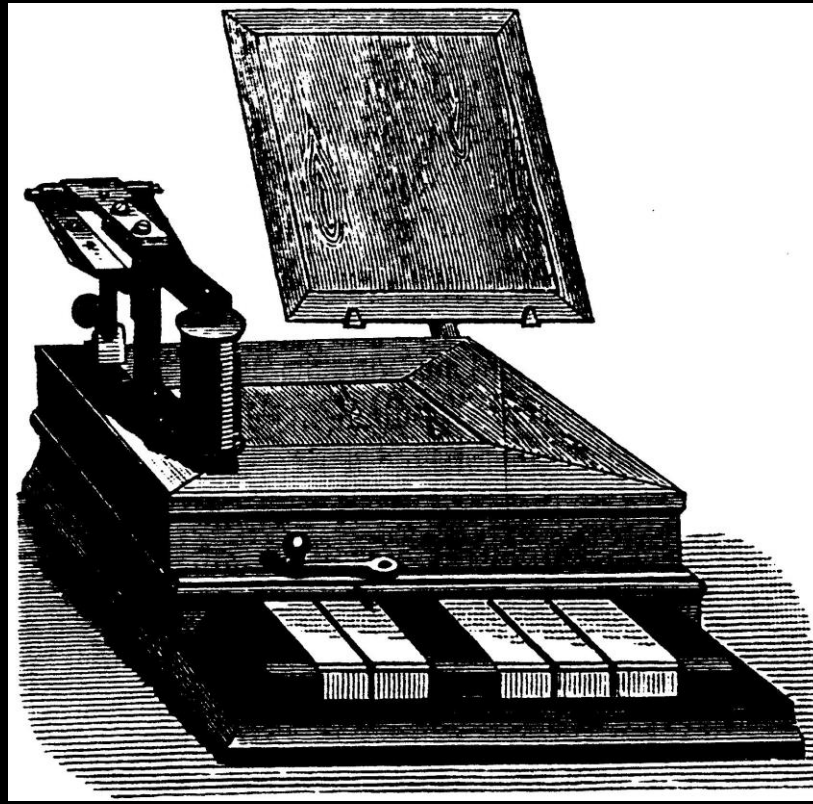


Radio History 1





Jean-Maurice-Émile Baudot (French: 11 September 1845 – 28 March 1903), **French telegraph engineer** and inventor of the first means of digital Communication, **Baudot code**, was one of the pioneers of **telecommunication**. He invented a **multiplexed printing telegraph** system that used his code and allowed multiple transmissions over a single line. The **baud** unit was named after him.

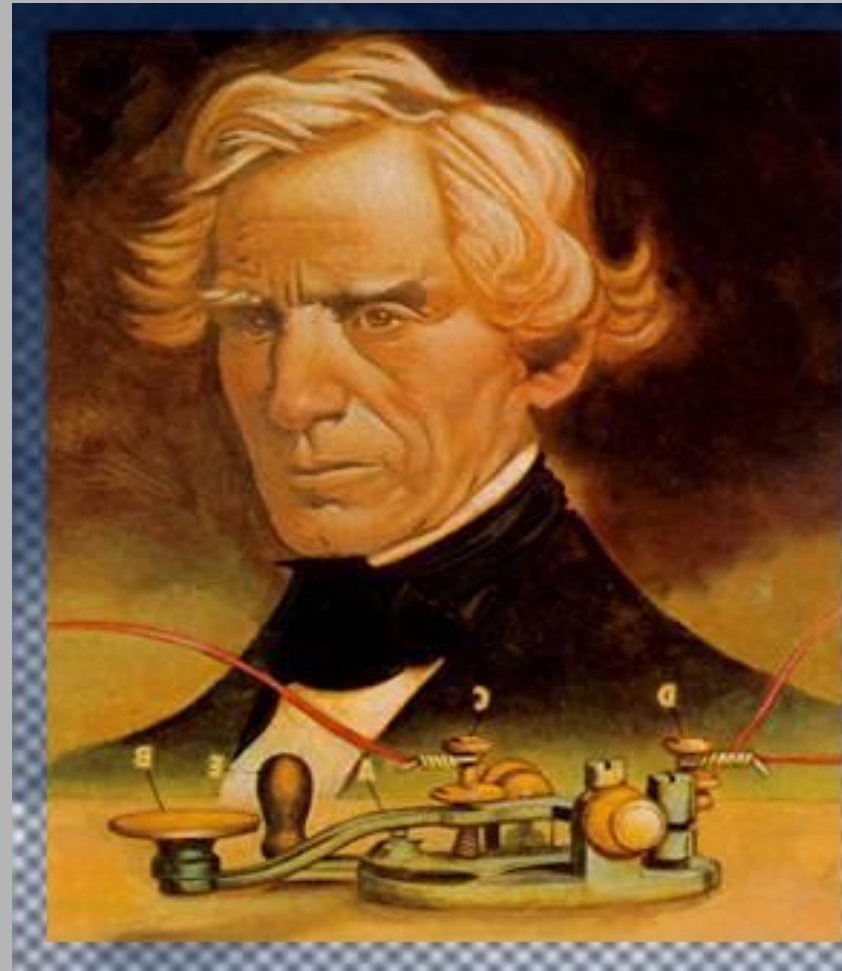


Novelty Stage

1. Samuel morse

- **Telegraph** (wires)
- Morse Code

Video of telegraph



Novelty Stage

what about wireless?

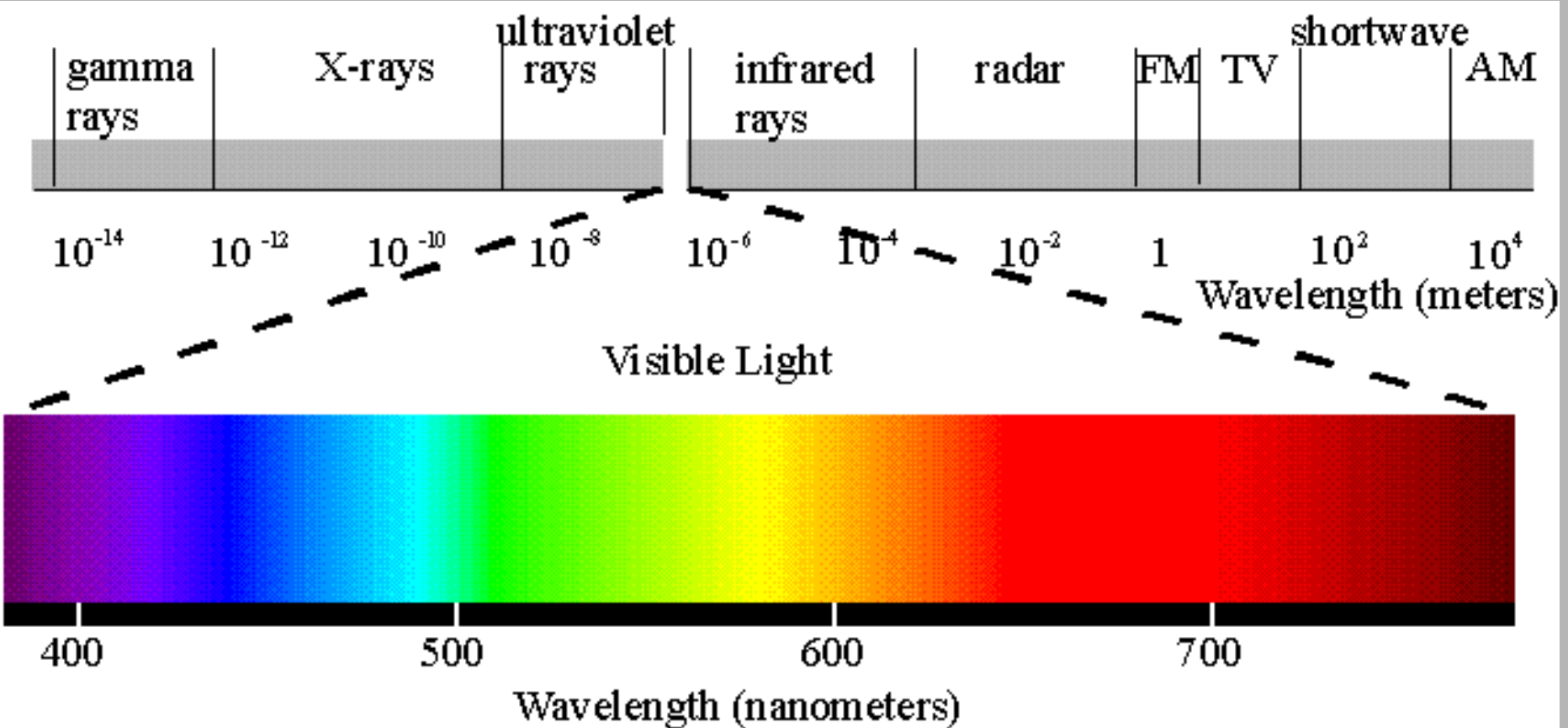
How do you transmit a signal through
the **AIR**?

