

*Guglielmo Marconi's* **ELECTRO-MAGNETIC  
WAVE EMPORIUM!**



*Guglielmo Marconi*

*Guglielmo Marconi's* ELECTRO-MAGNETIC  
WAVE EMPORIUM!

This class period is about:  
-Independent Thinking  
-Confidence  
-Rebellion

Independent:  
not influenced or controlled  
by the thoughts or actions  
of others  
-autonomous  
-unconstrained

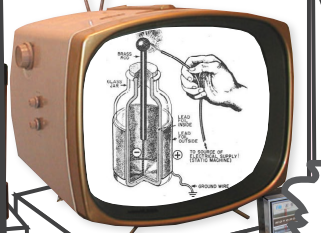
*Guglielmo Marconi*

*Sale!*

*TV's!*

Confidence:  
self-reliance, assurance, boldness  
-presumption, imprudence  
-certitude

Rebellion:  
resistance, defiance of authority,  
control or tradition



*Sale!*

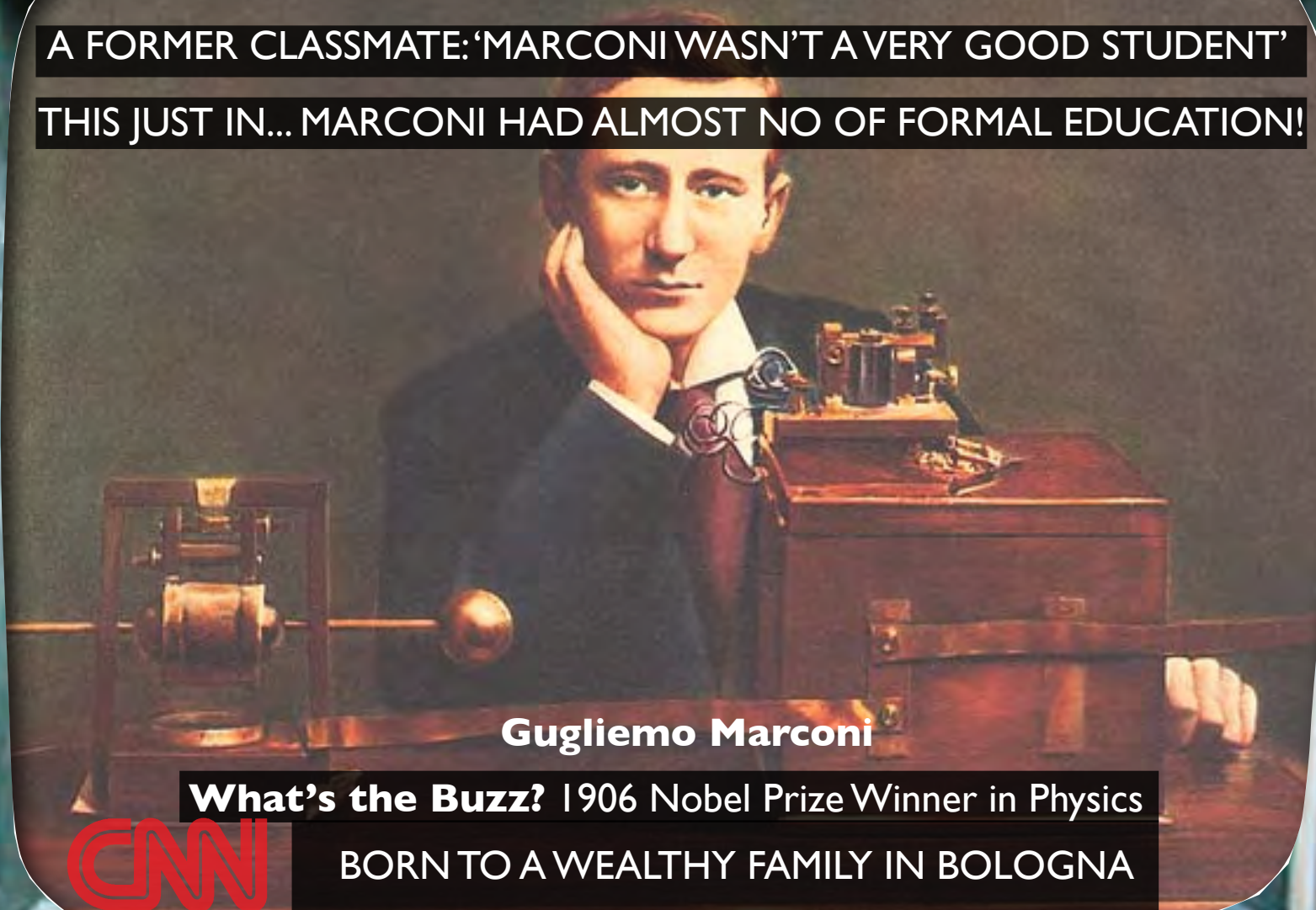
*Wow!*

*TV's!*

Psychology of Creativity:  
ability to resist discouragement  
or depression  
-the importance of optimism



A FORMER CLASSMATE: 'MARCONI WASN'T A VERY GOOD STUDENT'  
THIS JUST IN... MARCONI HAD ALMOST NO OF FORMAL EDUCATION!

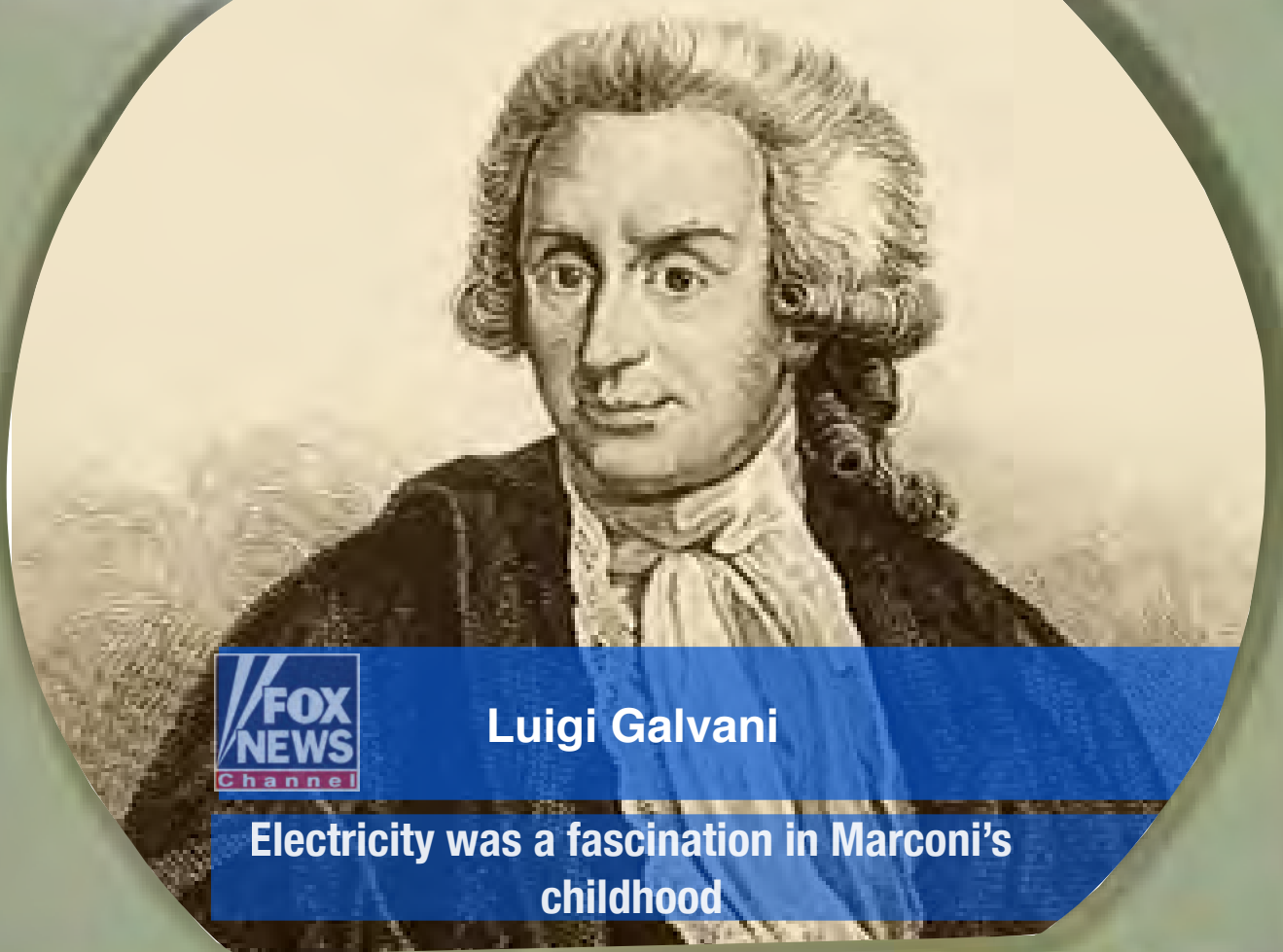


**Guglielmo Marconi**

**What's the Buzz?** 1906 Nobel Prize Winner in Physics

BORN TO A WEALTHY FAMILY IN BOLOGNA





**Luigi Galvani**

**Electricity was a fascination in Marconi's  
childhood**

IRE



Early on, Marconi became friends with Nello Marchetti, a retired telegraph operator.

