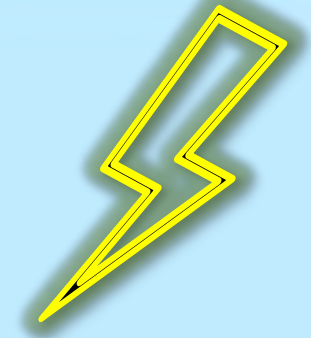


Tesla



The Forgotten Genius

Part 2

High Frequency

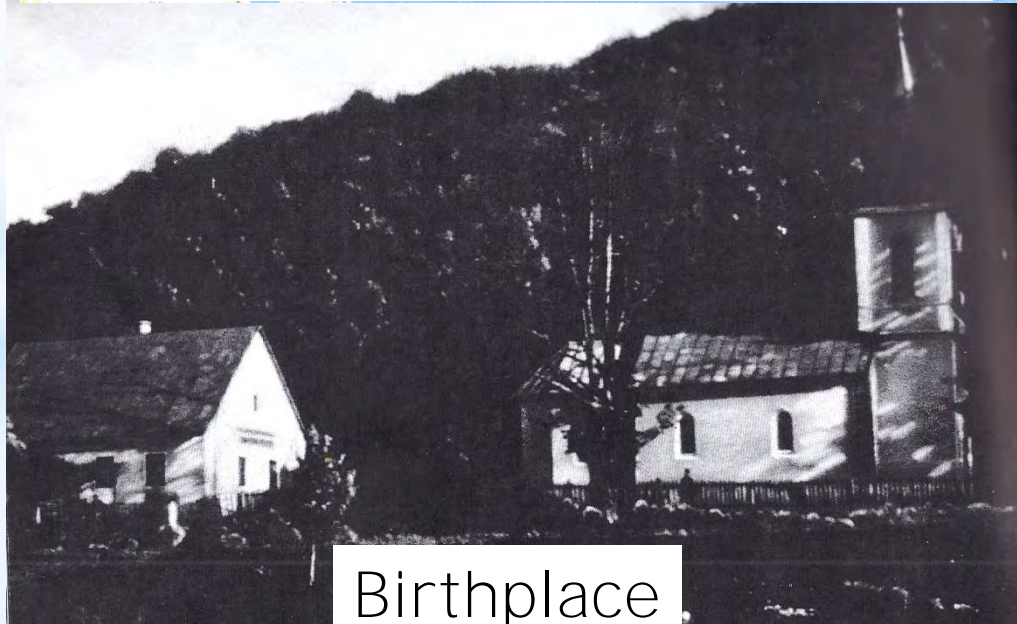
Ange Rapa
January 13, 2022



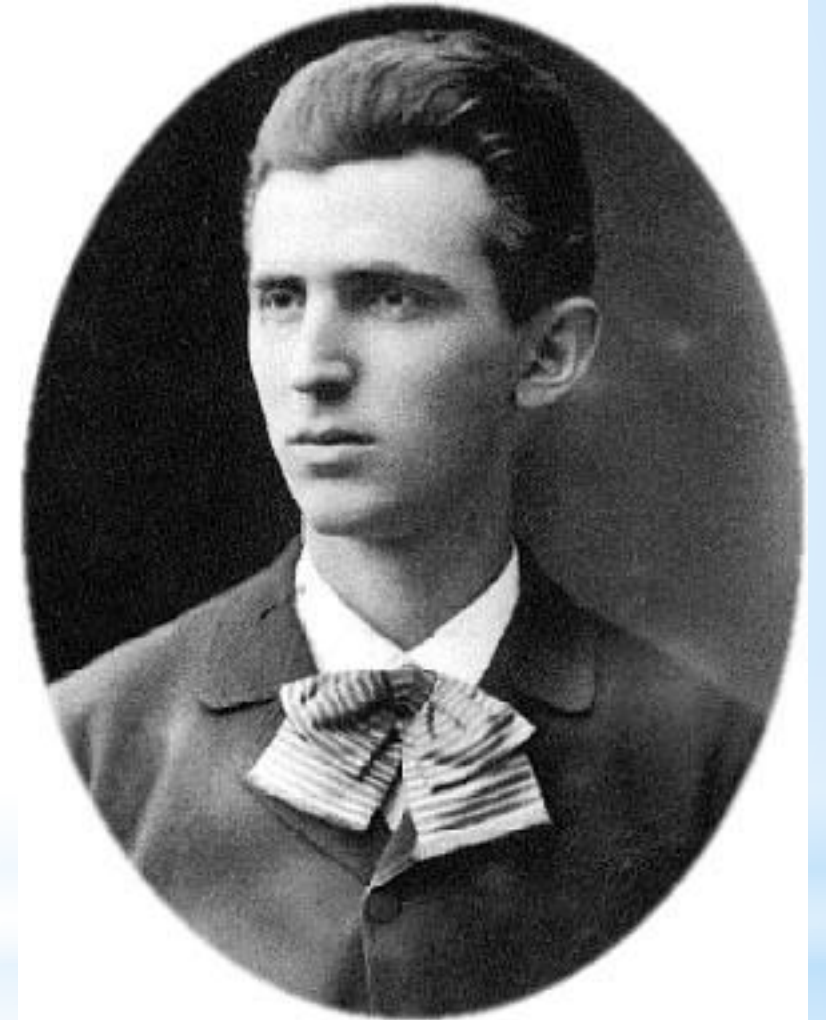
Review...