Novelty Stage

2. James Maxwell

His equations **theorized** that electricity, magnetism and even light are all manifestations of the same phenomenon: the electromagnetic field.





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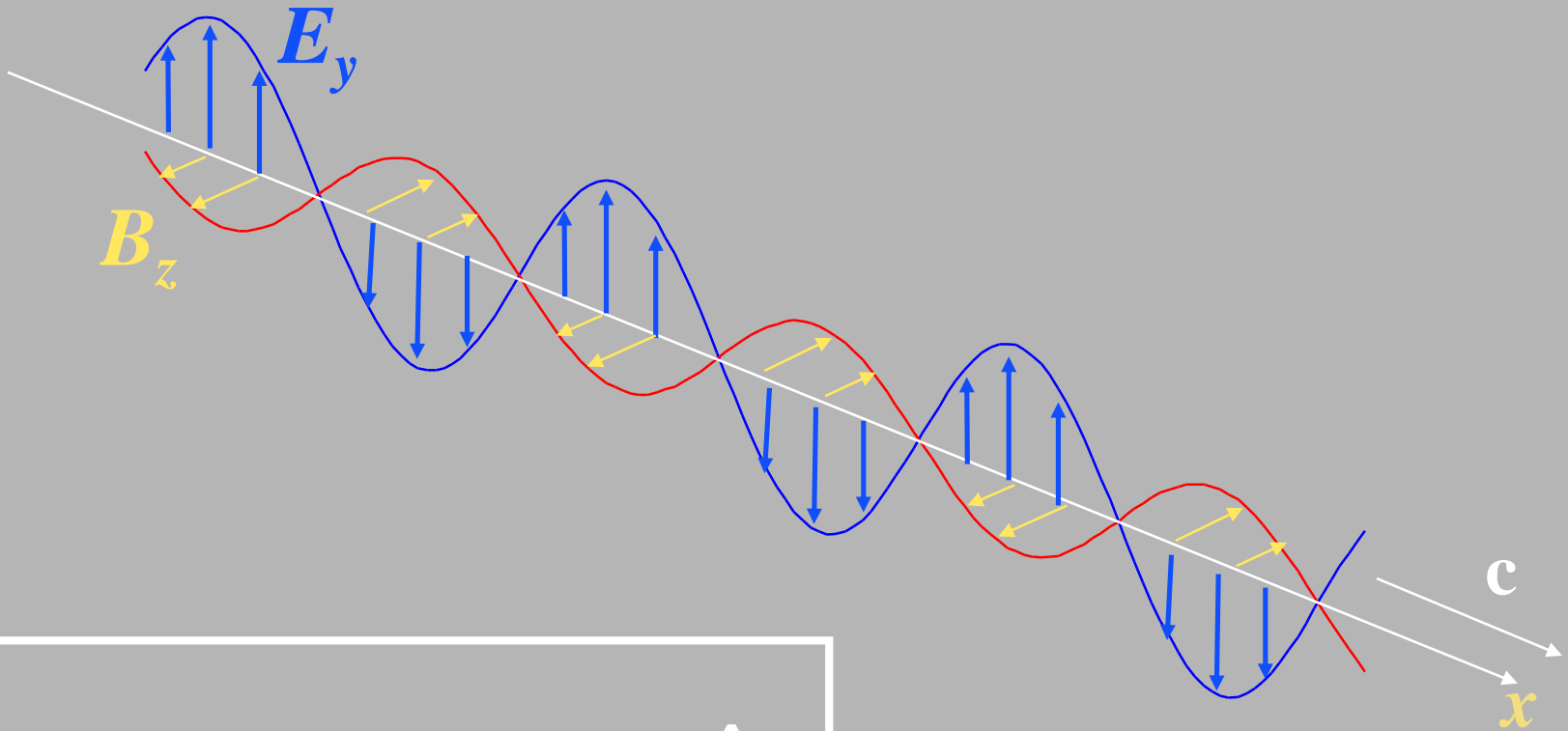
[Visual Stimulus](#)

$$\frac{\partial E}{\partial x} = -\frac{\partial B}{\partial t} \quad \frac{\partial B}{\partial x} = -\epsilon_0\mu_0 \frac{\partial E}{\partial t}$$

$$\frac{E_m}{B_m} = \frac{E}{B} = c$$

$$c = \frac{1}{\sqrt{\epsilon_0\mu_0}} = 3.0 \times 10^8 \text{ m/s}$$

Plane Electromagnetic Waves



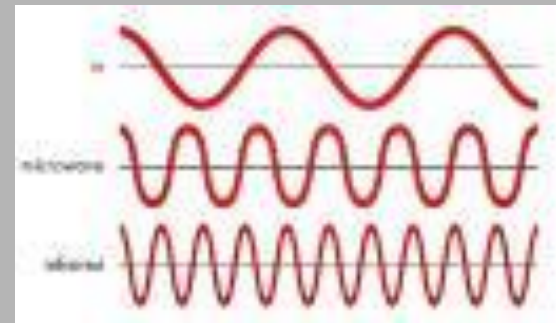
$$\underline{\mathbf{E}}(\mathbf{x}, t) = E_p \sin (kx - \omega t) \hat{\mathbf{j}}$$

$$\underline{\mathbf{B}}(\mathbf{x}, t) = B_p \sin (kx - \omega t) \hat{\mathbf{z}}$$

Novelty Stage

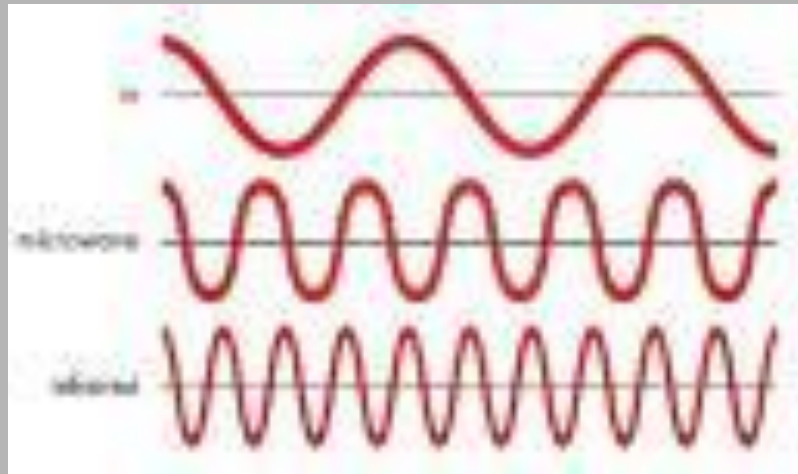
3. Heinrich Hertz

- **Proved** Maxwell's theories
- Identified Electromagnetic waves



Novelty Stage

Hertz (Hz) can be used to measure any periodic event; the most common use for hertz is to describe frequency of rotation, in which case a speed of 1 Hz is equal to one cycle per second.



