Coltano: the forgotten story of Marconi's early powerful intercontinental station

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Coltano is near Pisa, in Tuscany

- Coltano's Royal Estate
- Marconi's Radio Site
MARCONI
e la nuova stazione ultrapotente

E' noto che da Roma e prima di tornare a Londra, Guglielmo Marconi si recò nei giorni scorsi a Pisa per studiare se ivi fosse possibile l'impianto di quella stazione ultrapotente di radiotelegrafia che il nostro Parlamento approvò e che dovrebbe servire a facilitare le comunicazioni con l'America del Sud, ove sono milioni di emigrati italiani.
Why did Marconi choose the Coltano site?

- Coltano is a flat and scarcely populated area.
- Its wet soil has a high electrical conductivity, which eases the radiation of ground waves, especially at VLF.
- It is located near the Tyrrhenian Sea's shoreline, in a very favorable position for communications with Italian colonies in Africa and with the Americas.
- It is located almost halfway from Rome, Italy's capital, and Milan, Italy's main industrial city, and it could be easily connected to both of them via terrestrial telegraph lines.
- Nearby cities, Pisa and Leghorn, have good connections with the rest of the country.
- Leghorn hosts the IRN's Academy.
- The Coltano area was an estate of the King of Italy, Vittorio Emanuele III, who enthusiastically agreed to make it available for Marconi's project.
- In his youth, Marconi spent some periods in Leghorn, where, at the age of 14, he took lessons on electrical science from Prof. Vincenzo Rosa. Thus, Marconi was quite familiar with the area between Leghorn and Pisa.
The Radiotelegrafic Station "G. Marconi"

"Palazzina Marconi"

The Transmitter

- Transmitter type: spark gap
- Radiated power: 14 kW
- Band: longwaves (LW)
- Carrier frequency: 43 kHz
- Carrier wavelength: 7000 m
- Station's overall power consumption: 300 kW
19 November 1911, first transmission

"The long arc of telecommunication"
Coltano Radio Center in 1923 - **Coltano 2.0**

- Palazzina Marconi
- New Radio

250 m
75 m
420 m
Coltano Radio Center in 1930 - **Coltano 3.0**

Upgrade for Radiotelegraphic and also Radiotelephonic long-range maritime service

Migration from Longwaves to Shortwaves

4 Franklin-type HF omnidirectional vertical antennas (wavelengths 15-50 m)
Coltano: Italy's maritime teleport (1923-1940)

- **Canada**
- **Libia**
- **East Africa**
- **China and Japan**

**USA**
- "Dulio" and "Giulio Cesare"
- Cape Town, 8670 km

**Europe**
- "Conte Rosso"
- Shangai, 9200 km

**China and Japan**
- "Rex" and "Conte di Savoia"
- New York, 6650 km

**Morse, f < 100 kHz**

**Morse & Telephony, HF**
12 October 1931

Gugliemo Marconi, in Rome, remotely switches on the lights of the statue of Christ in Rio, via an HF intercontinental radio link from Coltano.
1944, the end of Coltano radio center
14 June. German troops blew up the antennas and the New Radio building during their retreat. The Palazzina Marconi was unused since many years and it was spared from destruction.

Coltano today: the Palazzina Marconi in ruins
A new hope for Coltano: from ruins to rebirth?

• Early this year the "Demanio dello Stato" (administration of state property) which is the institution currently owning the Palazzina Marconi, handed over the building to the Municipal Administration of Pisa.

• The latter, in order to gain the full property of the Palazzina Marconi, shall first secure the building, so as to stop the deterioration process and to allow in situ surveys. Then, it shall present a complete project for the restoration of the building, devising its future use, together with the relevant funding sources.

• The recovery plan, which is still under definition, envisages an intervention funded by the Municipal Administration of Pisa on the space around the building and aimed at creating a tourist area accessible by the public, with itineraries and all the necessary services.

• The restoration of the building should be instead financed by the private sponsor Intracom Telecom, a global telecommunication systems & solutions vendor. The "Officine Marconi Coltano" a local non-profit organization made of volunteers, researchers, and enthusiasts of radiocommunications, will act as a steering committee of the reconstruction process.

• The restored building could be dedicated to one or more of the following utilizations: museum of telecommunications, auditorium, research center, laboratories, business incubator, etc.
Thanks for Your Attention

For questions and comments, please contact filippo.giannetti@unipi.it