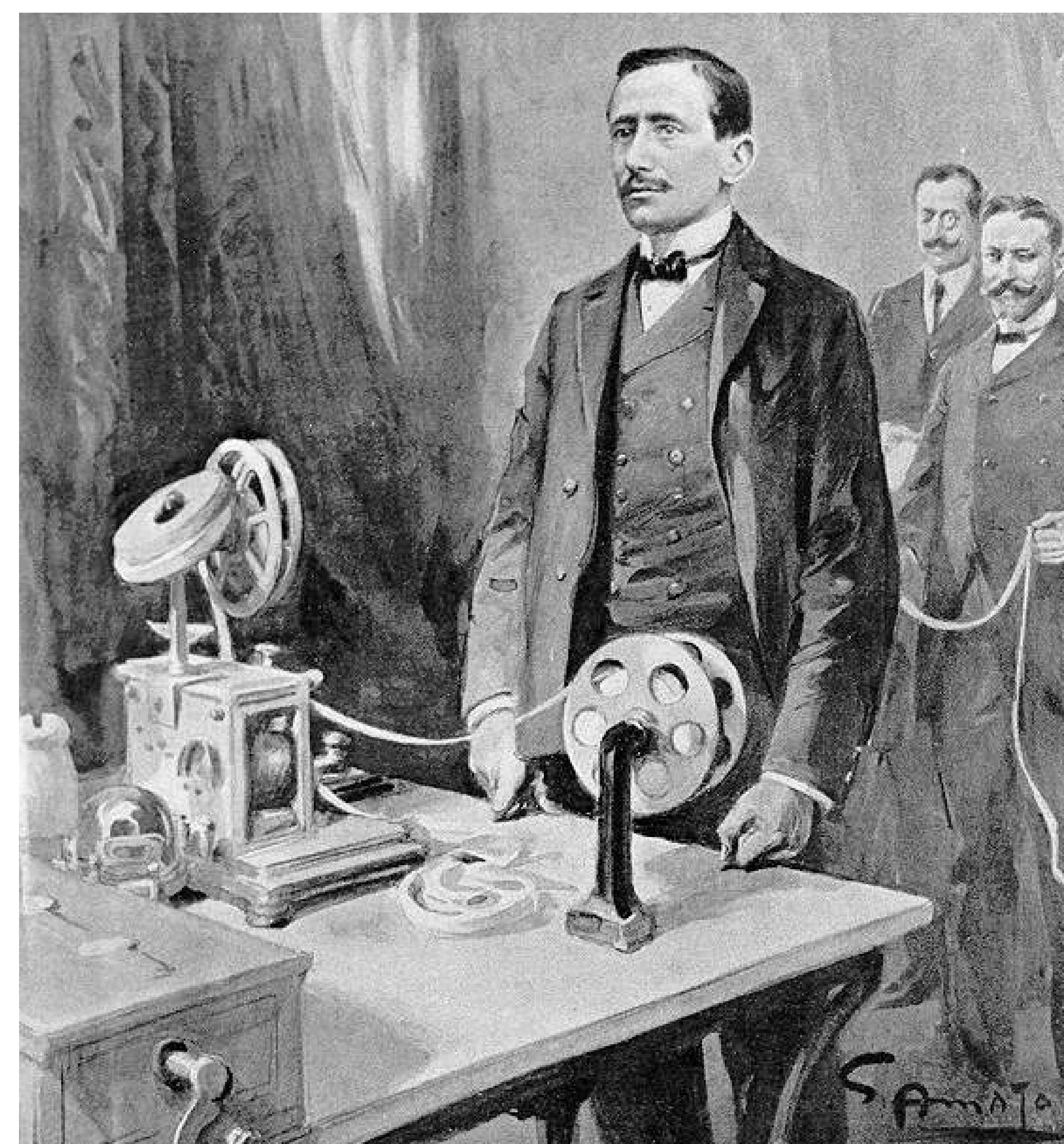


# GUGLIELMO MARCONI

**150 years since his birth**

Guglielmo Marconi was born in Bologna on April 25, 1874. At the age of 20, he began his first experiments by working as a self-taught inventor. He then succeeded in no time in making a bell, which was positioned on the other side of the room, ring by pressing a telegraph key placed on a counter.