Novelty Stage

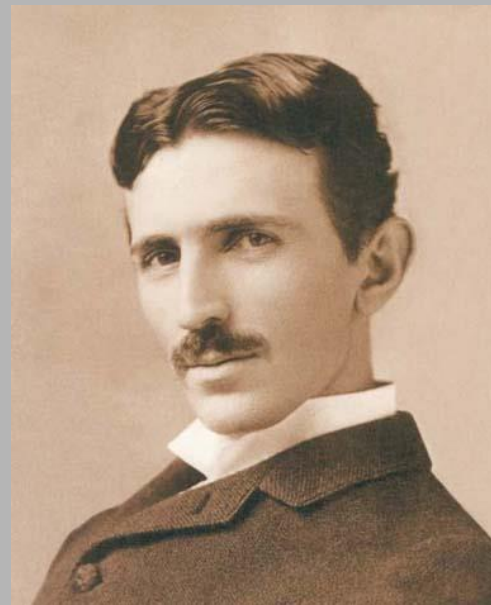
4. THREE GUYS WHO INVENTED THE DEVICE TO TRANSMIT A SIGNAL THROUGH THE AIR (1894)

A. Guglielmo Marconi **vs.**

B. NiKola Tesla **vs.**

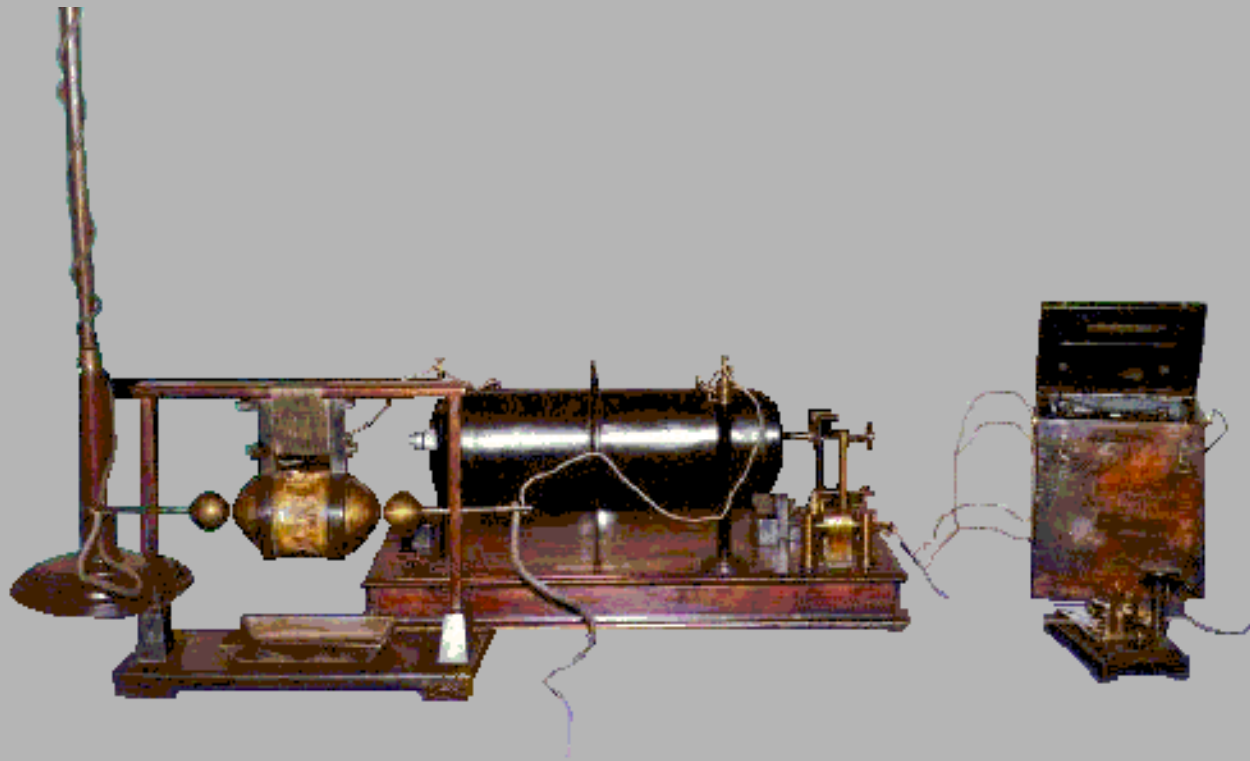
C. Alexander Popov

– Who invented Wireless telegraphy?



Novelty Stage

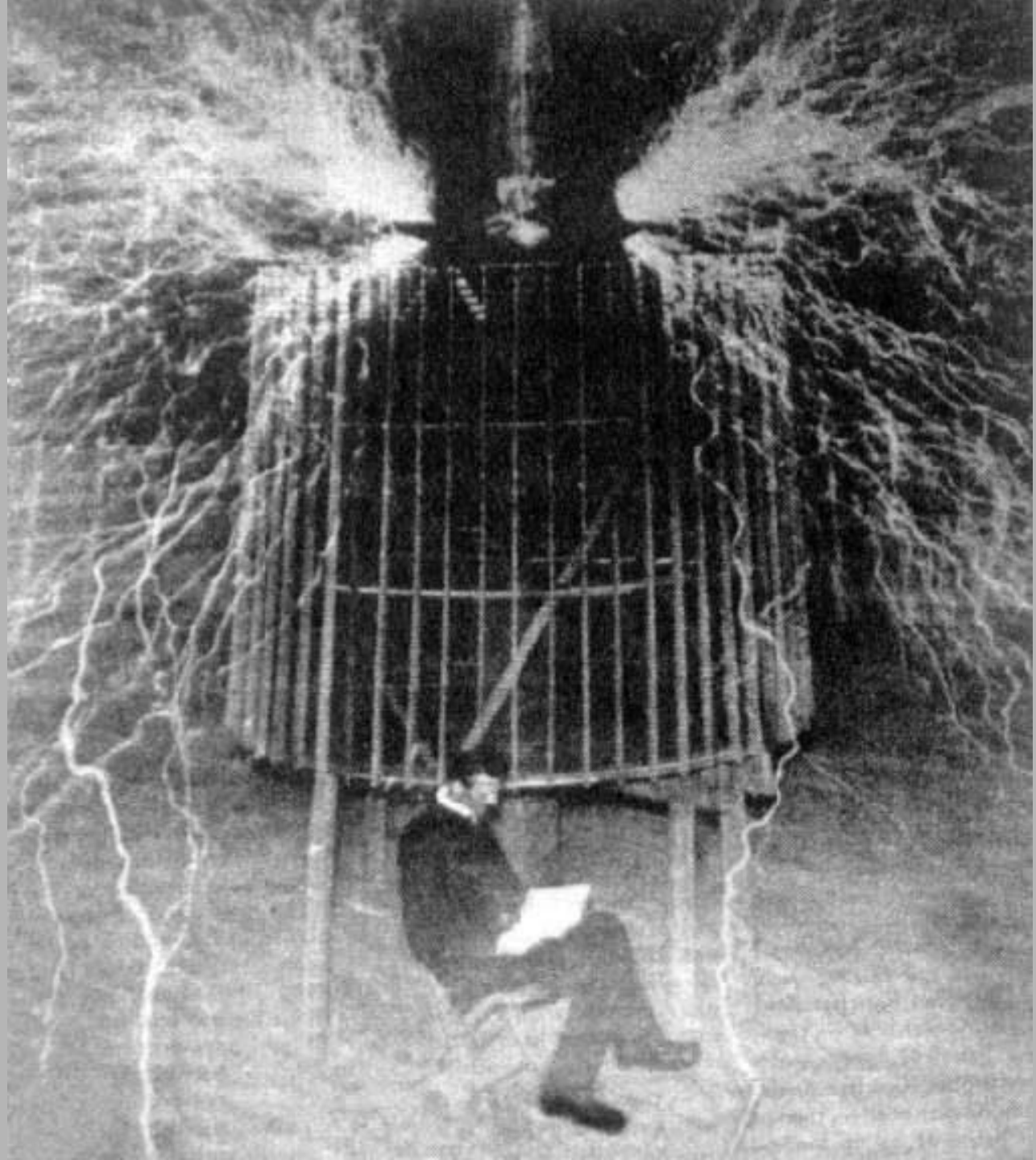
MARCONI





Marconi's Invention (Dramatization)
HAD IMPLICATIONS FOR SHIP TO SHORE TRAVEL

Tesla



Novelty Stage

POPOV

(Dramatization)