Born 1856 in Smiljan, Croatia



Birthplace



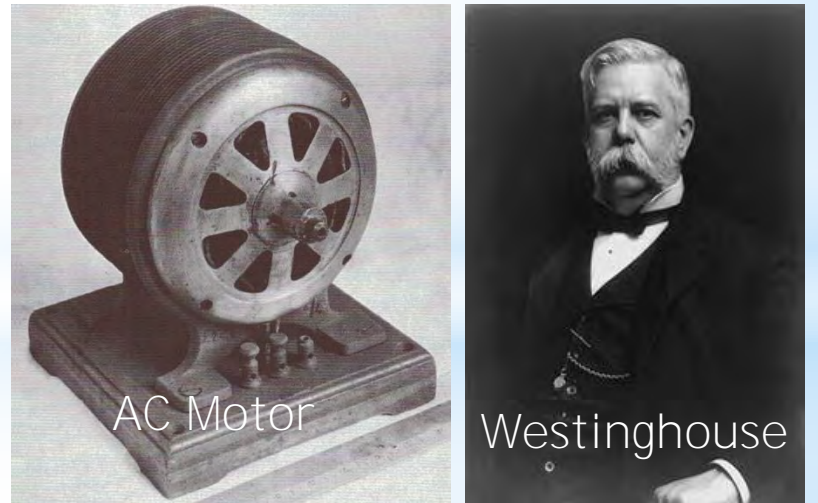
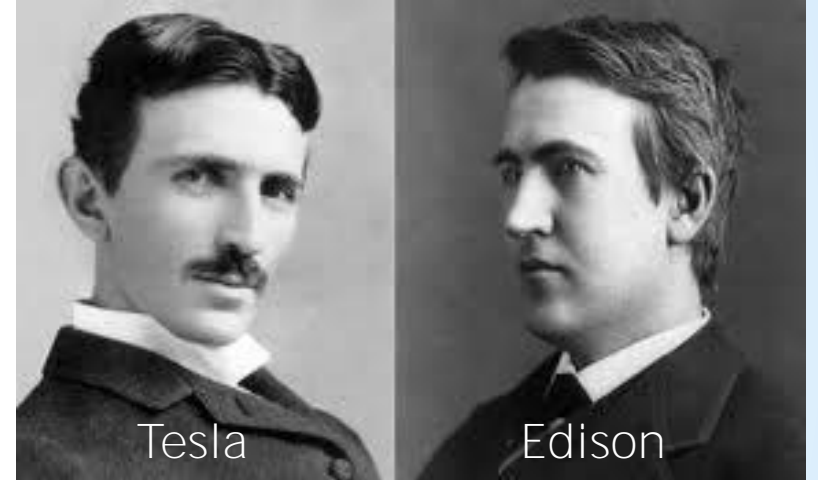
Nicola Tesla (age 23)

Review...

1884 - Tesla in New York to work for Edison - Quits

1887 - Builds AC motor; files major AC patents

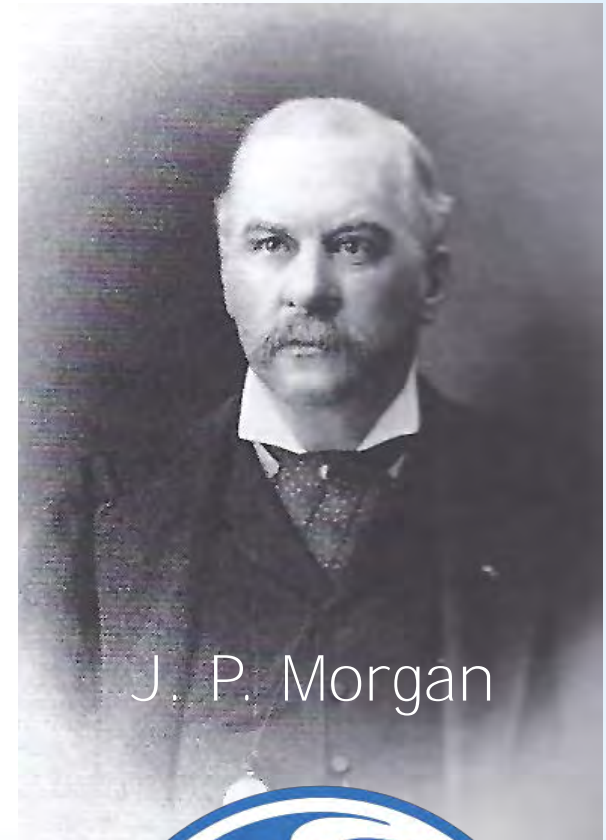
1888 - Westinghouse buys Tesla patents launching **“Battle of the Currents”**



Review...

1892 -

- J. P. Morgan facilitates merger forming General Electric
- GE and Westinghouse submit bids for Chicago Expo
- Contract for the Chicago Expo awarded to Westinghouse



Review...

1893 -

Chicago Expo opens to great acclaim

Westinghouse awarded Niagara contract

1896 -

Niagara hydro power online to Buffalo

1900 -

Niagara power extended to NYC



Today... "High Frequency"

12,000,000 V. 800 A. Dec. 13, 1899.

OSCILLATION TRANSFORMER

INDUCTION MOTOR

WORLD WIRELESS TELEPHONE TRANSMITTER

TELAUTOMATON


STEAM & GAS TURBINE

TESLA COMPANY, Inc.
TELEPHONE 9090 BRYANT

8 West 40th St.
NEW YORK

MUSEUM
MADE IN U.S.A.