IRE



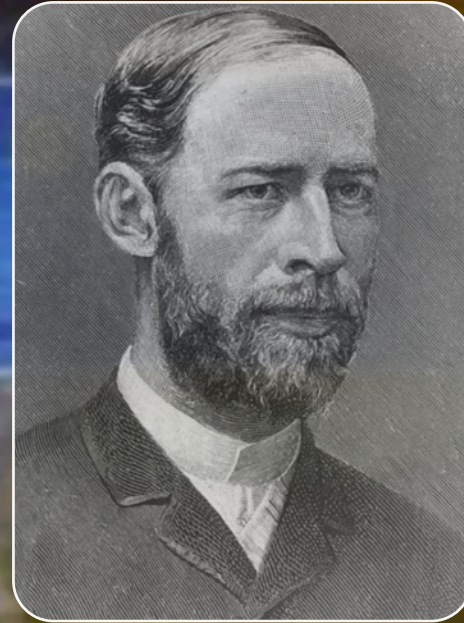
Marconi was an avid:

Tinkerer

Piano player

Student of the English language



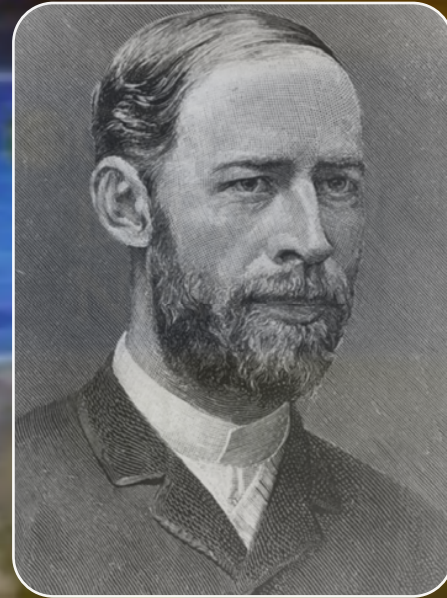


**Marconi read Hertz's obituary and it gave him a vision of how telegraphs could be sent wirelessly.**

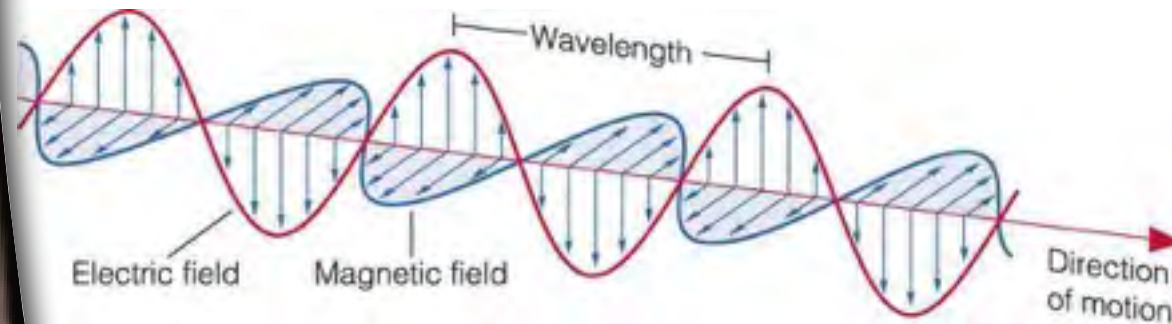


In 1873 James Clerk Maxwell proposed that invisible electromagnetic waves travelled through 'ether'.

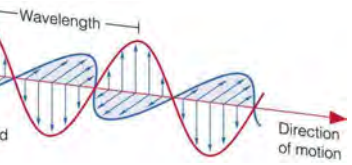




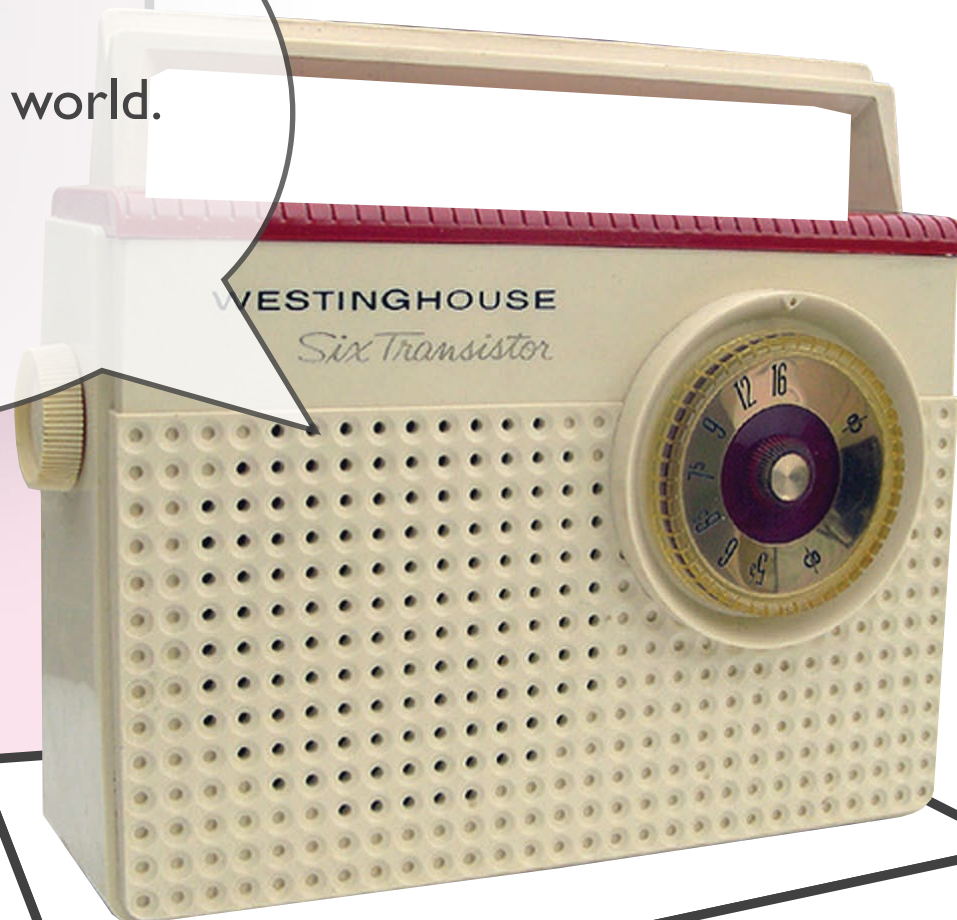
**In 1886 Hertz proved the existence of such waves and found that they travelled at the speed of light.**

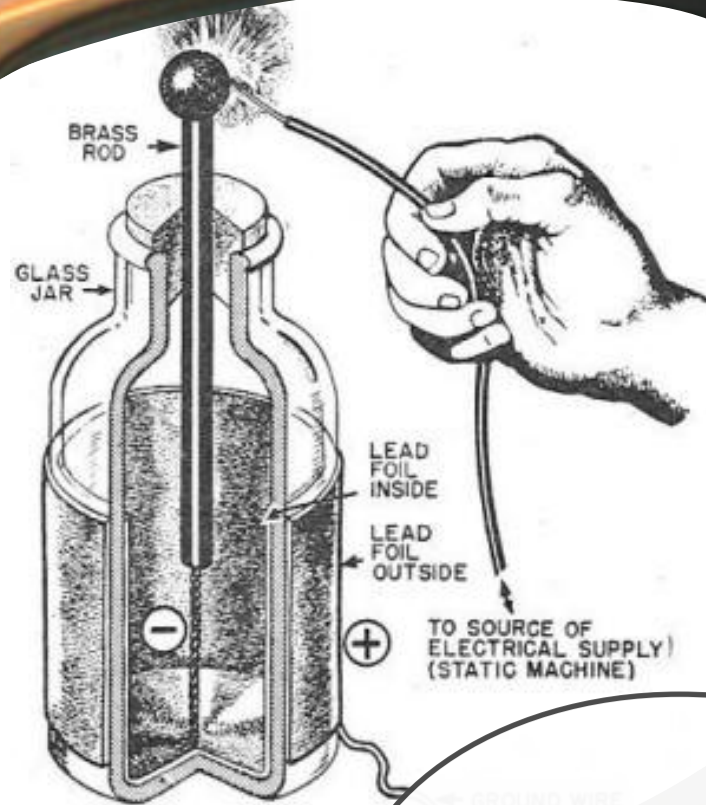


**Marconi saw the possibility of harnessing these waves and using them for communication.**



Marconi changed our world.