Tele = far off

Graph= writing

Phone= sound

Telegraph

Telephone

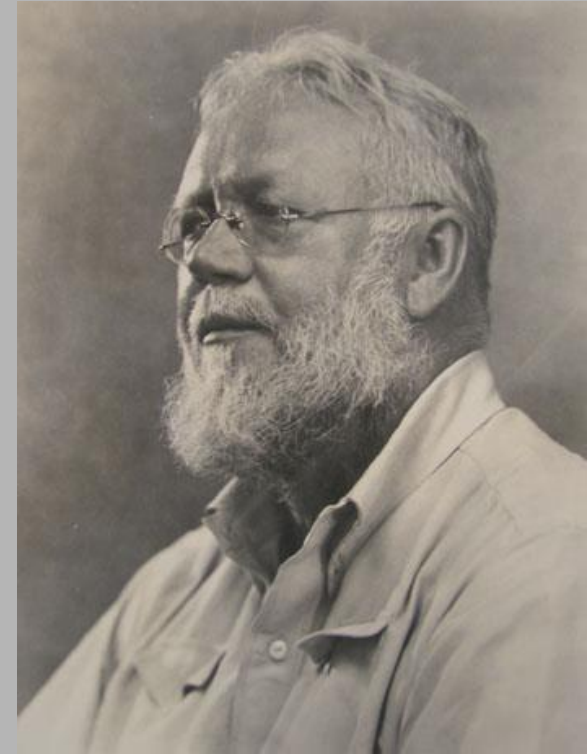
Phonograph

WIRELESS TELEGRAPH

Novelty Stage

5. Reginald Fessenden

- Wireless telephony:
- transmitted **voice and sound**



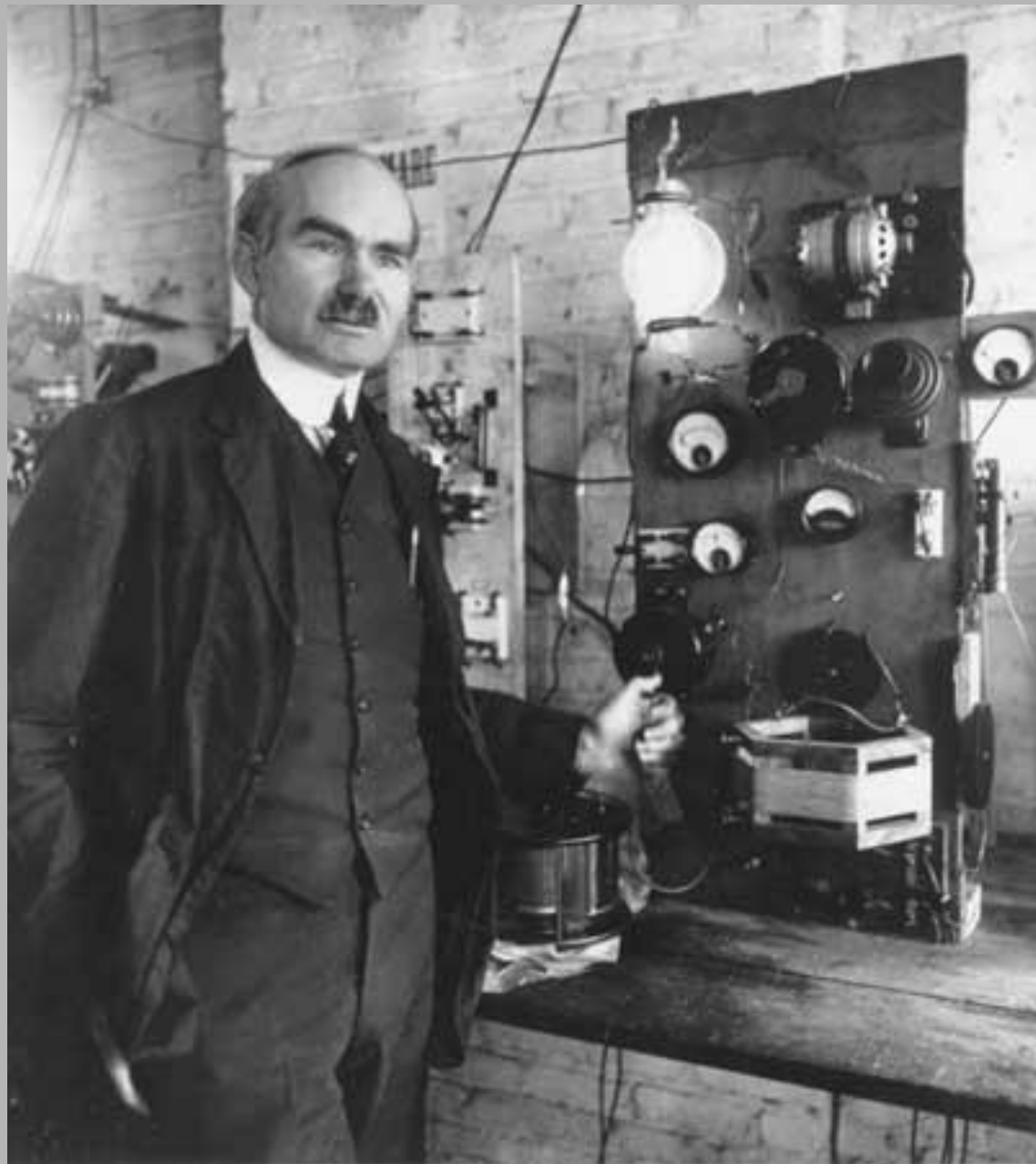
Novelty Stage

6. Lee De Forest

- Wireless telephony:
amplified sound



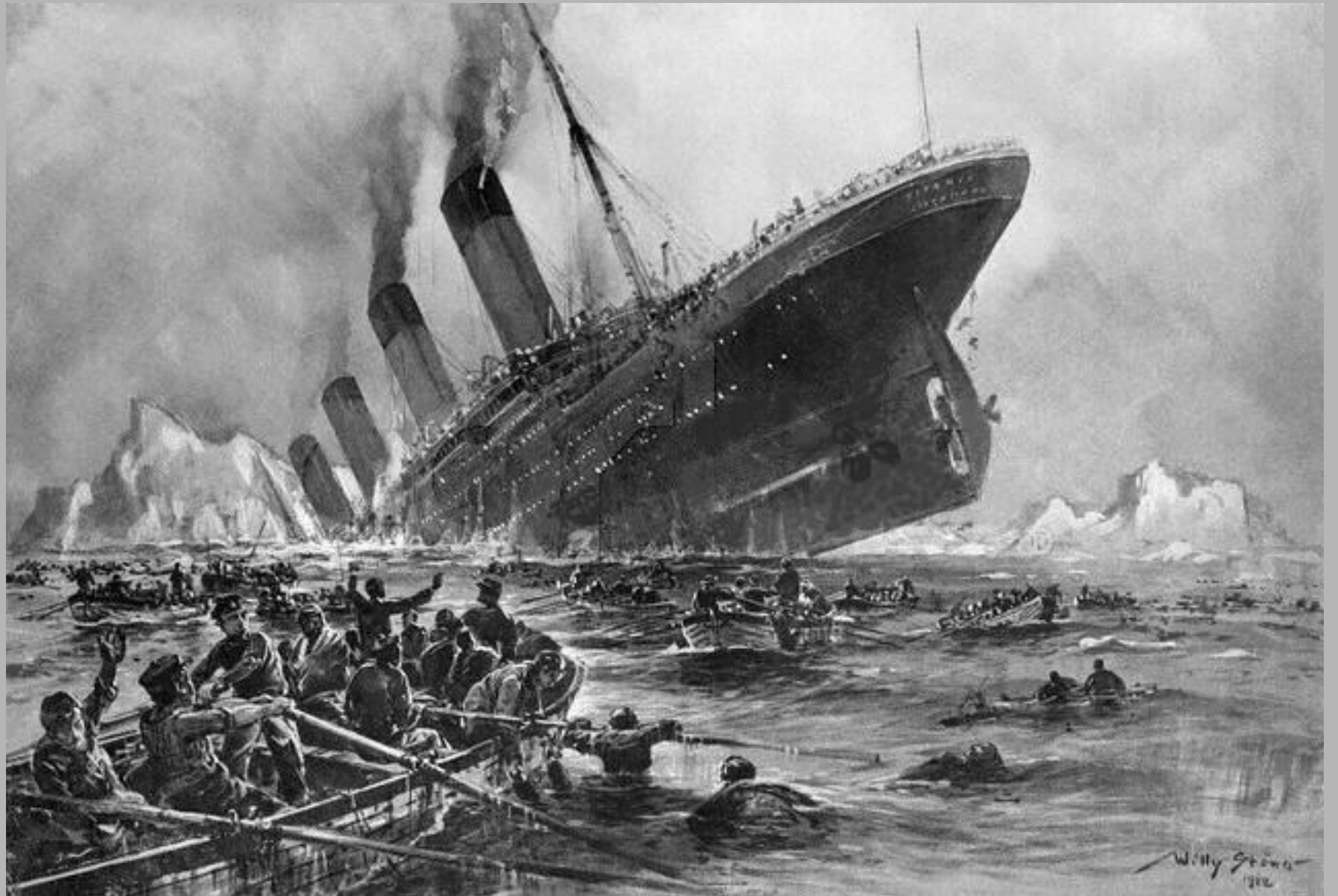
Lee de Forest
receives his Ph.D
from Yale in 1899



Entrepreneurial Stage

- Ship-to-shore communication