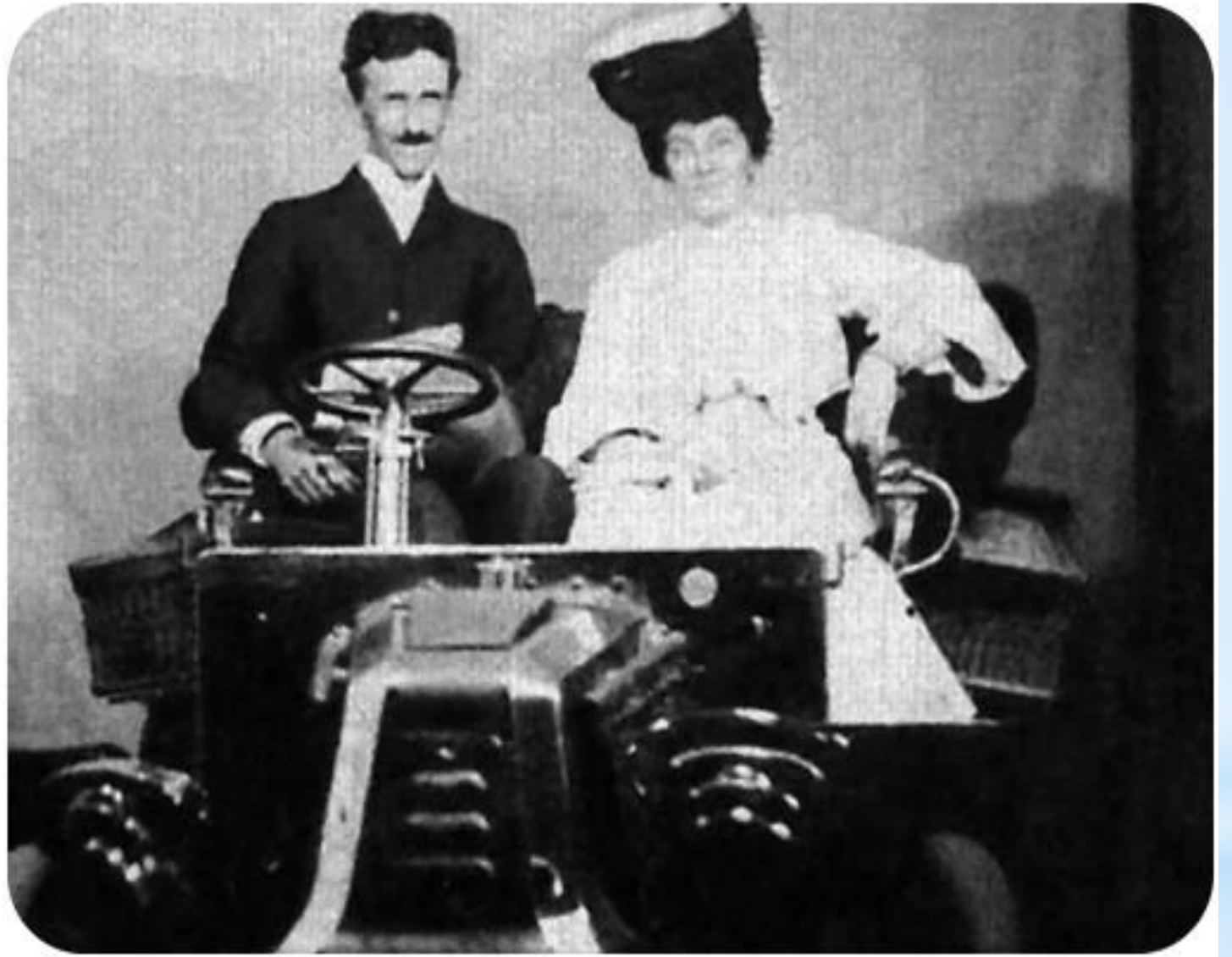
The advertisement features a central illustration of a tall, tapered tower with a spherical top, labeled 'WORLD WIRELESS TELEPHONE TRANSMITTER'. From the top of the tower, a large, billowing cloud of white, lightning-like energy radiates outwards. To the left of the tower is a tall, cylindrical structure with a spherical top, and to the right is a tall, rectangular structure. The background is a light, textured surface. The text '12,000,000 V. 800 A. Dec. 13, 1899.' is printed at the top center. The company name and address are at the bottom, and a small circular logo is in the bottom right corner.