The young Marconi then continued his experiments outdoors. While working in the countryside, he increased both the power of the emissions and the distance separating the transmitter from the receiver, capable of picking up Morse alphabet signals. It was between the late summer and the early fall of 1895, that, after several experiments with bigger distances, his device proved not only to be successful in communicating and receiving signals at the distance of more than a kilometer, but also in overcoming natural obstacles (such as Celestini hill located behind Villa Griffone, Marconi's home). The shotgun blast that Butler Mignani fired into the air to confirm the success of the experiment is considered to be the act which led to the birth of the radio.



**1874/2024**



# GUGLIELMO MARCONI

150 years since his birth

“A LIGHTNING BOLT OF AN IDEA”:  
APPLYING THE MORSE SYSTEM TO  
ELECTROMAGNETIC WAVES



**1895/96** - Patent for wireless telegraphy

**1897** - Saint Bartholomew's experience in La Spezia

**1901** - Inter-oceanic connection from Poldhu (England) to St. John's of Newfoundland (Saint John's, Canada)

**1902** - Magnetic detector

**1904** - Fleming's Diode

**1906** - Beginning of the construction of the long wave radiotelegraph station at Coltano (Pisa)

**1909** - Nobel Prize in Physics to Guglielmo Marconi

**1911** - Grand opening of the long wave radiotelegraph station at Coltano (Pisa)

**1912** - Rescue of 705 passengers in the tragic Titanic shipwreck

**1916** - Studies and insights of “beam waves” i. e., short waves, used by radio amateurs who were able to reach faraway places using small contraptions.

**1920** - Experiments with short waves in the Electra ship

**1920/1923** - Drastic modernization of Coltano station under the leadership of Prof. Vallauri of the Livorno Naval Academy.

**1930** - Birth of the principle of blind navigation, laying the foundation for radar, with the Radiogoniometer

**1930** - From the ship Elettra, anchored in Genoa Bay, Marconi turns on the lights at the Sydney Expo in Australia

**1931** - From Rome, Marconi lights up Rio de Janeiro's Christ the Redeemer

**1931** - Birth of Vatican Radio

**August 20, 1937** - Because of his sudden death, many researches which could have shaped the history of science were interrupted abruptly.



1874/2024



# THE RADIO

## 100 years of Italian radio broadcasting

1924 - Birth of the URI Italian Radio Union

1927 - URI becomes EIAR Italian Radio Audition Institution

1944 - EIAR becomes RAI Italian Radio Auditions

**1918/1920** - First galena crystals, zincite, etc... receivers were often self-built by enthusiasts, and were later replaced by low cost receiving equipment with electronic tubes (the so-called “valves”) for amplitude-modulated long and medium waves.

The design is still unrefined, leaving enough space for functionality to gradually evolve as the radio enters the living rooms of homes. They are still external: the speaker is shaped like a horn or a pin; the frame antenna has meters of wires wrapped around mounts with various shapes.