TWS-LETTER, TUESDAY, APRIL 16, 1912.

THE TITANIC SUNK.

COLLISION WITH ICEBERG.

1,500 LIVES LOST.

WIRELESS CALLS FOR HELP

LINERS TO THE RESCUE.

The maiden voyage of the new White Star liner Titanic ended in disaster yesterday morning. The ship struck an iceberg and sank.

Entrepreneurial Stage

- “Wireless” became a huge hobby



RADIO BROADCASTING NEWS

Vol. 2

OCTOBER 28, 1922

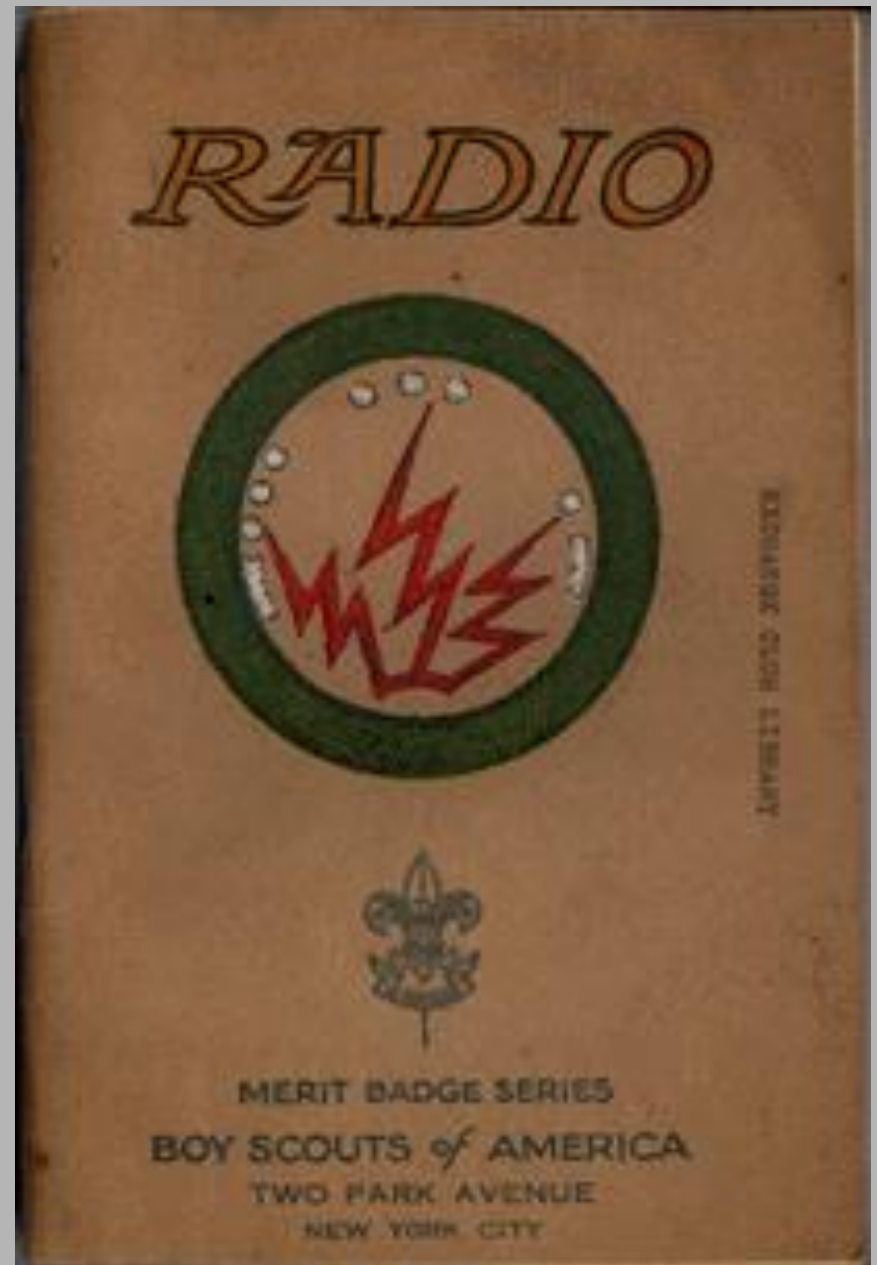
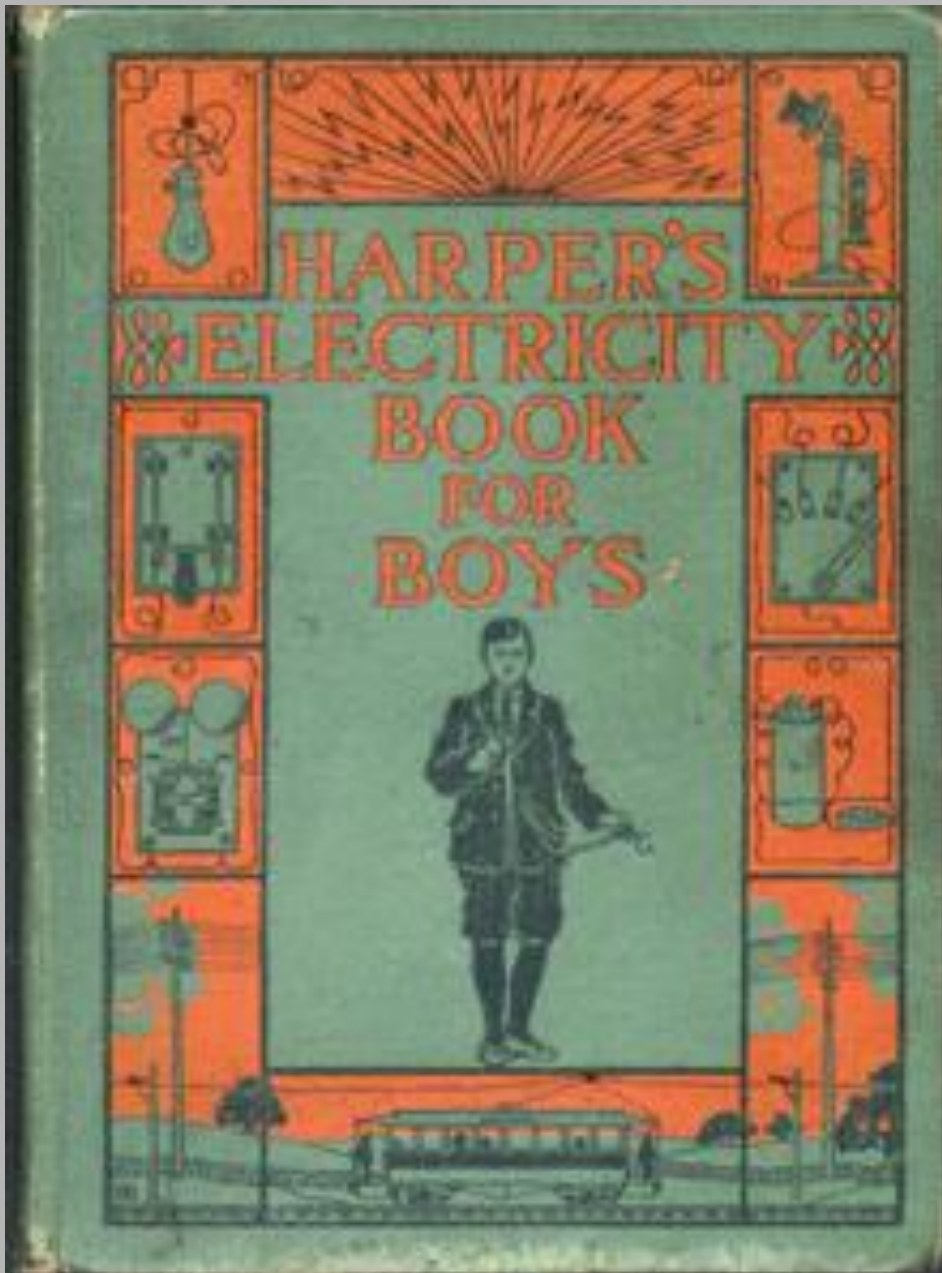
No. 22