High Frequency



Sarah Bernhardt



Tesla with unidentified woman

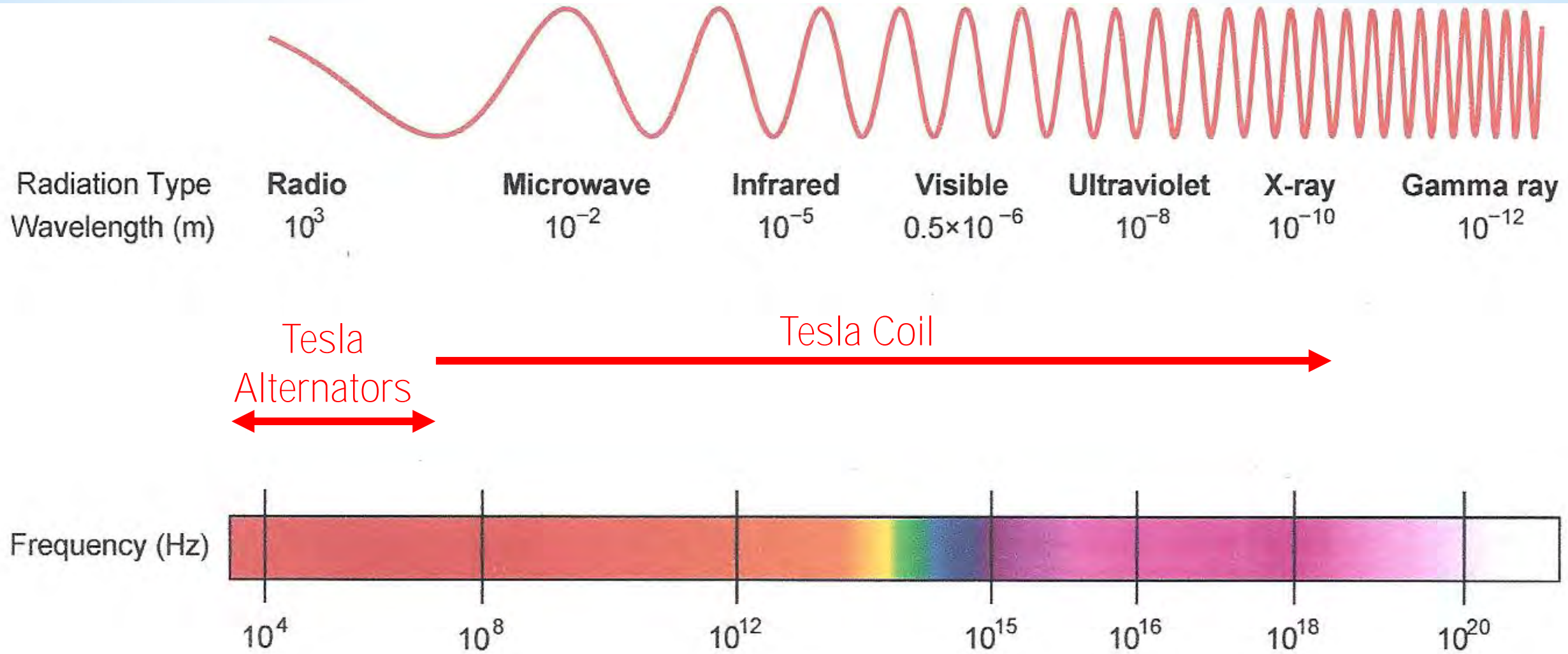


The Tesla Coil

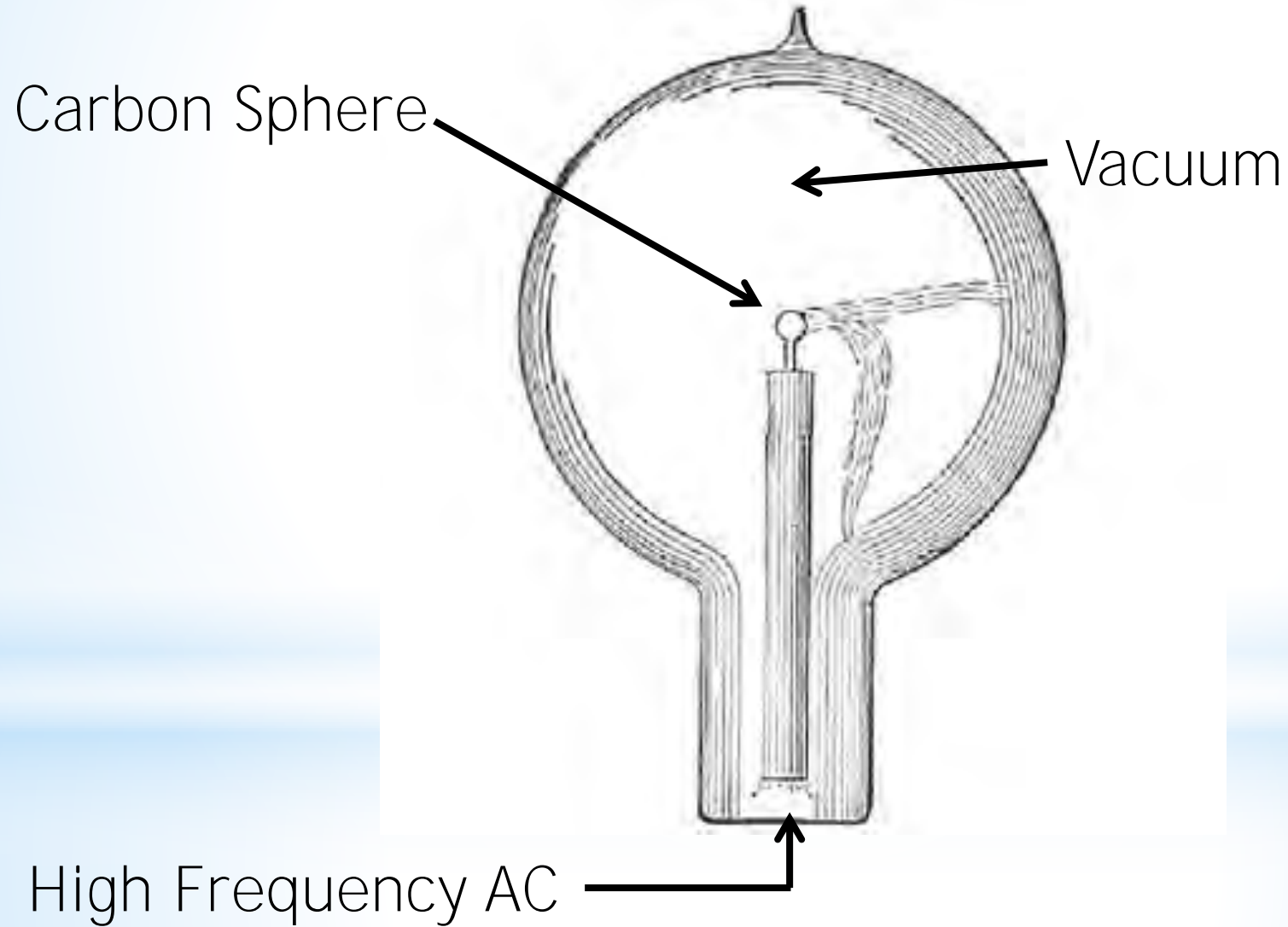