Marconi started in his attic with a Leyden Jar.

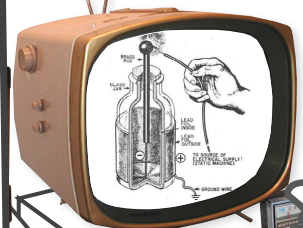
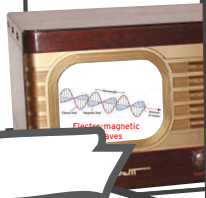


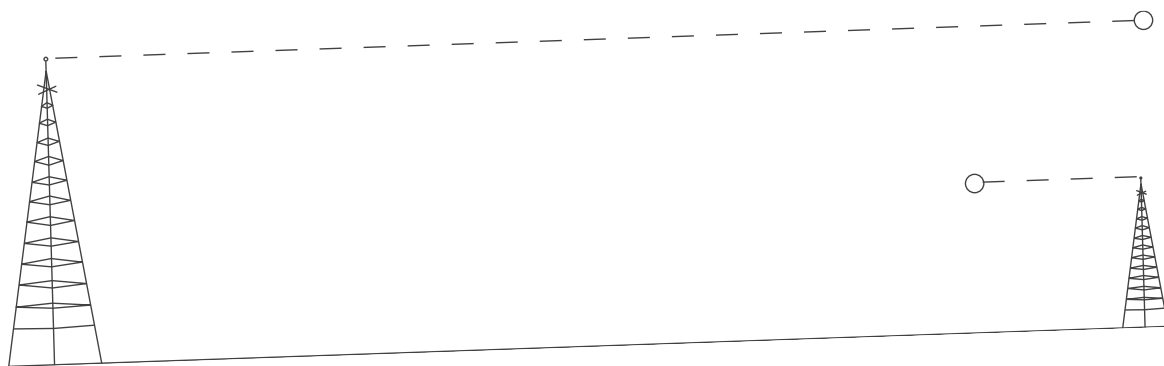
They thought that these waves  
-travelled in a straight line  
-would be stopped by solid objects

Based on these theories,  
long distance communication  
would be impossible.

Marconi's ideas were contrary  
to most prevailing scientific  
theories about electro-  
magnetic waves.

would diminish over distance





**He found that a taller antenna equaled exponentially greater transmission.**



MARCONI GIVEN FULL USE OF BRITISH  
FACILITIES BY WILLIAM PREECE



**What's the Buzz?** Marconi to meet with  
head of British Telegraph Office

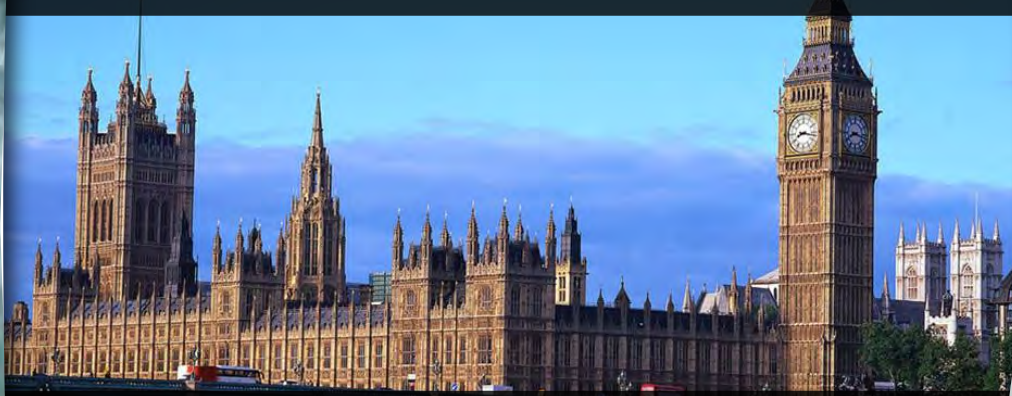


## **Guglielmo Marconi Update**

21 yr-old Marconi heads to London.....with his mother

FRIEND: MARCONI WAS A MOMMA'S BOY

MARCONI GIVEN FULL USE OF BRITISH FACILITIES



What's the Buzz? Marconi to meet with head of British Telegraph Office

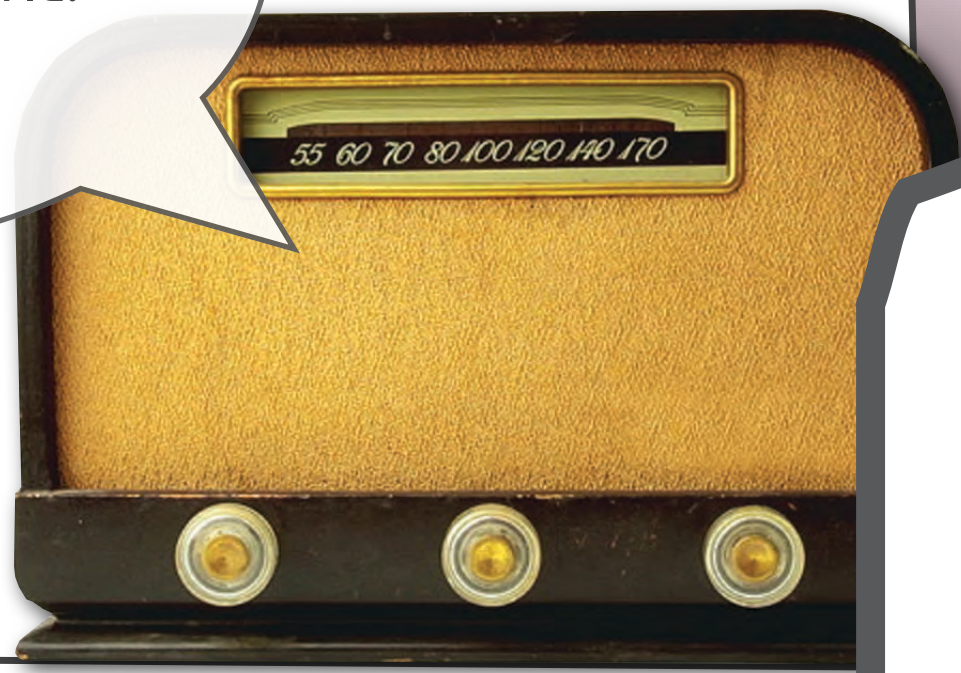


### Guglielmo Marconi Update

21 yr-old Marconi heads to London.....with his mother

After some testing, Preece announces Marconi's invention to the world.