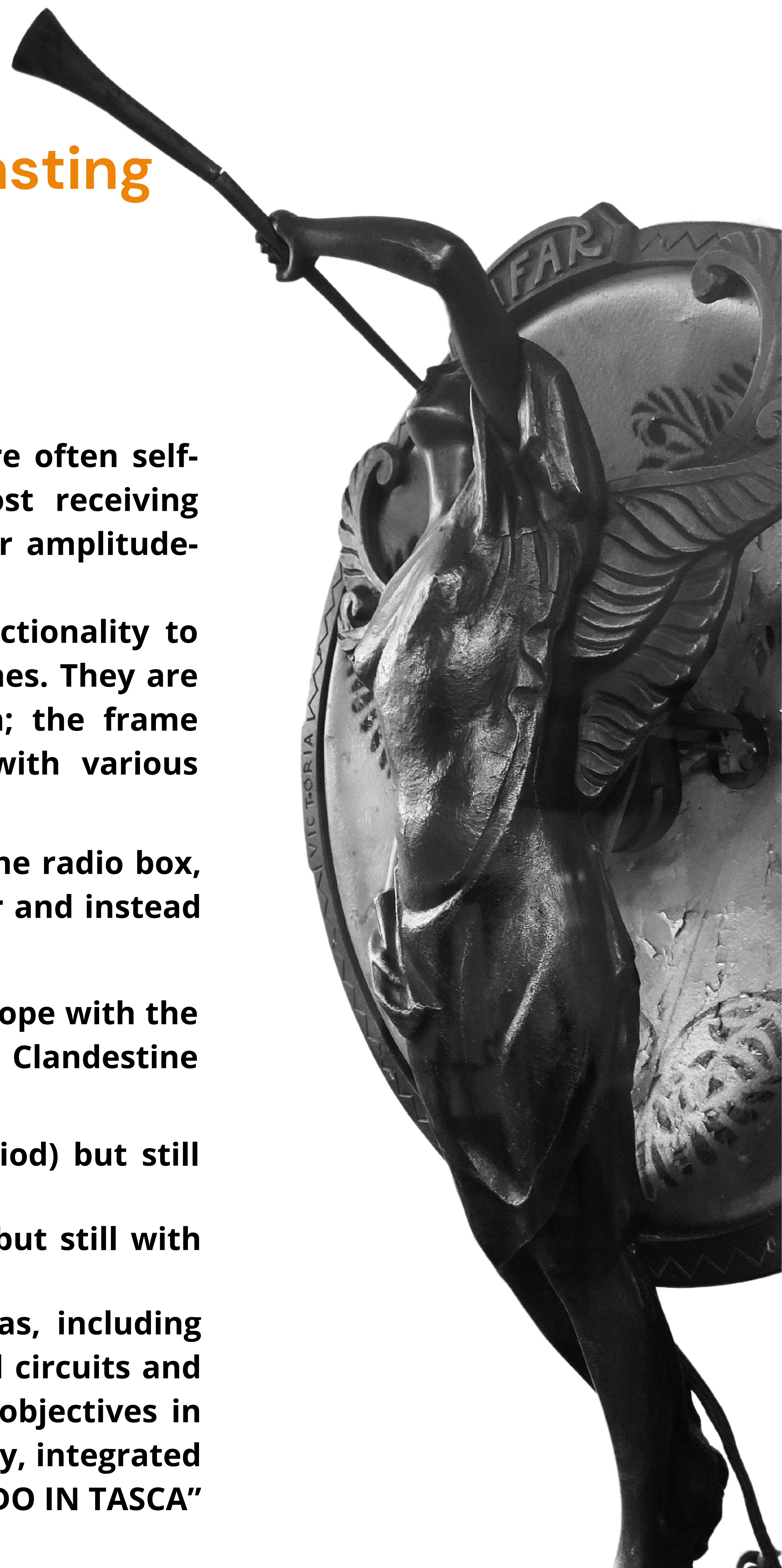
**1930** - The antenna and loudspeaker are integrated within the radio box, becoming one receiving organ; the bulky batteries disappear and instead the radio is connected to the electricity grid.

**1934/1940** - Popular radio stations appear all throughout Europe with the successive birth of unauthorized radio broadcasting and of Clandestine Radios during the war.

**Post-war** - Radios become smaller and smaller (vintage period) but still with valves.

**1970** - Radios become smaller and smaller (vintage period) but still with valves.

**1980/1990** - Wireless technology is then used in many areas, including mobile telephony with cell phones equipped with integrated circuits and microprocessors. Likewise, miniaturization reached pivotal objectives in the fields of the telephone, radio, television, and photography, integrated into a single device, thus making it possible to carry “IL MONDO IN TASCA” (THE WORLD IN YOUR POCKET).