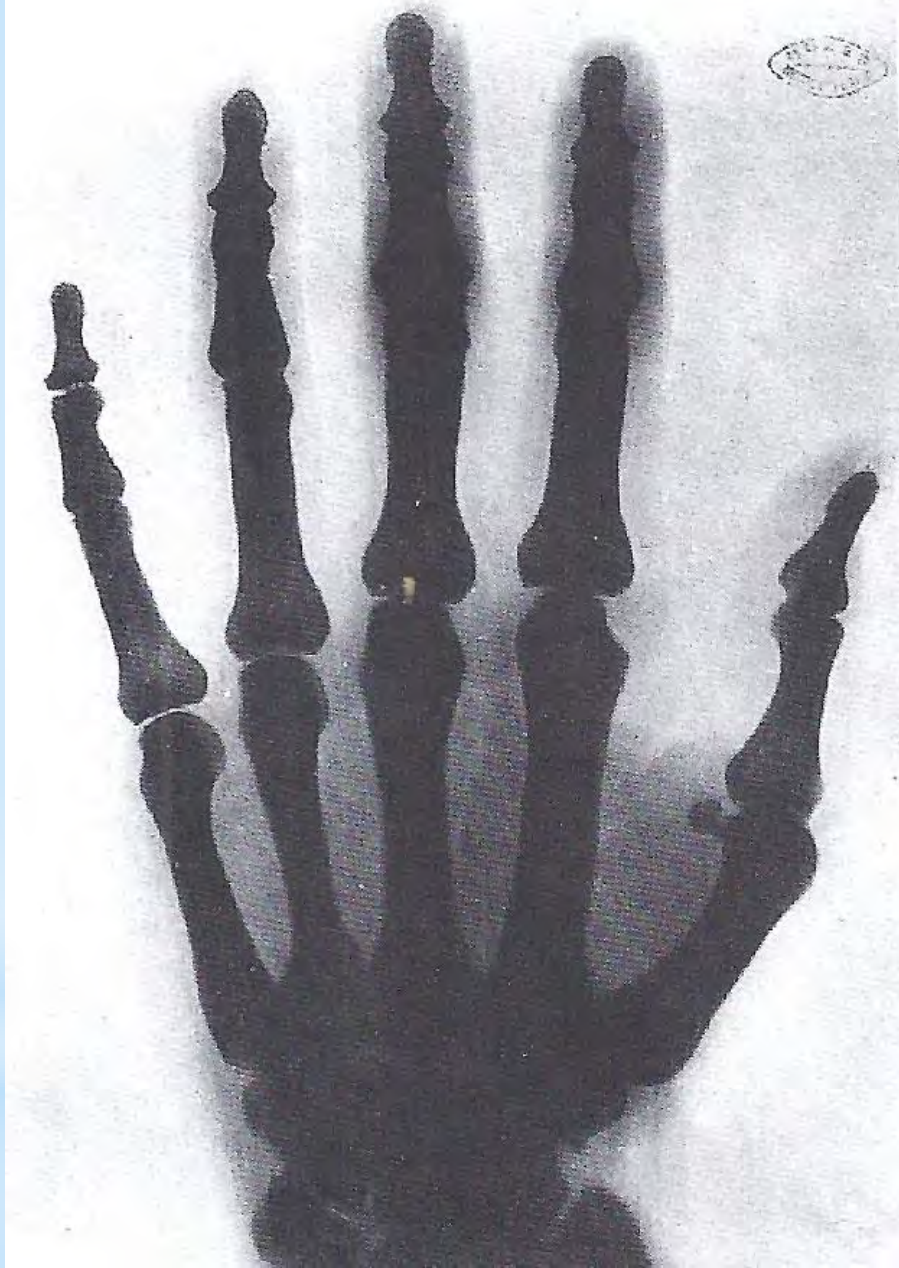
HISTORY.COM

Electromagnetic Spectrum



Tesla Carbon Button Lamp

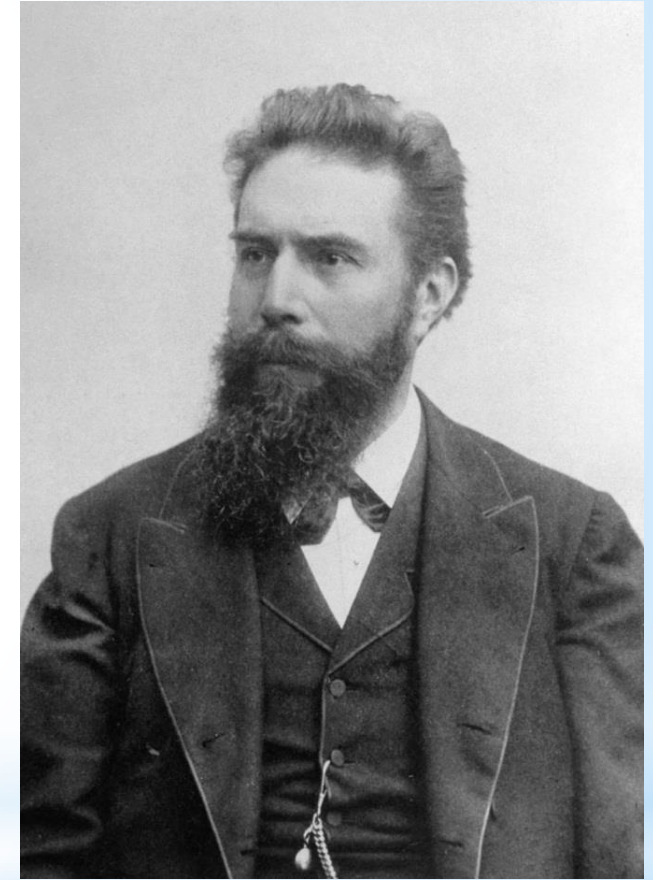




Tesla's Hand (~1892)



Roentgen Wife's Hand (1895)