55 60 70 80 100 120 140 170





SKY news 7:39

LIVE  
NEW YORK



BUSINESS



INVESTORS SET UP  
MARCONI IN BUSINESS

JCPenney

RGB Monitor/Receiver

TV Video Auto Color RGB

Mute Channel TV/Video/RGB Power

Radio

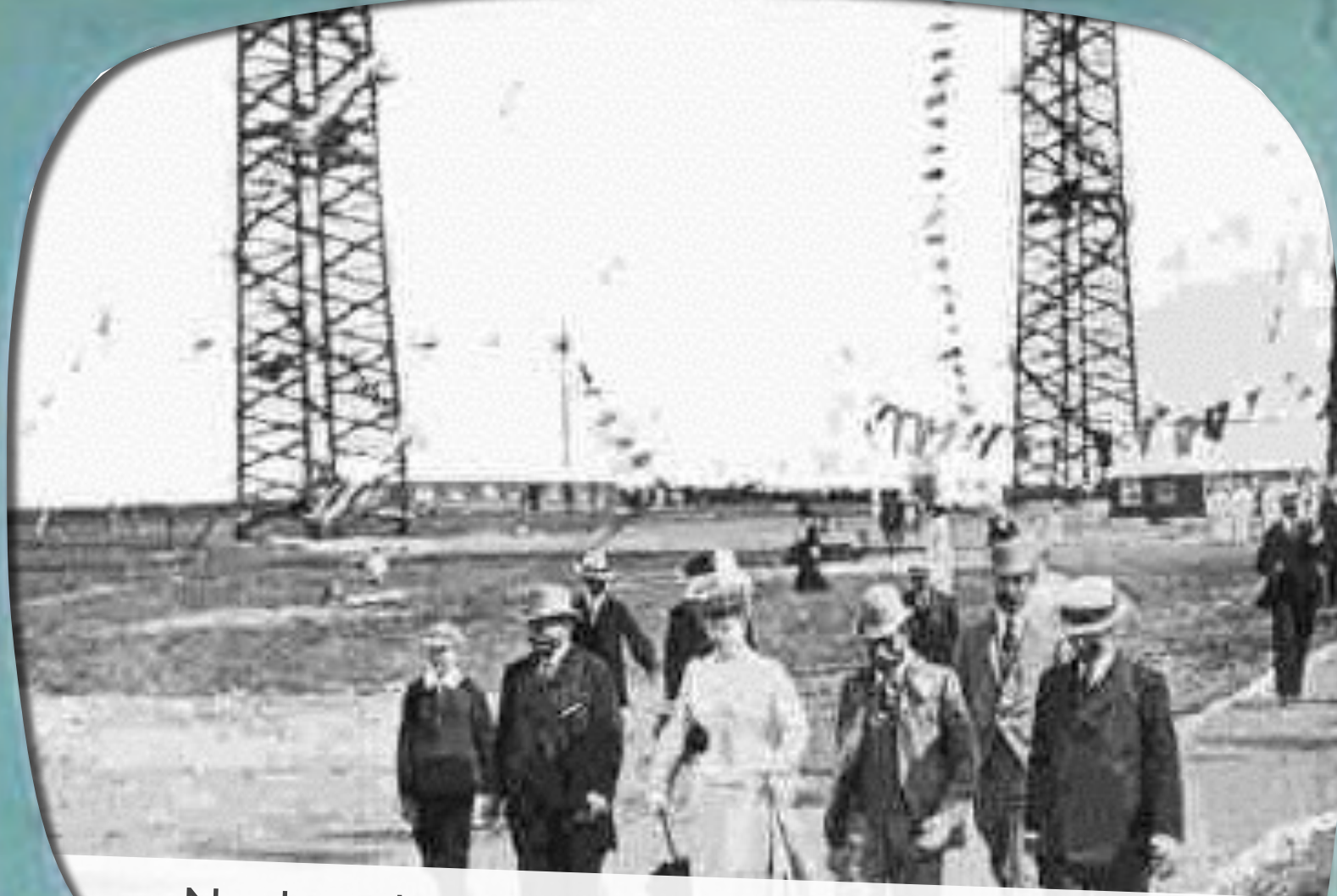
Wow!

Wow!

TV

By January 1898 he had sent a signal 14.5 miles.





Not long thereafter, Marconi set up a transmitter between Queen Victoria and Prince Edward's yacht.



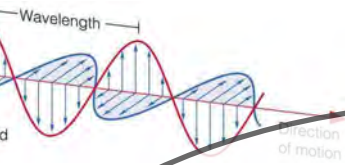
**In September of 1899, Marconi sailed for NY to initiate effort to send transatlantic message.**



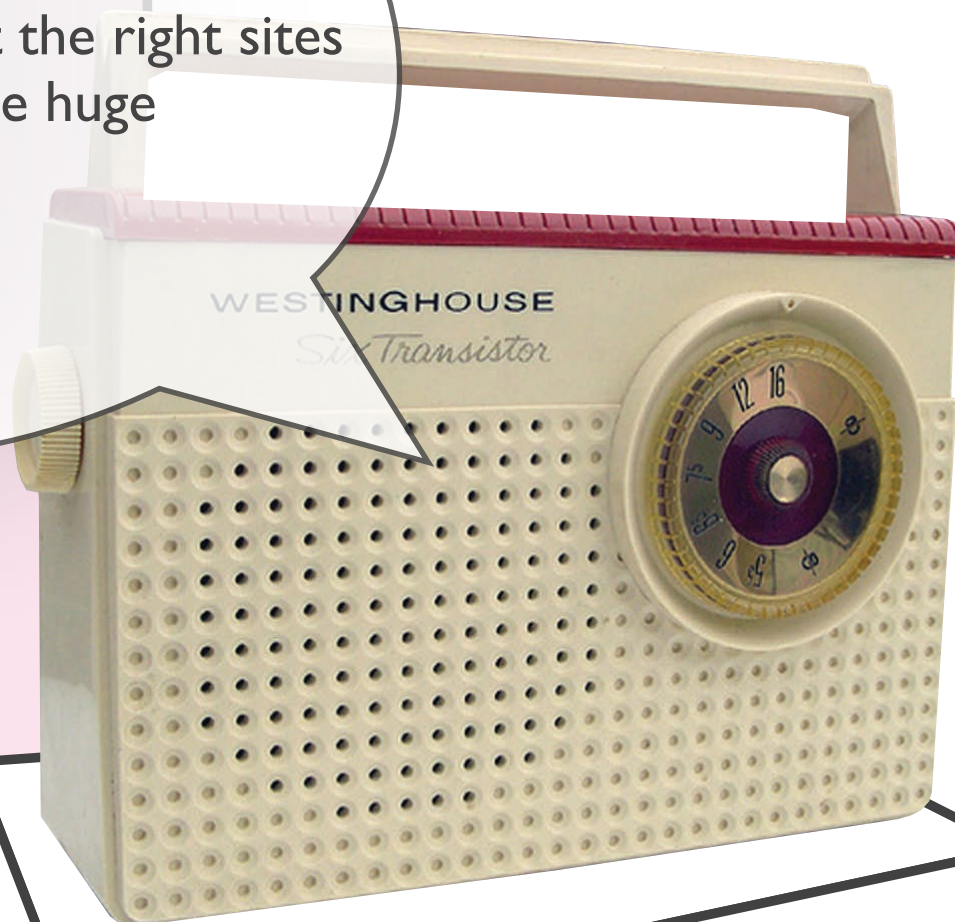
This was a huge leap:

- problem of the curvature of the earth
- size of antennas
- size of intensity charge required to transmit signal