# 1924/2024



# THE TELEVISION

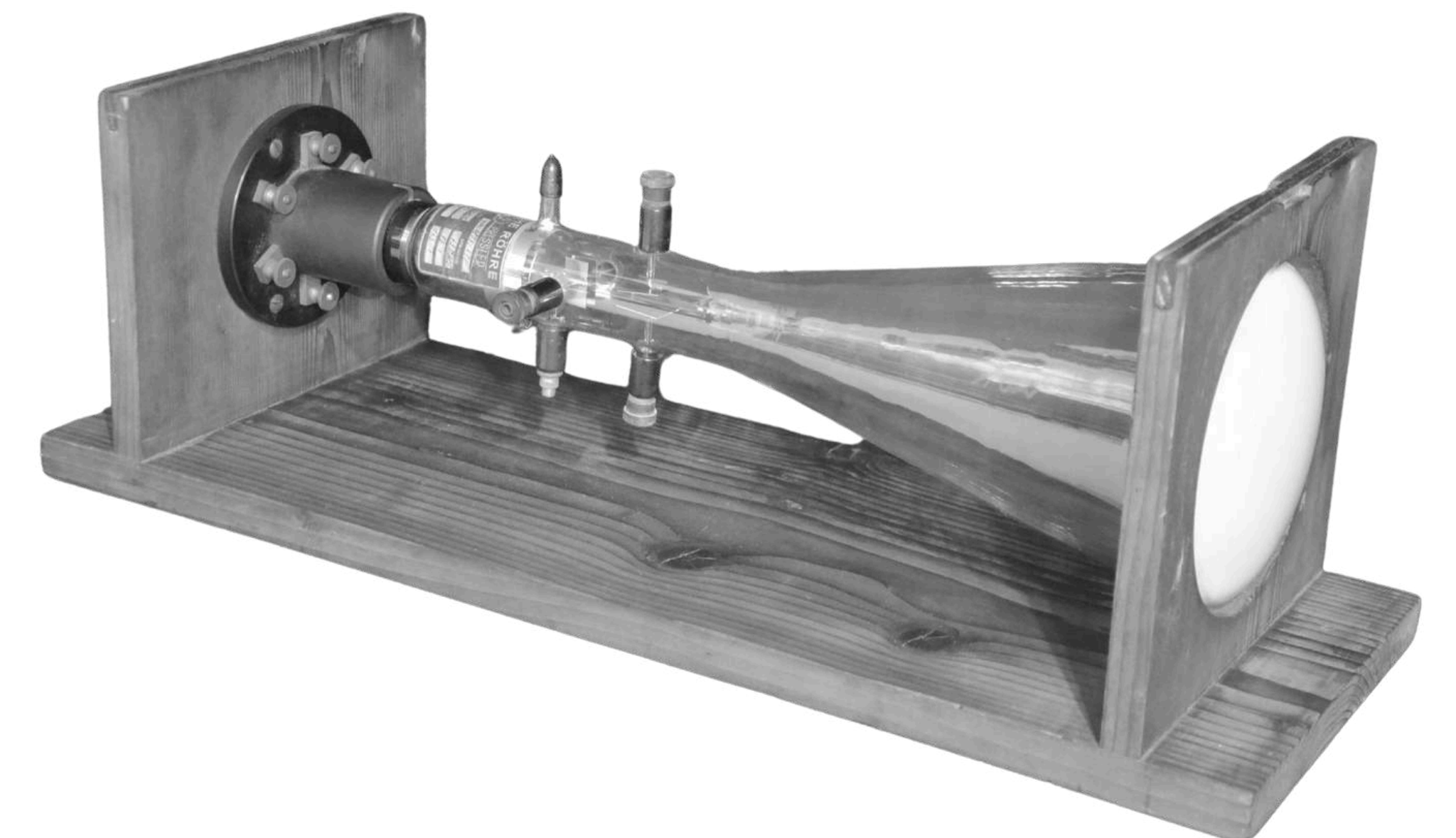
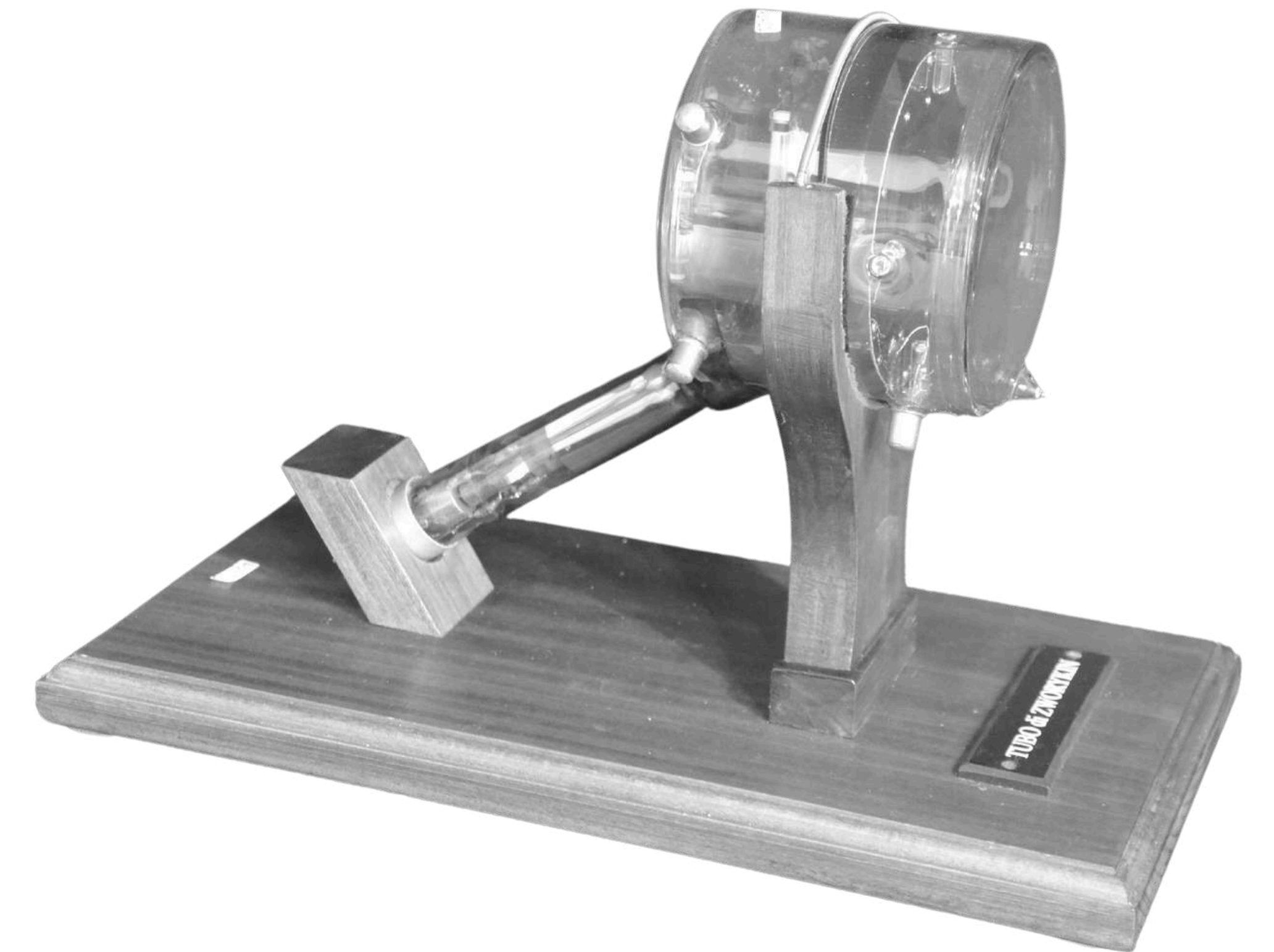