Wilhelm Roentgen

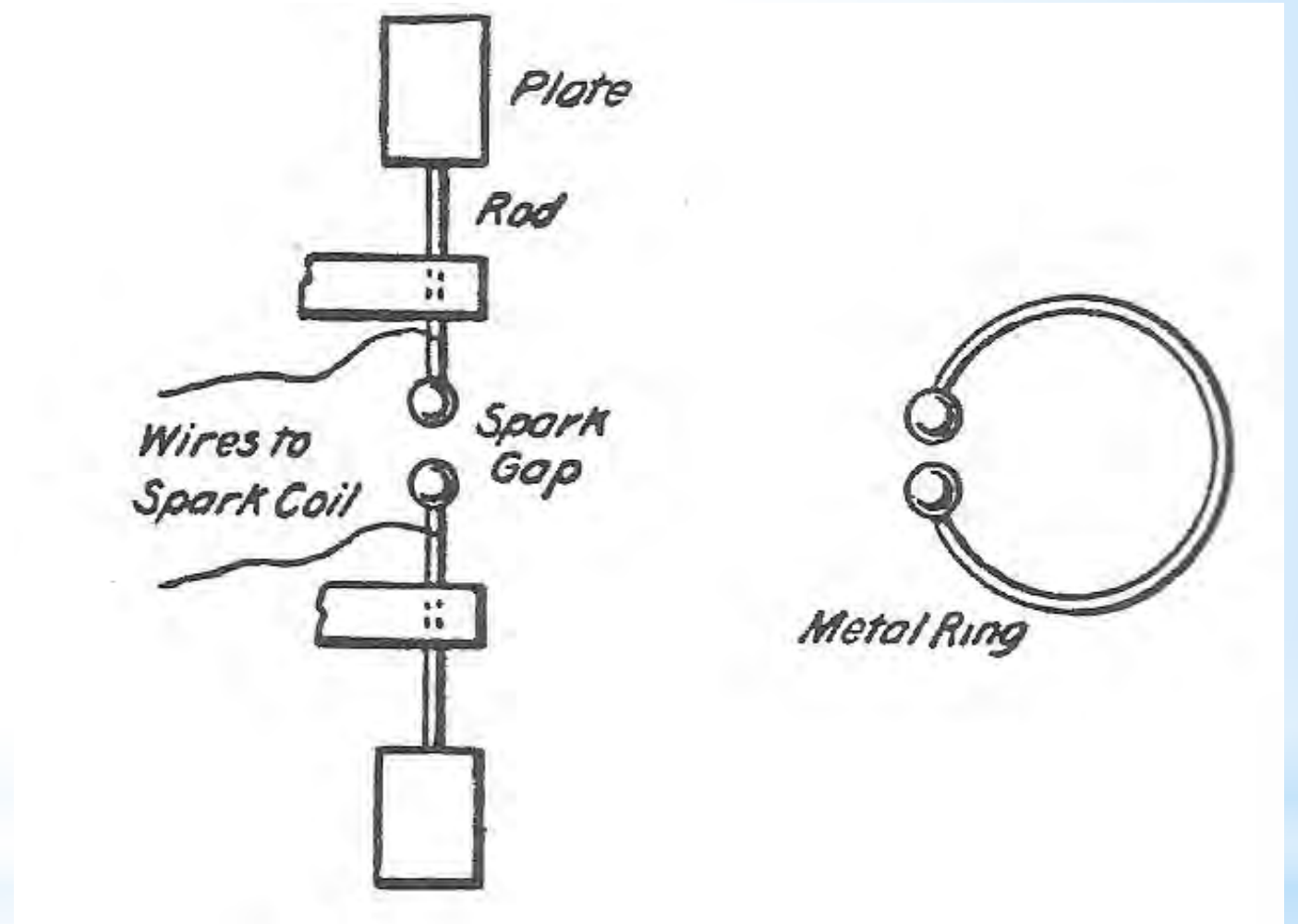
X-Ray Timeline

- 1891 - Tesla coil patented
- 1892 - Tesla lectures in Europe on his high-frequency **experiments and “carbon button” lamp**
- 1893 -
 - > *Advantages of AC power demonstrated at Chicago Expo*
 - > *Niagara power contract awarded to Westinghouse*