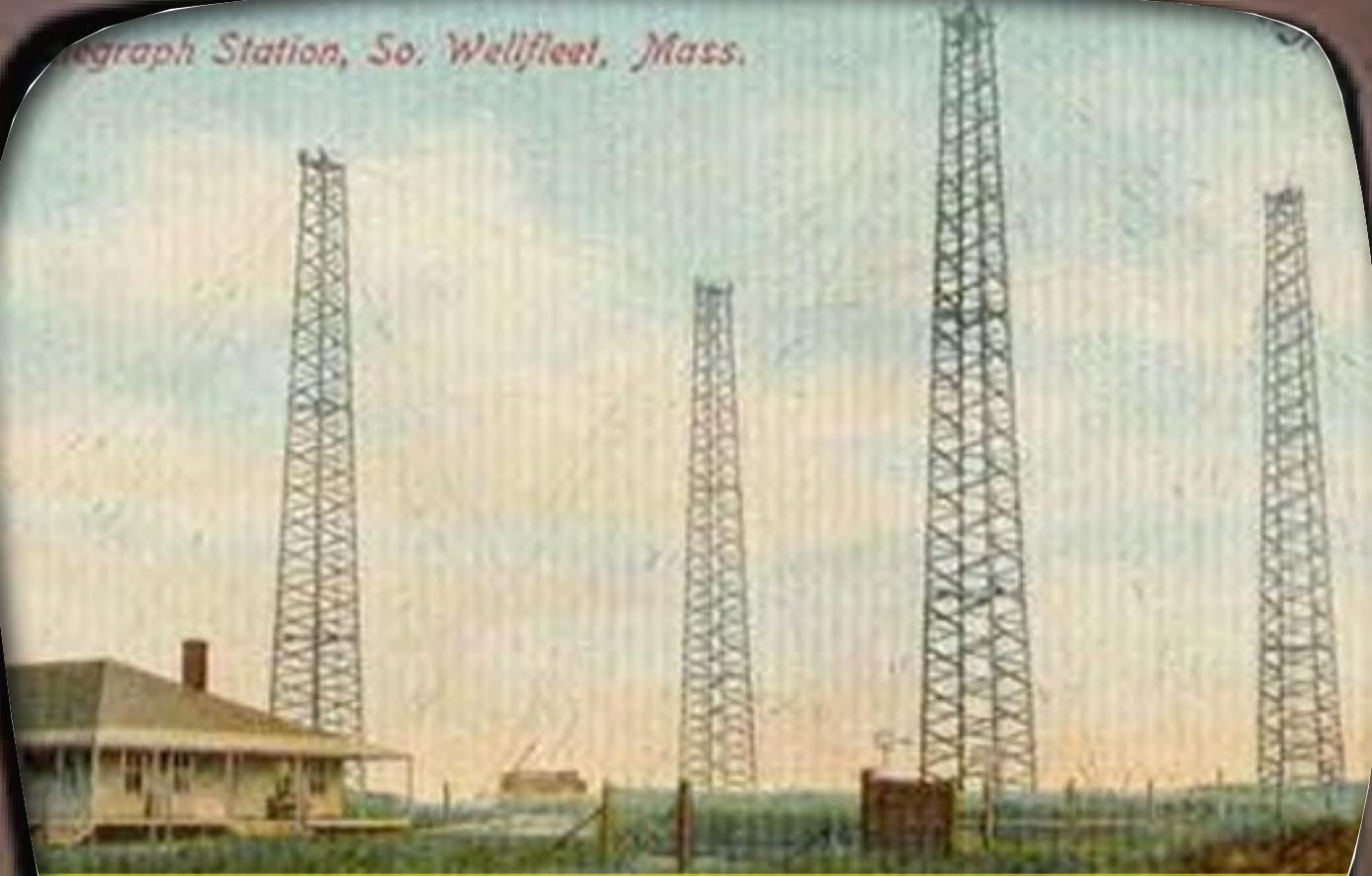


It took 8 years to find just the right sites and to design, and build the huge transmitters/ receivers.

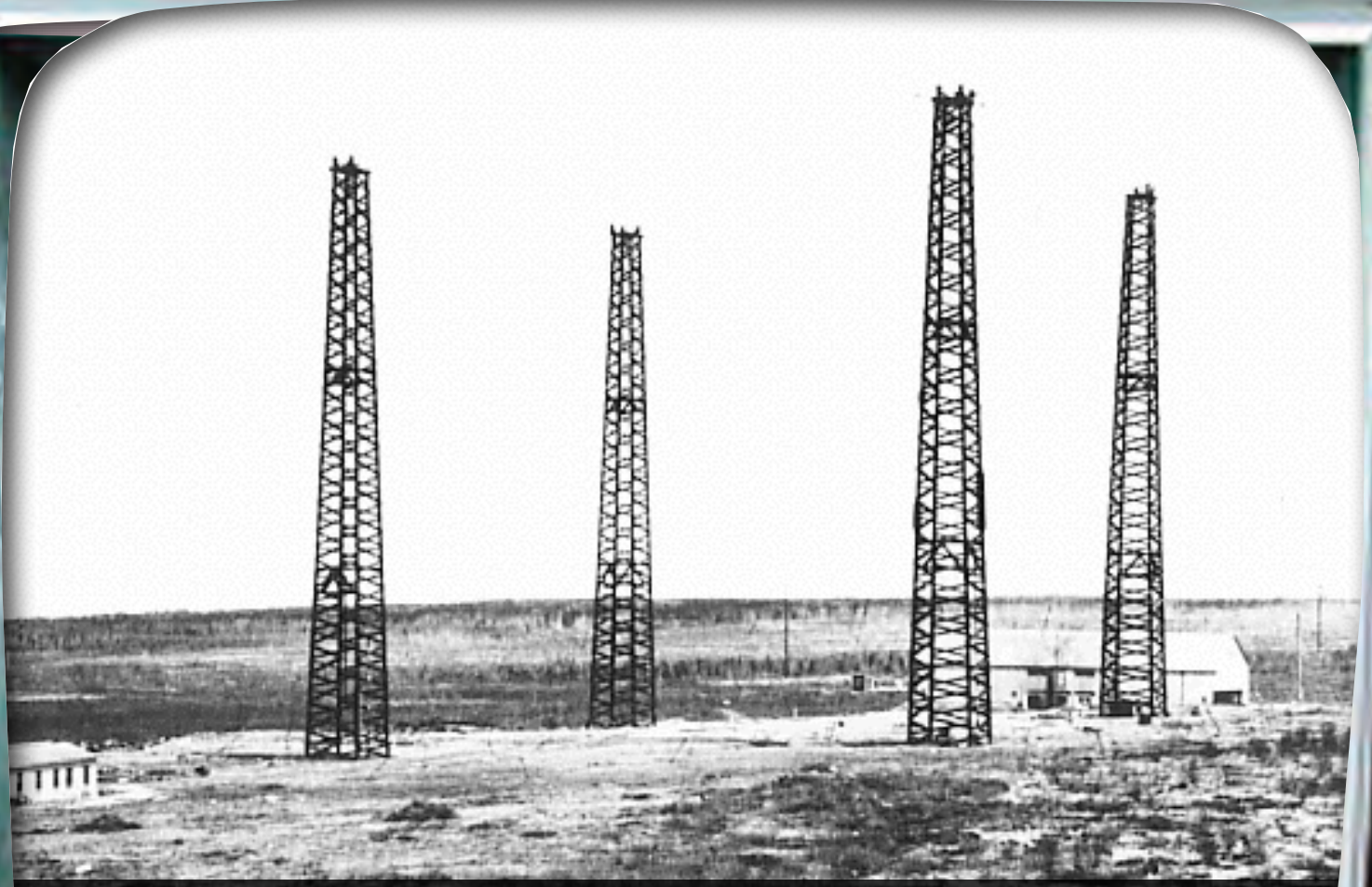




*Telegraph Station, So. Wellfleet, Mass.*



**Initially there were three stations: South  
Wellfleet, Massachusetts**



Each station was comprised of four towers, each 210 ft tall



Marconi at the Glace Bay wireless station.



By 1907 Marconi had a working system in place for wireless transatlantic telegraphic communication.



His belief in his vision was wholly unshakeable.



Marconi is proving to be as important to the 21st Century developments as Alexander Graham Bell or Thomas Edison were to the 20th Century.



When he won the Nobel Prize for Physics in 1909 at age 35 he was dismayed because he did not consider himself a physicist or even a scientist.



Marconi's openmindedness, creativity, and inventiveness came at least in part from the fact that he was self educated.