Roberta, Imogene, and Kathryn Hinshaw of Windfall, Indiana, Enjoying Radio Set Built by Their Father W. R. Hinshaw. They Have Heard Broadcasting from Atlantic and Pacific Coasts.







The WIRELESS AGE

Volume 1

Number 1



A 240 Spark Note on 60 Cycles

with through four times the energy in just one stroke and with a low impedance output! Quite government regulation—40, possible with the

"AMRAD" QUENCHED GAP

Our Bulletin No. 17 can be ordered separately.

\$17.50

Early shipping available.

See your dealer today to learn more about "AMRAD" Quenched Gap. If he does not have it, order direct from us. Full details in this bulletin.

Keep out of trouble



You can save your time and money with the "AMRAD" WAVE METER.

"AMRAD" WAVE METER \$5.

It is the most simple and reliable device a Radioist could use for checking the frequency of any transmitting station. It has many uses, with a range of working frequencies.

Early orders will supply you. Descriptive bullet and an order.

Attract DC Like AC

For the best results, connect when AC is not available to

"AMRAD" INDUCTION COIL — \$24.50

— GUARANTEED AS A RELIABLE

Device for

charging

batteries

and for

charging

condensers

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charging

capacitors

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resistors

and for

charging

inductors

and for

charging

transformers

and for

charging

relays

and for

charging

switches

and for

charging

motors

and for

charging

generators

and for

charging

any other

electrical

equipment.

Full details in this bulletin.



AMERICAN RADIO AND RESEARCH CORPORATION

21 PARK ROW, NEW YORK, N. Y. Laboratory and Works, Medford Hillside, Mass.



A Remarkable Long Distance Receiver for Amateurs

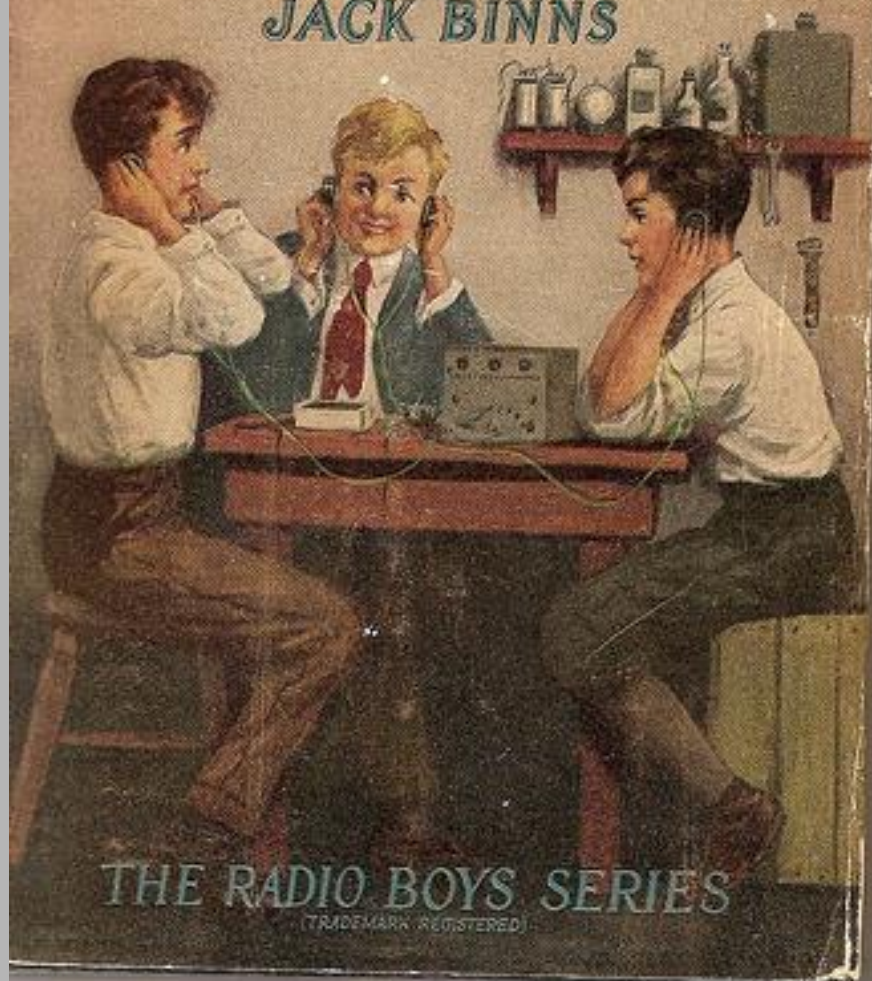
A Full Description of the New Amazing Make-Range Receiver

By Professor Arthur E. Hill, F. R. S.