- 1894 - Tesla creates X-ray shadowgraphs
- March 1895 - **Fire destroys Tesla’s lab and most X-ray photos**
- Dec. 1895 - Roentgen announces discovery of X-rays

The Wireless



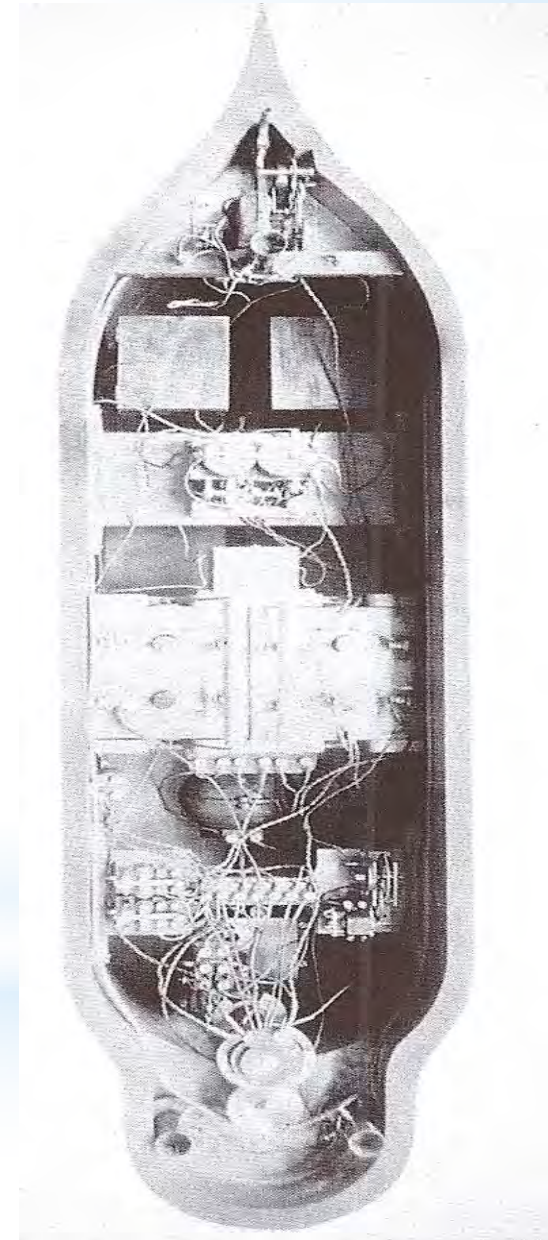
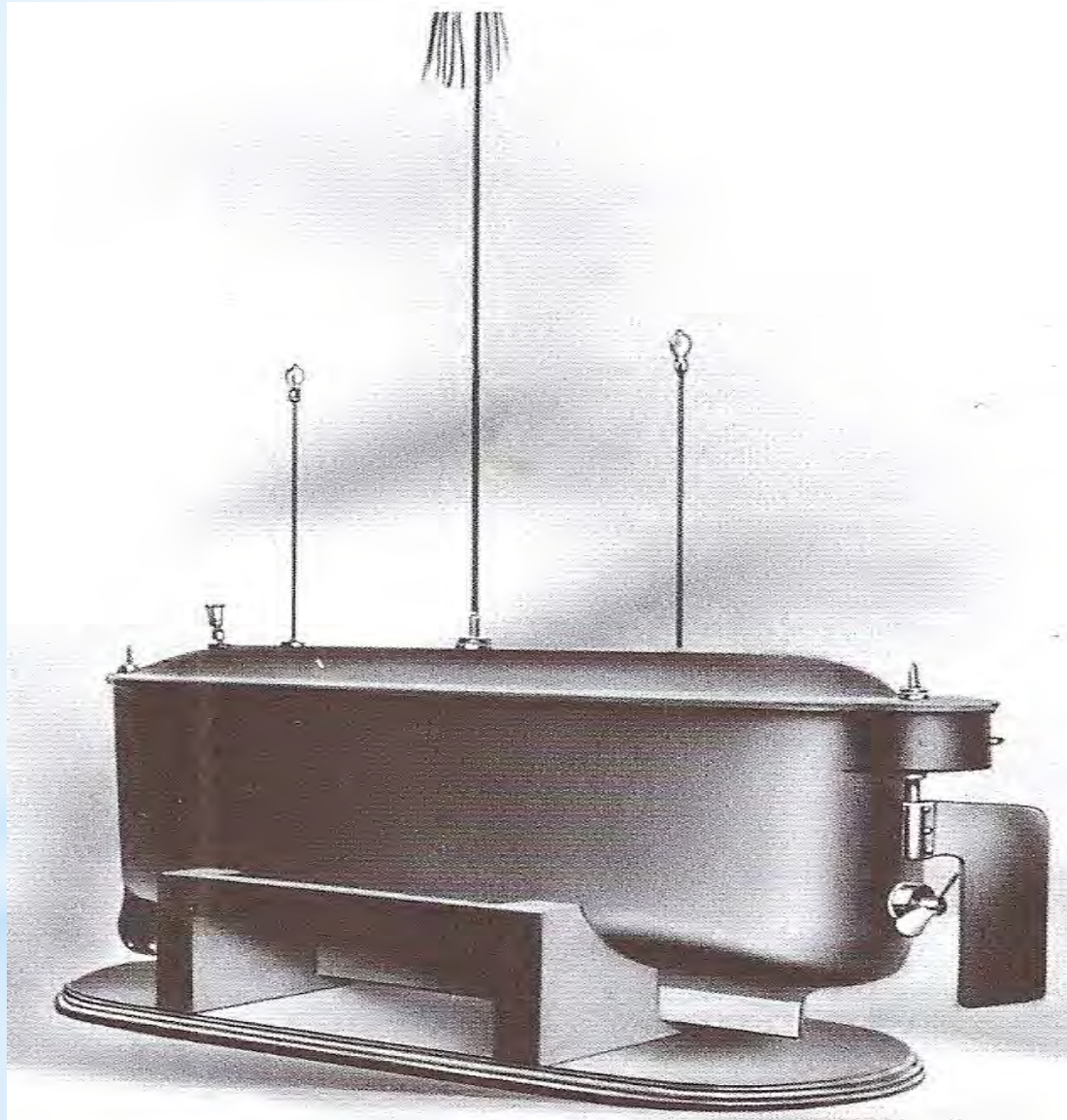
Guglielmo Marconi