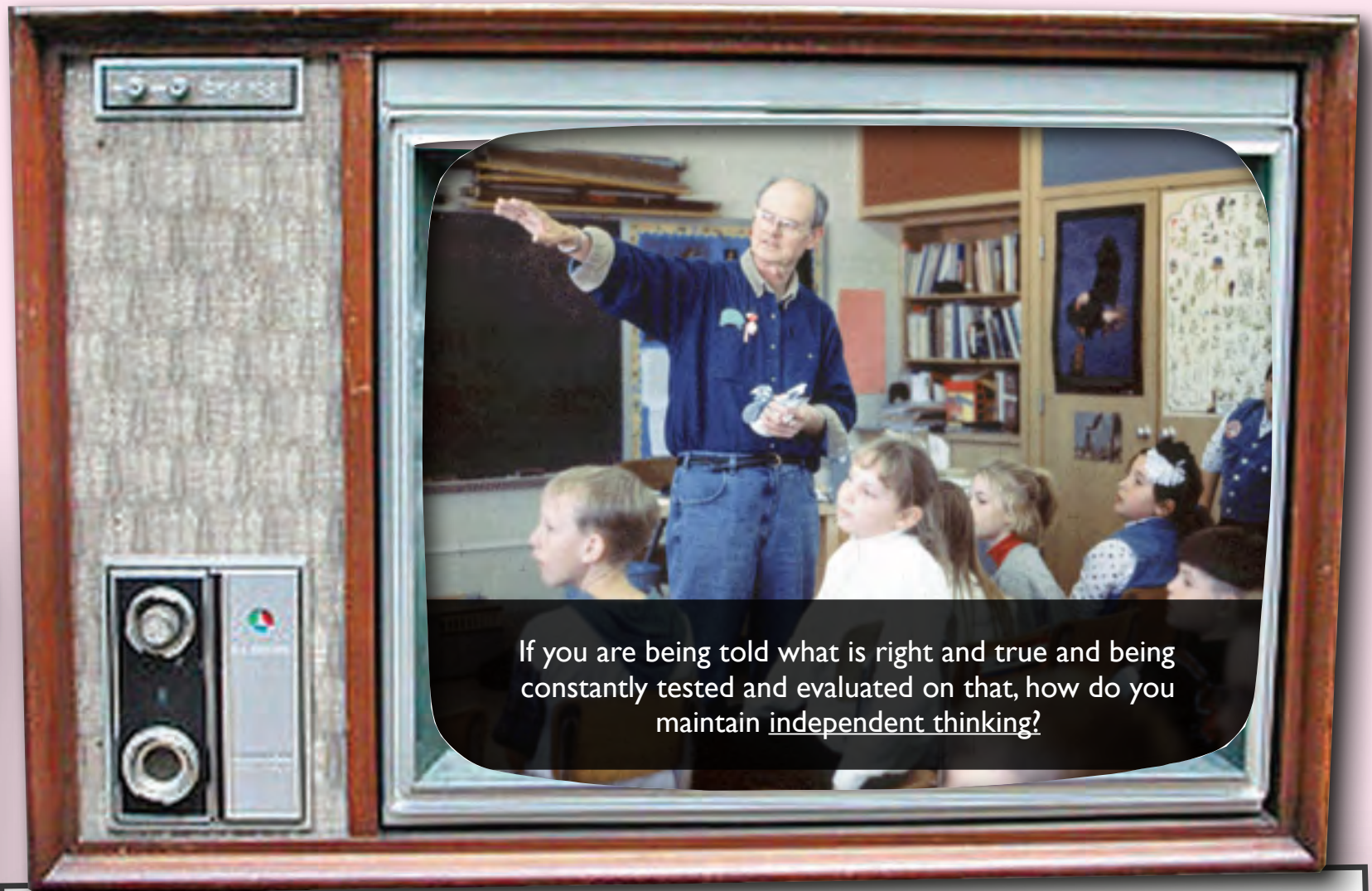


Self-education through: ~~explicit demonstration~~ ~~explicit demonstration~~





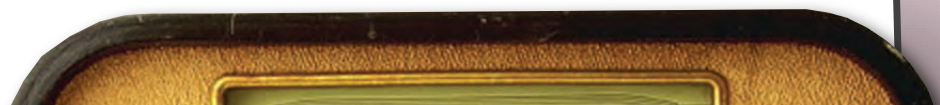
**Does formal education affect intelligence?**



5-0 Eng 103



If you are being told what is right and true and being constantly tested and evaluated on that, how do you maintain independent thinking?



# College **DROP-OUTS**



Steve Jobs-  
Reed College

studied  
poetry

They were all SELF-EDUCATED,  
notably they were not even  
apprenticed.



Paul Allen- Washington State



pre-med.

Michael Dell- University  
of Texas

“ Even when in college  
they weren’t  
necessarily studying  
business or computer  
science. ”



Bill Gates- Harvard



Huge advances in  
music in the last half  
of the 20th Century  
were all sparked by  
self-educated people.