The RADIO BOYS' FIRST WIRELESS

BY ALLEN CHAPMAN

WITH FOREWORD BY
JACK BINNS



THE RADIO BOYS SERIES

(TRADEMARK REGISTERED)

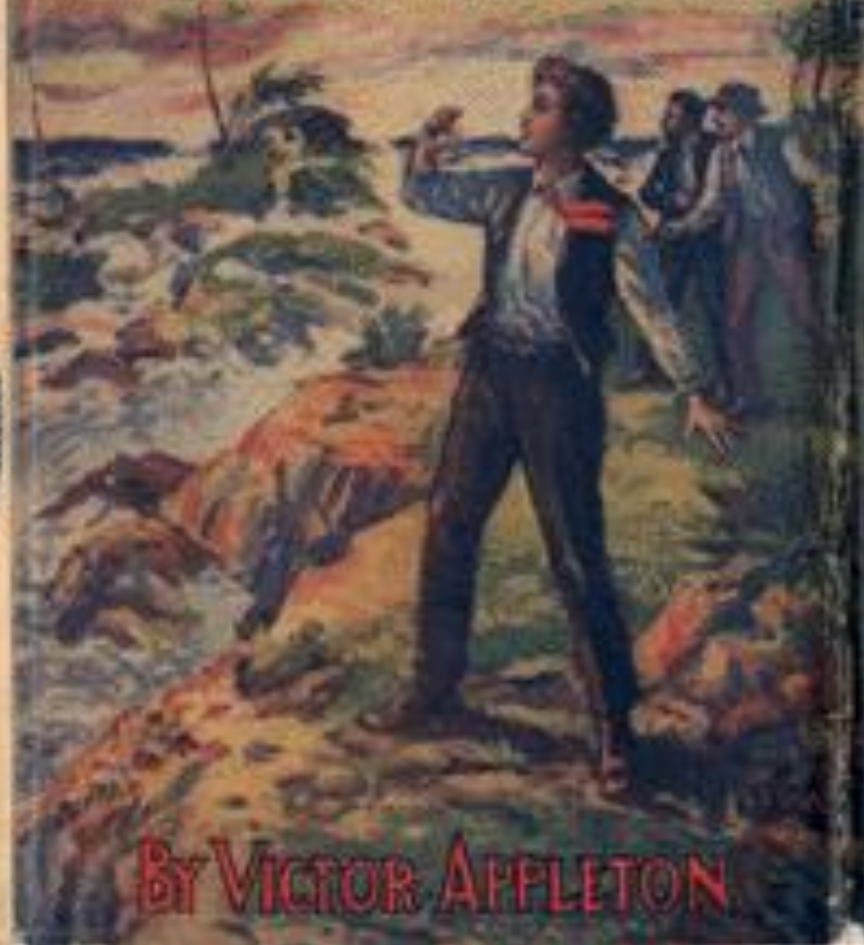
TOM
SWIFT
AND HIS
WIRELESS
MESSAGE

ADVENTURE



GARDNER
& CO. N.Y.

TOM SWIFT AND HIS WIRELESS MESSAGE



By VICTOR APPLETON

W3DEM HAM LICENSE



A	---	K	---	U	---
B	---	L	---	V	---
C	---	M	---	W	---
D	---	N	---	X	---
E	---	O	---	Y	---
F	---	P	---	Z	---
G	---	Q	---	Full stop	---
H	---	R	---	Repetition	---
I	---	S	---	Hyphen	---
J	---	T	---	Apostrophe	---

Some Key Developments...

- Radio Act of 1912
 - You need a **LICENSE** to operate a radio
- WWI
 - Radio is an important **war** tool
 - U.S. wants to control Global radio

Some Key Developments...

1915: Over 20 companies selling point-to-point radio equipment:

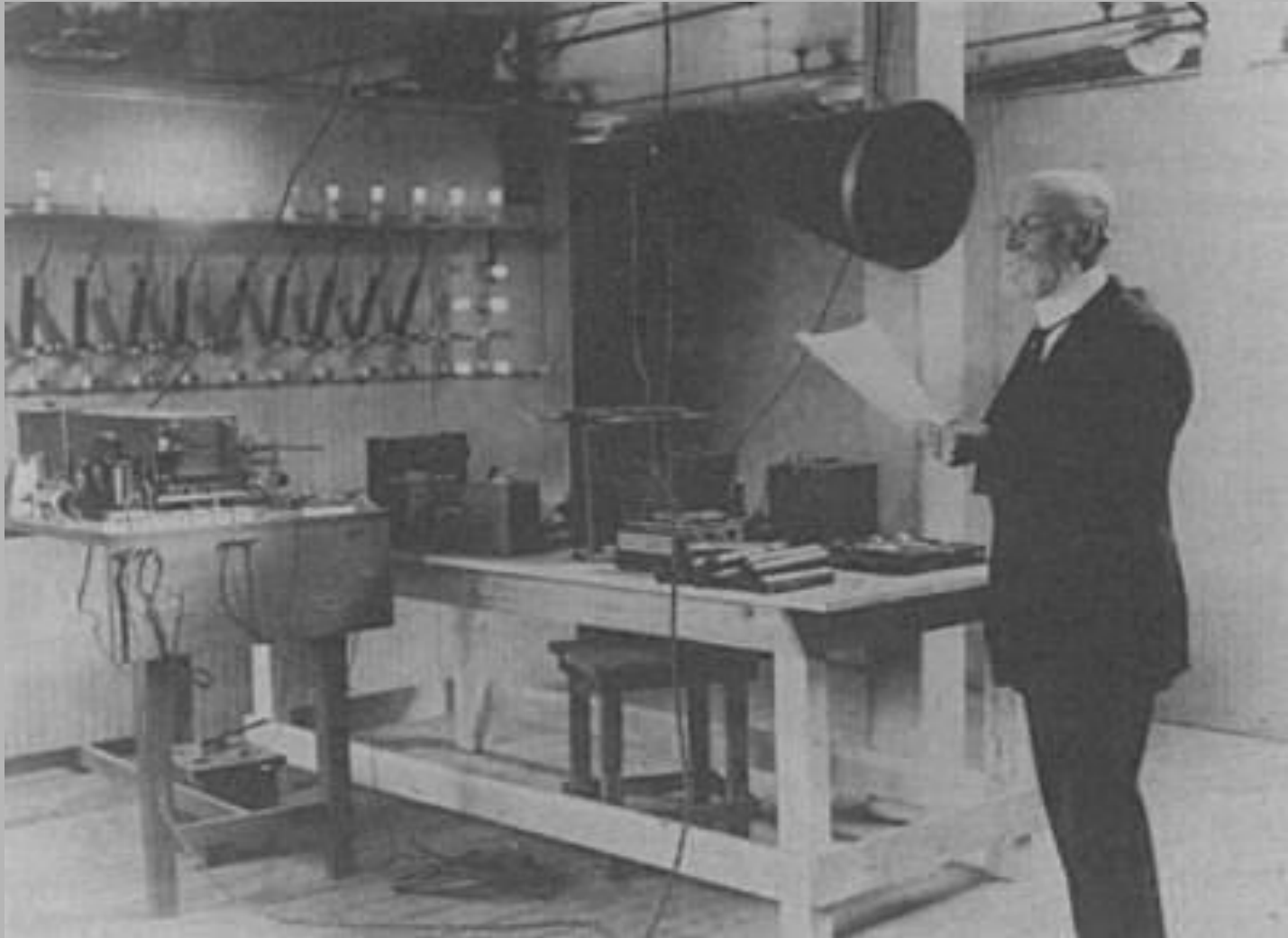
e.g.