Hertz's Spark Transmitter and Receiver

Cosmic Waves

Tesla's Radio-Controlled Model Boat - 1898

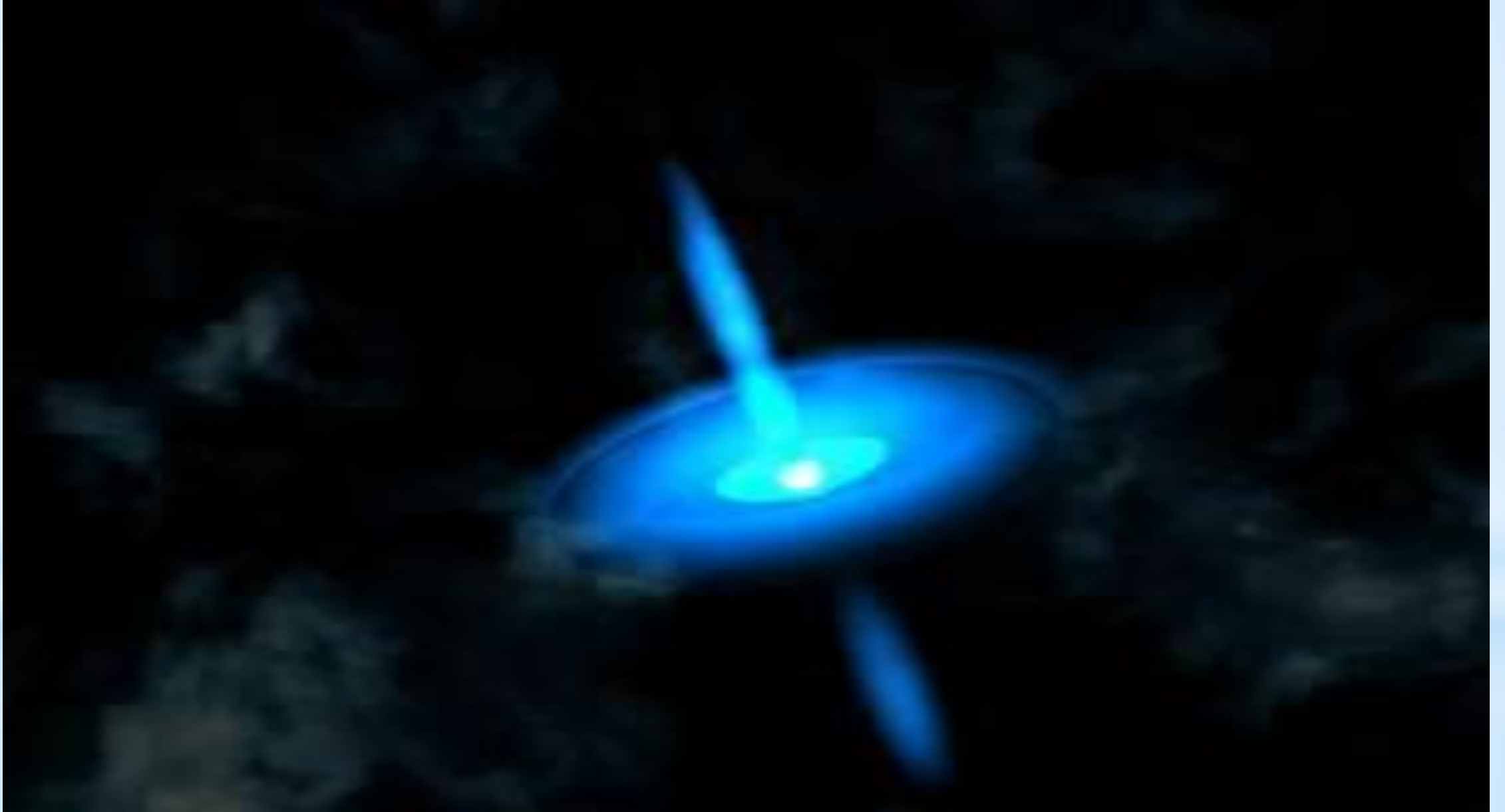


Military Drones

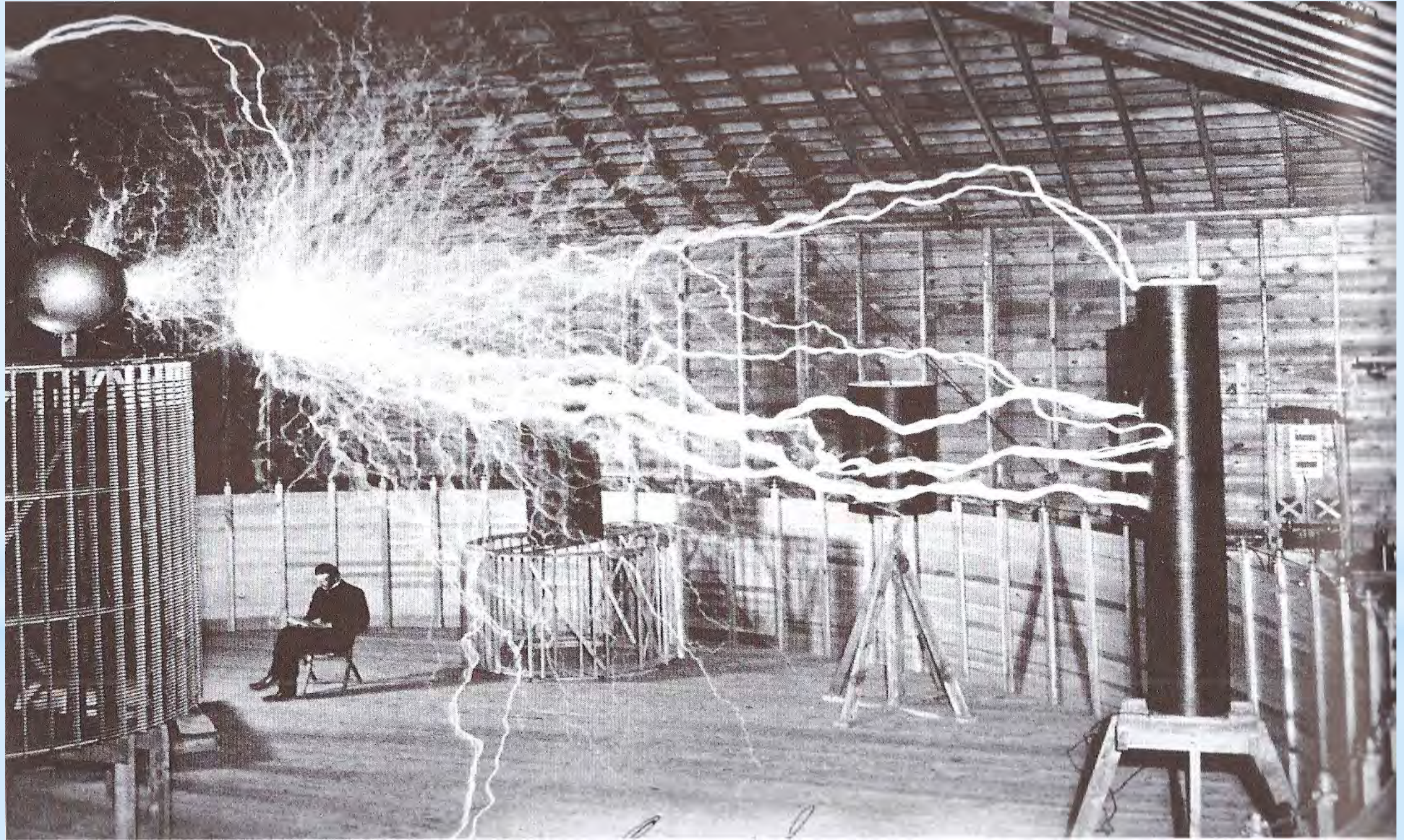


Colorado Springs

Pulsar Star



Colorado Springs - May 1899 to January 1900



Tower of Dreams

Wardenclyffe - 1904



Radio Timeline

1895 - Marconi transmits 1 ¼ miles

Tesla alternator signals >5 miles (fire destroys lab)

1897 - Marconi transmits 3.7 miles

Tesla receives radio patent, detects signals 30 miles,
demos radio-control

1899 - Tesla Colorado Springs experiments

1900-05 - Wardenclyffe Tower wireless project

Dec. 1901 - **Marconi transmits letter “s” across Atlantic**

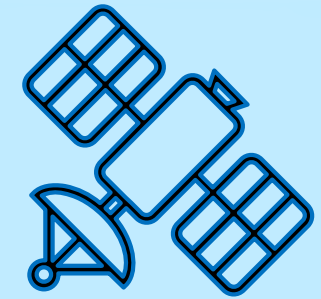
1903 - Wardenclyffe power transmission experiments fail

1904 - Patent office reverses giving Marconi radio patent

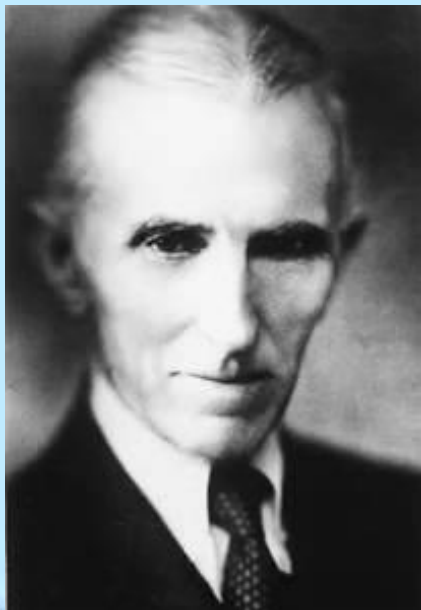
1905 - J. P. Morgan stops funding Tesla

Next Class...

Tesla



The Forgotten Genius



Part 3

Later Life and Legacy

Ange Rapa

January 18, 2022