**7** WATCHED WOODWORKERS AS A CHILD  
**16** MADE STUDY TRIPS- KEPT A SKETCHBOOK

**11** BECAME A PROFESSIONAL BOXER

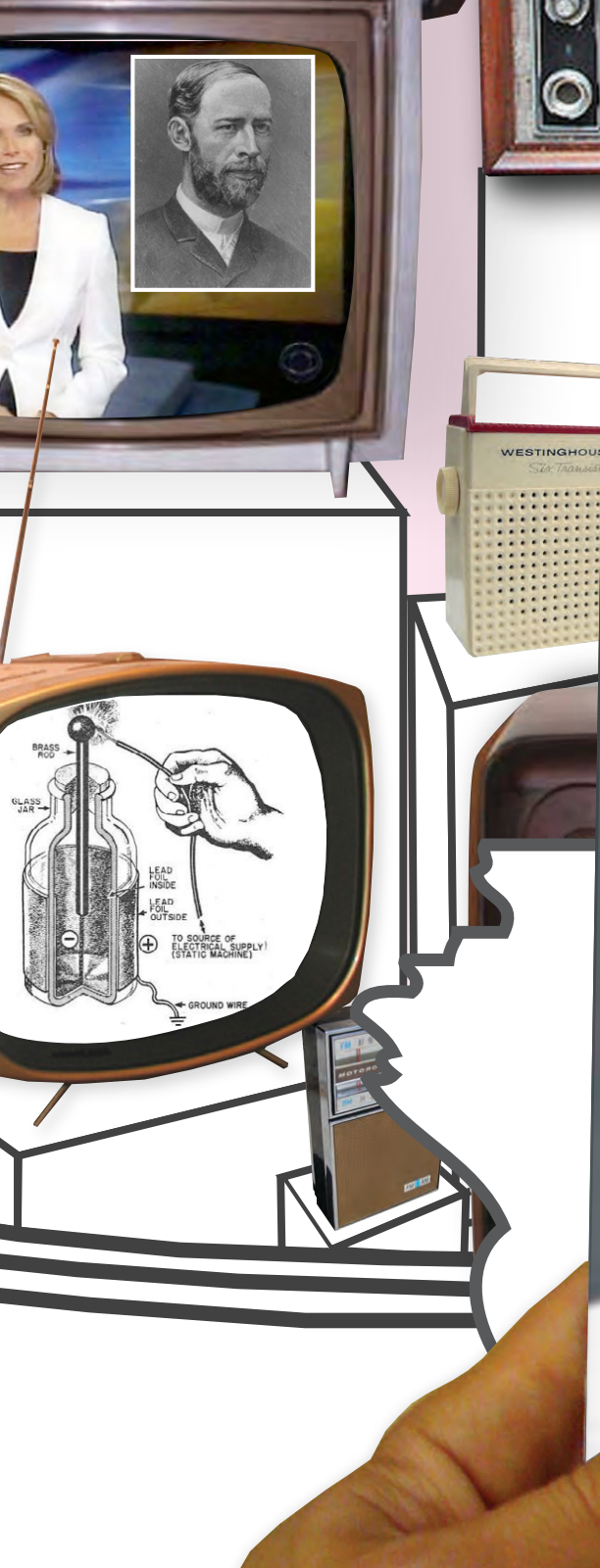
**17** MADE WOOD MODELS OF SHIPS

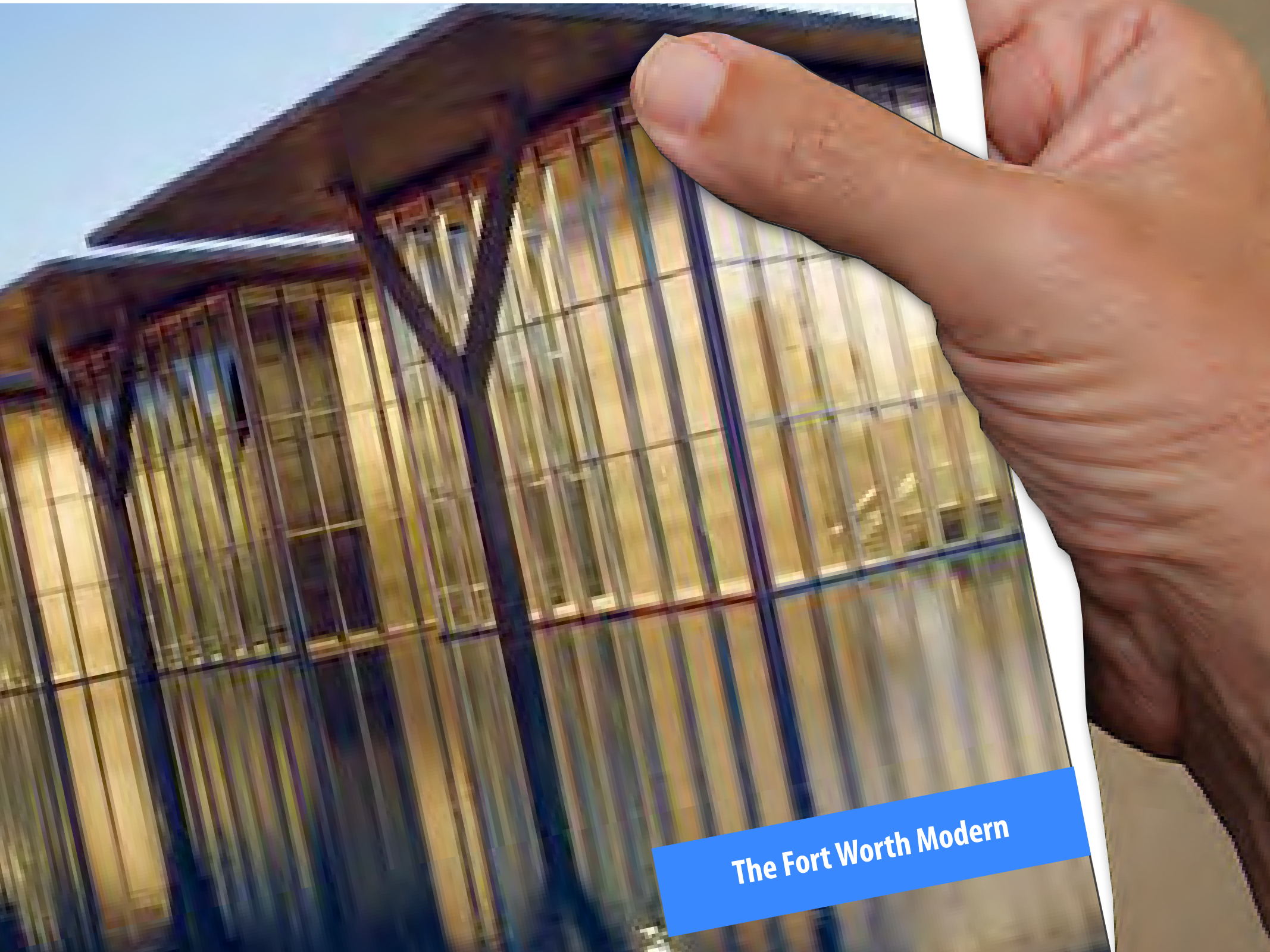
# ARCHITECT

**TADAO ANDO**  
**PRITZKER PRIZE**  
**WINNER-**  
**THE HIGHEST**  
**HONOR**

**TRACED DRAWINGS OF**  
**ARCHITECT'S WHOSE**  
**WORK HE ADMIRERD**

ISSUE 67-JULY 2007





**The Fort Worth Modern**

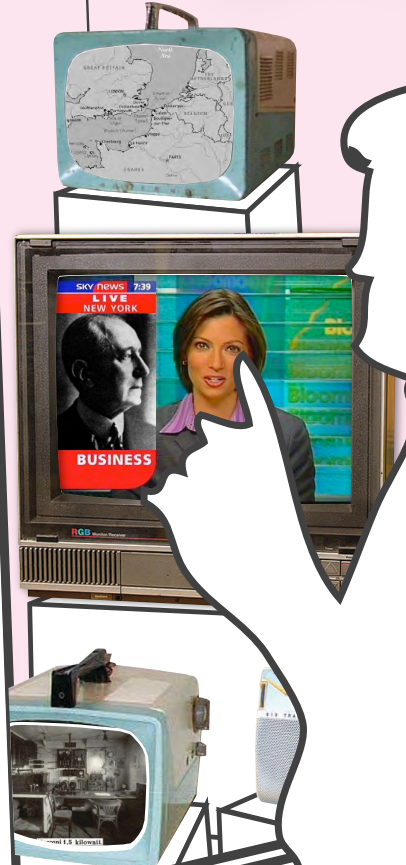
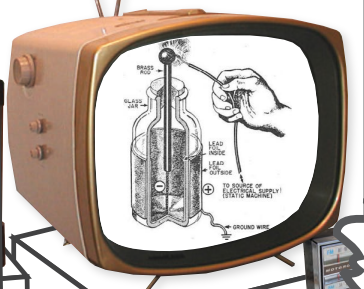
Radio

Wow!

Sale!

TV's!

But Einstein was also SELF-EDUCATED. He had his own way of learning throughout his life.



*Sale!*

*Radi*

*Wow!*

*Wow!*

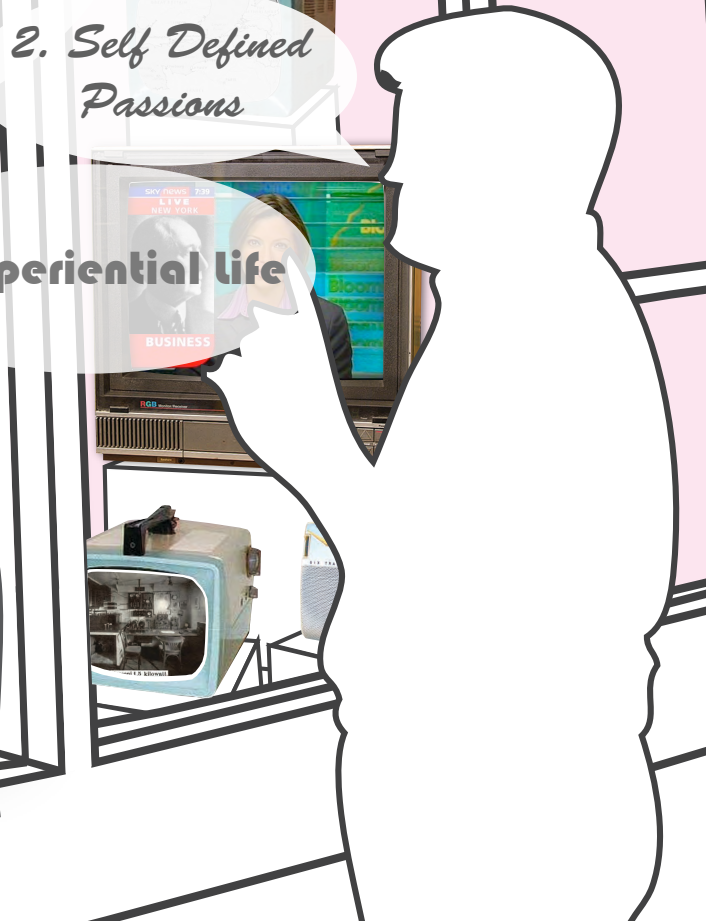
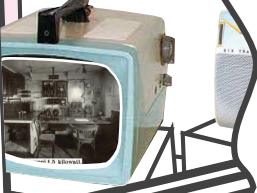
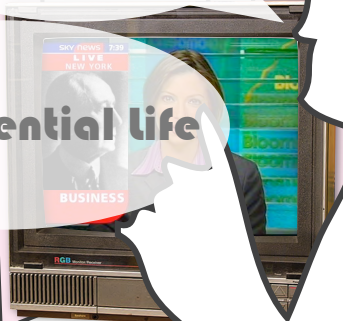
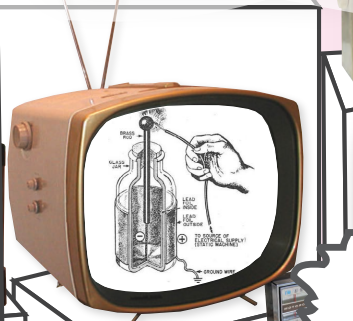
What constitutes a life of **SELF-EDUCATION**?