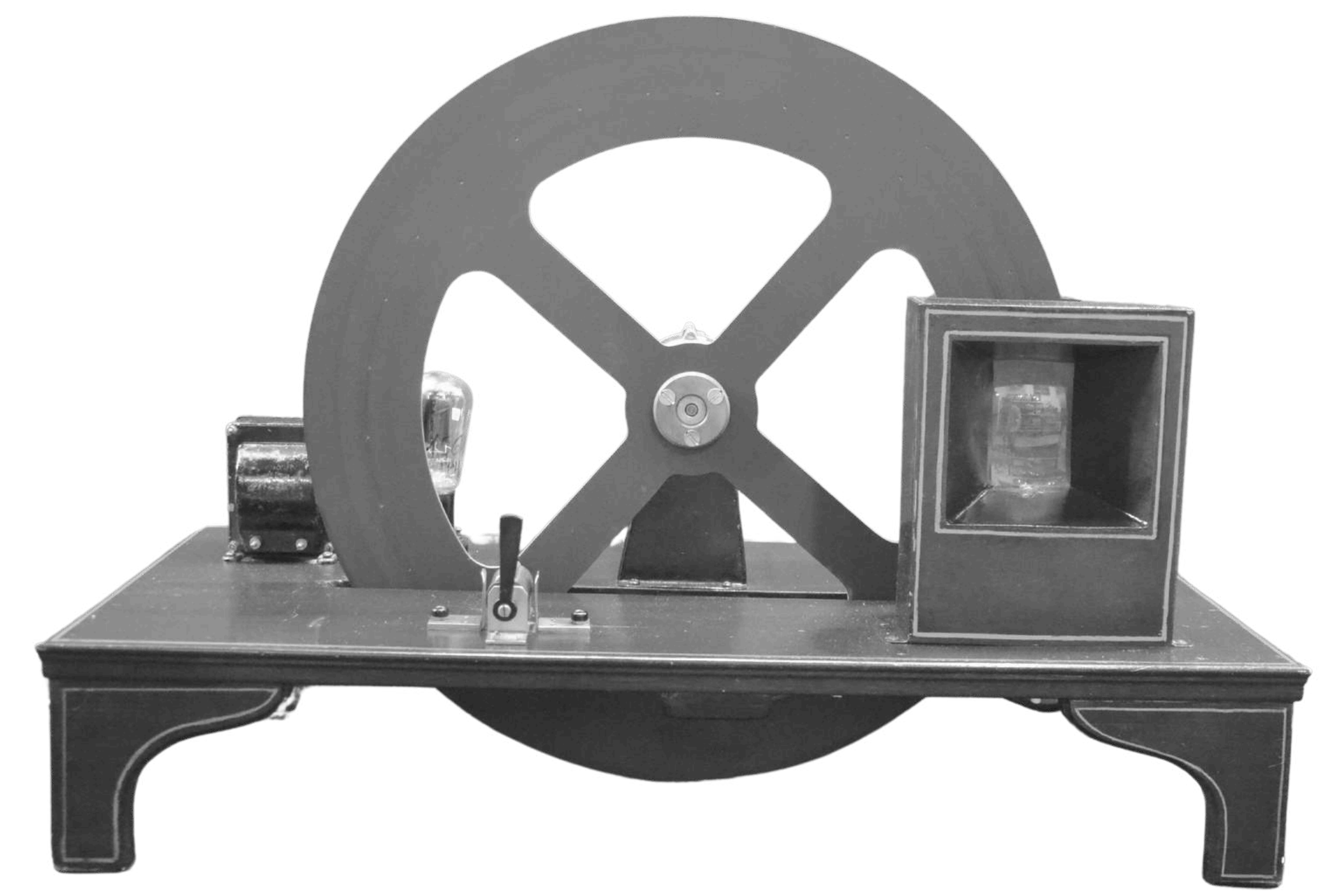
## 70 years of RAI Italian Radio Television