- AT&T (transmitters)
- General electric (U.S.) (Receivers)
- American Marconi (Britain) (both)
- (marconi was the biggest and best)

Mass Medium Stage

- KDKA, Pittsburgh, 1920. “First” station to broadcast music and talk (disputed)
- **BROADCASTING**
vs. **POINT-to-POINT**
- First ads, 1922





Tufts University, 1922







Assembling Radios, 1925

2 KEY NETWORKS

1. AT&T creates network of stations, linking together with long distance lines

= BCA (Broadcast Corp. of America)

– AT&T SEES RADIO AS A WAY TO ENHANCE TELEPHONE BUSINESS

NETWORKS

2. **RCA** creates a network as subsidiary, linked with
(INFERIOR) **Western Union** lines
= Radio Group (w/ GE and Westinghouse)

VIDEO: HOW TELEGRAPHS FUNCTION (WESTERN UNION)

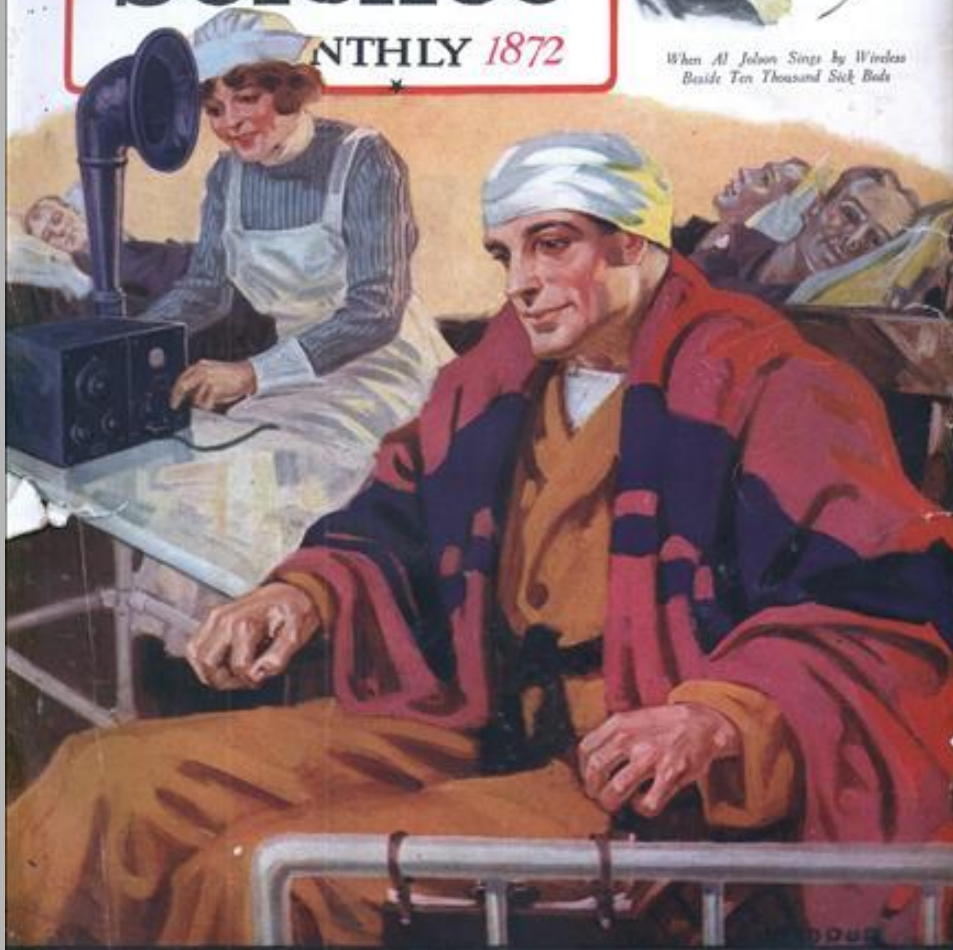


Popular Science

MONTHLY 1872



*When Al Johnson Sings by Wireless
Beside Ten Thousand Sick Beds*



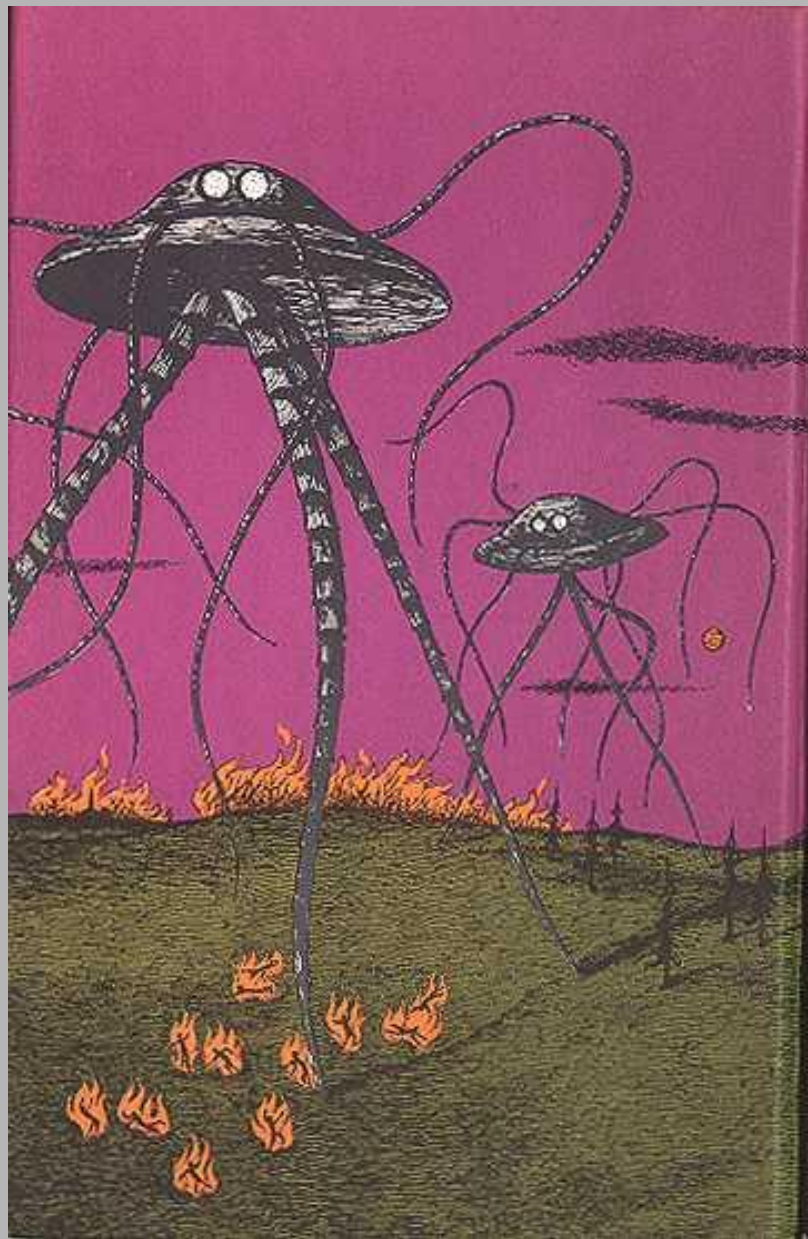
What Daily Radio Concerts Can You Hear? (See Maps
Page 72)

MARCH

300 Pictures of New Inventions

25 CENTS





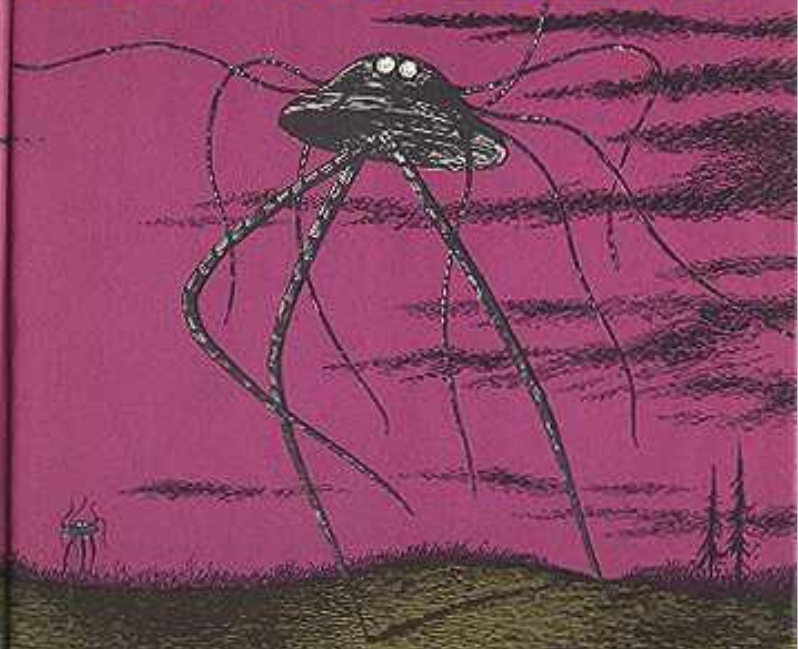
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