4. Intensity-Hard Work

2. Self Defined Passions

3. Risk Taking  
-trial & error

1. Experiential life

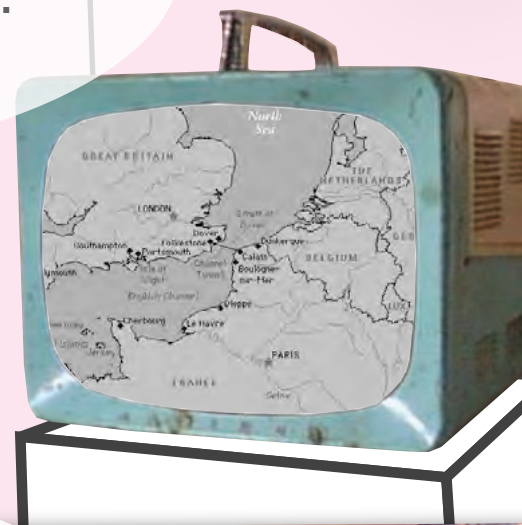
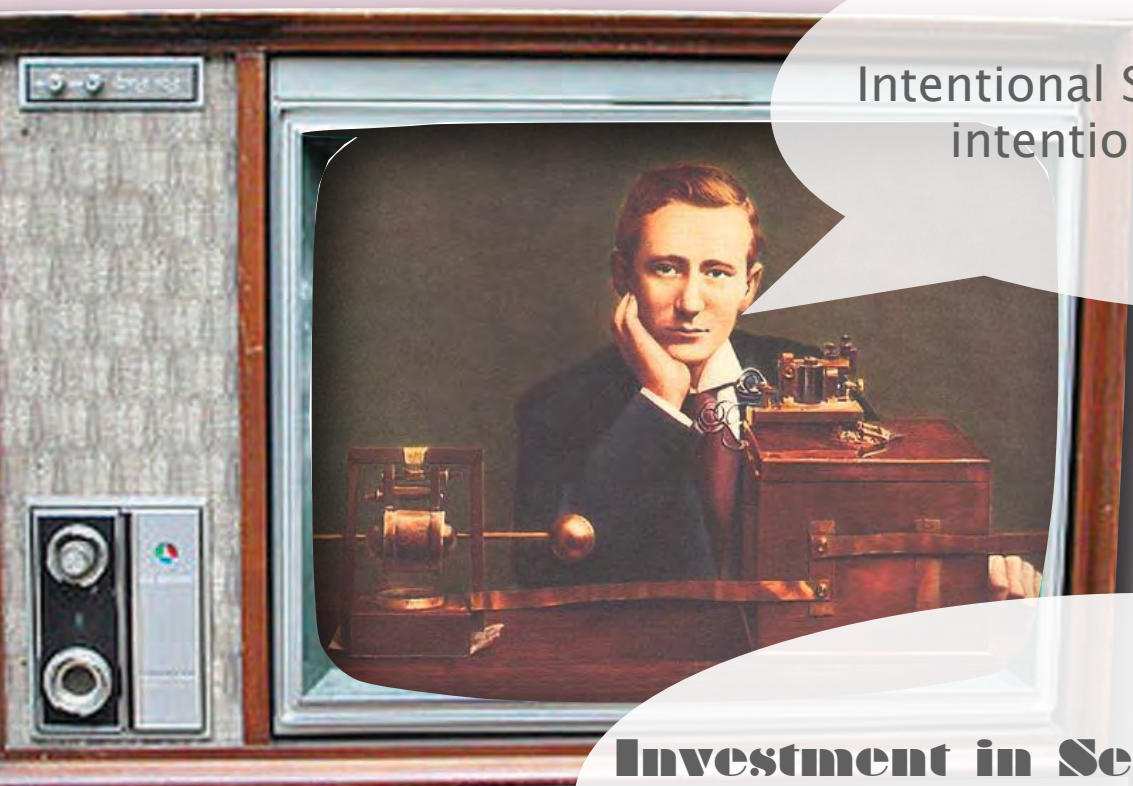




TV

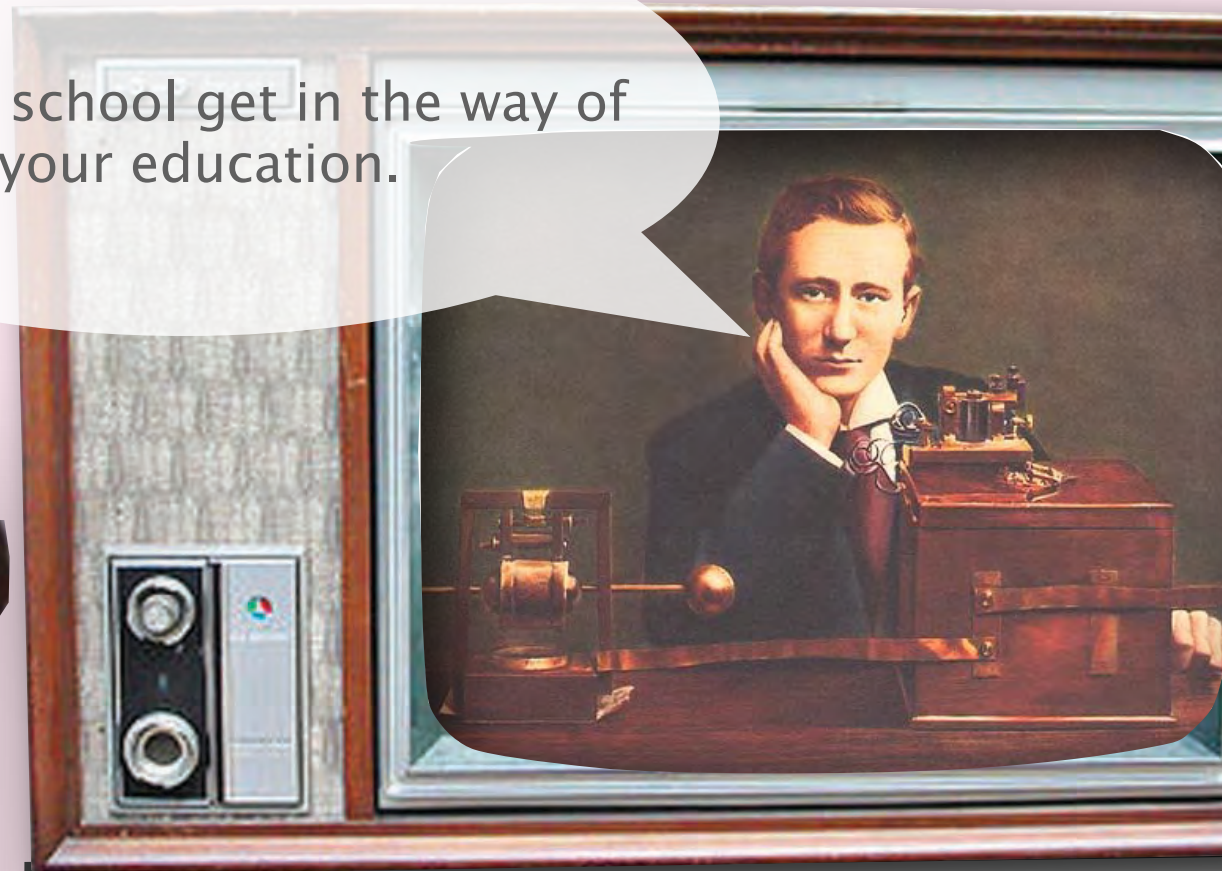
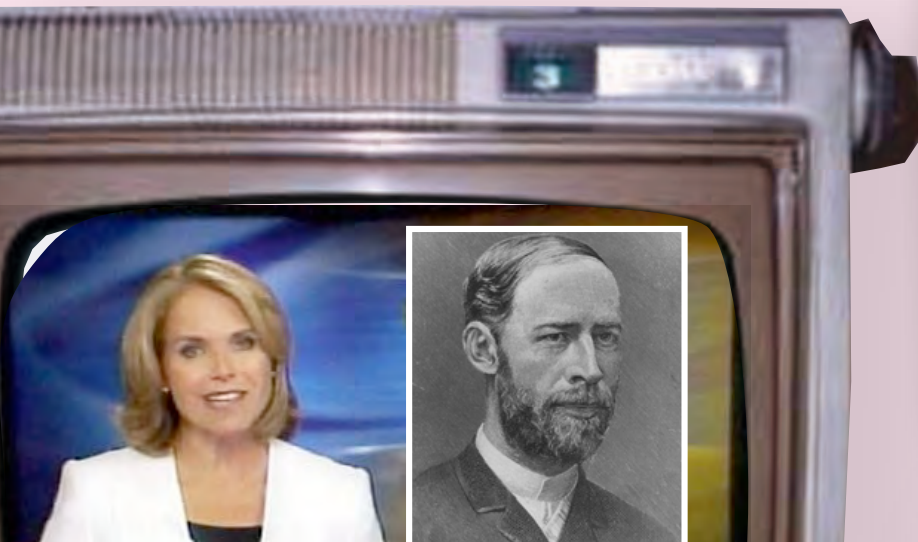
Intentional Self-Education is just like intentional formal education.

**Investment in Self-Education is just like investment in formal education.**



*Wow!*

Don't let school get in the way of your education.





The role of optimism:  
Marconi was always thinking the next trial will work.

*Guglielmo Marconi's* **ELECTRO-MAGNETIC  
WAVE EMPORIUM!**



*Lessons from Guglielmo Marconi*