### THE ELECTROMECHANICAL TELEVISION

Nipkov's disk - 1884, is considered to be the invention that led to the birth of television: a photocell which transforms images into variable electrical signals and a gas (neon) lamp that vice versa transforms electrical signals into images. In 1926, John Baird used the photocell to build the *noctovisor*: an image-taking transmitter that used, for the first time, a video signal amplifier to transmit to the receiver. Using gas lamps he then built the *televisor*, an image receiver, in 1928. By the late 1920s, the *Televisor* is already being sold all over the world (also through assembly box i.e., with materials and instructions to be able to make it yourself). Between 1930-'35 television with electronic tubes was finally born.

### ELECTRONIC TELEVISION

At the same time as electromechanical television, some scholars developed in-depth knowledge of the behavior of gasses when faced with electrostatic phenomena. For example: Crookes' tubes, in 1874; Brown's tubes, in 1897; Nicolson and Von Ardenne's tubes, in 1917 and finally Zworykin's inescopes and/or iconoscopes in 1929 (using which they succeeded in taking pictures with electronic system). Then, the orthicon picture tube was developed by the American R.C.A., and was used starting from 1945, in the whole the experimental world. The postwar camera used the orthicon picture tube. Television, with signal reception in V.H.F. (Very High Frequency), thus entered homes. On January 3, 1954, official broadcasting in Italy begins from Rome, Turin and Milan with RAI (Italian Radio Television).



# 1954/2024



# MUMEC 2024

## The museum's tribute to the celebrations

150 years since the birth of Guglielmo Marconi

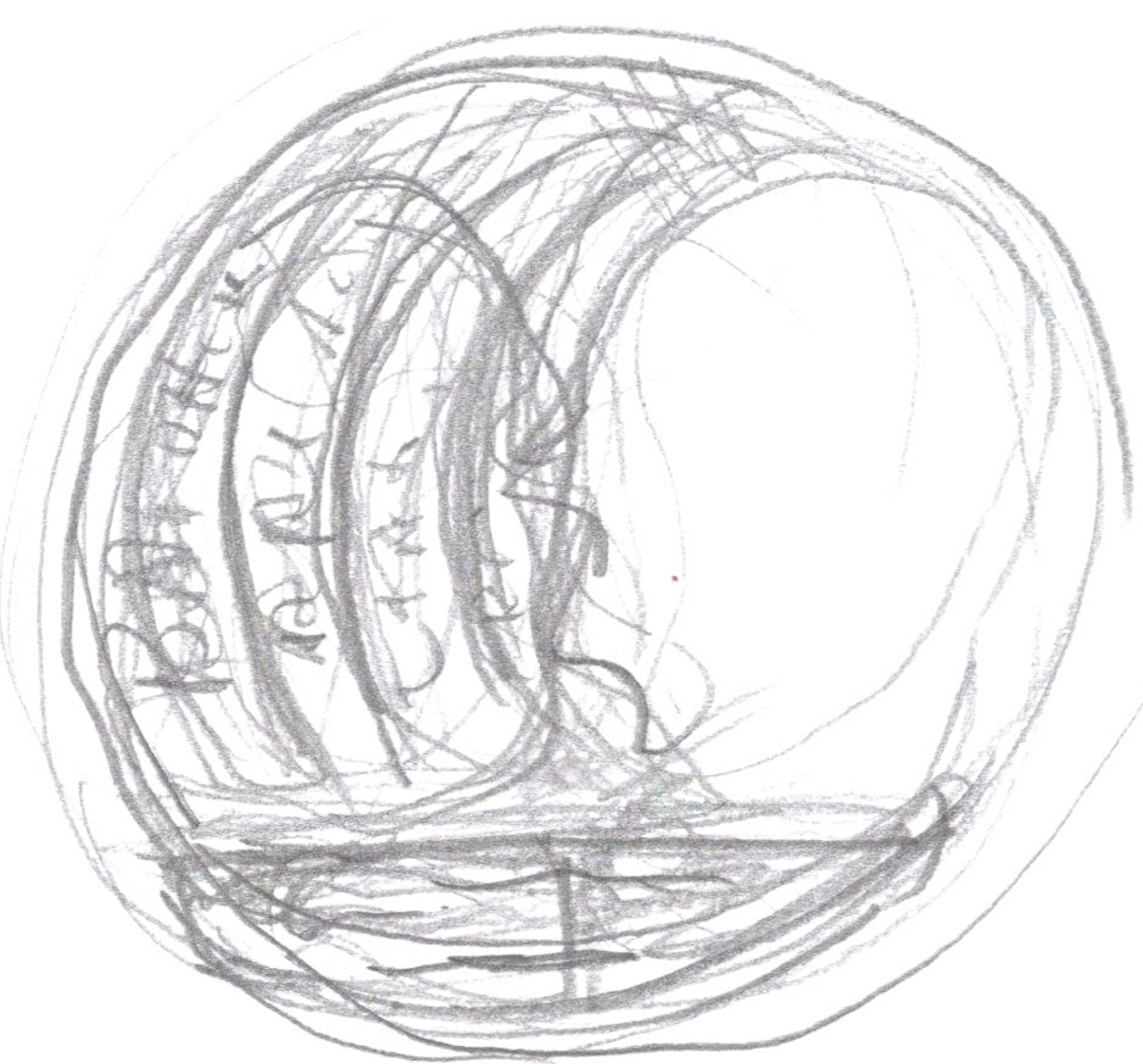
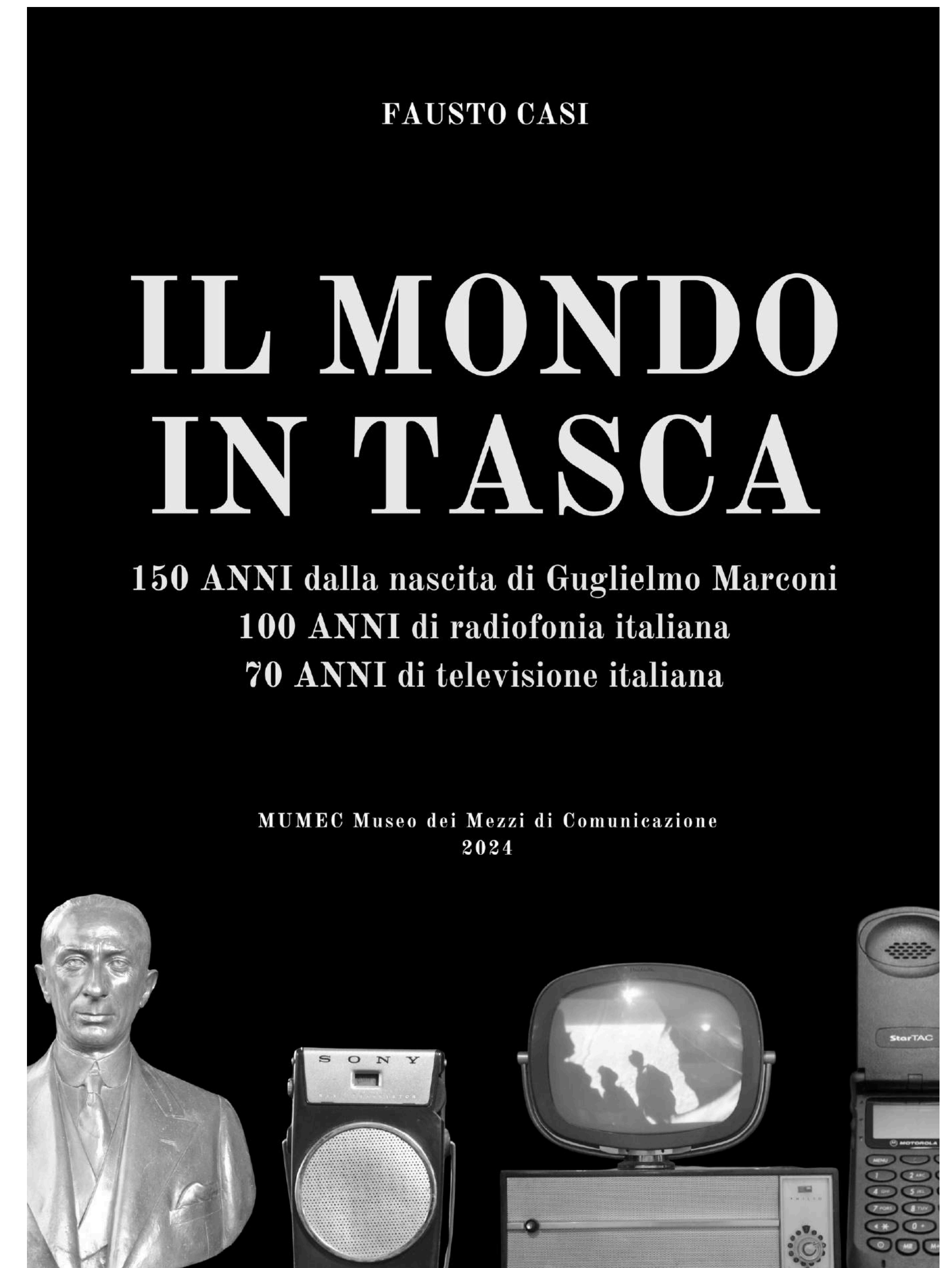
100 years of radio in Italy

70 years of television in Italy

**Exhibition**, "Il Mondo in tasca" which can be visited up until February 2025 including a display of the original bust of Guglielmo Marconi, made around 1930 by the Turinese sculptor Giuseppe Bottinelli.

**Volume**, "Il Mondo in tasca", catalog of over 350 pages containing the pieces of the exhibition, written by Prof. Fausto Casi, Founder, Scientific Curator of MUMEC and organizer of the celebrations.

**Bronze medal**, celebrative of all events and especially made for MUMEC by the Aretine sculptor Enzo Scatragli.



# 2024