

Television in the 1920s

**Brian Belanger
National Capital Radio &
Television Museum**

Sources

- Albert Abramson, *The History of Television, 1880 to 1941*
- Albert Abramson, *Zworykin: Pioneer of Television*
- George Everson, *The Story of Television*
- David and Marshall Fisher, *Tube: The Invention of Television*
- Jeff Kisseloff, *The Box*
- National Radio Institute *1927 Radio Correspondence Course*
- Struan Reid, *John Logie Baird*
- Michael Ritchie, *Please Stand By: A Prehistory of Television*
- Joseph Udelson, *The Great Television Race*
- **Early Television Museum Website**
(www.earlytelevision.org)

Television Eras

- **Pre-television (< 1920 – basic concepts envisioned)**
- **Mechanical scanning B&W television (1920 to 1935)**
- **Electronic B&W television (1930s to early 1950s)**
- **Analog Color TV era (Mid 1950s to 2000)**
- **Internet, digital HD flat panel era**

Television's Precursor Technologies

Before there was television, people first envisioned:

- Wired transmission of still pictures (facsimile)
- Then *wireless* transmission of still pictures
- Then *wireless* transmission of moving images

Television's Precursor Technologies

For television as we think of it, one needs progress in photocells, optics, vacuum tubes, radio broadcasting, etc.

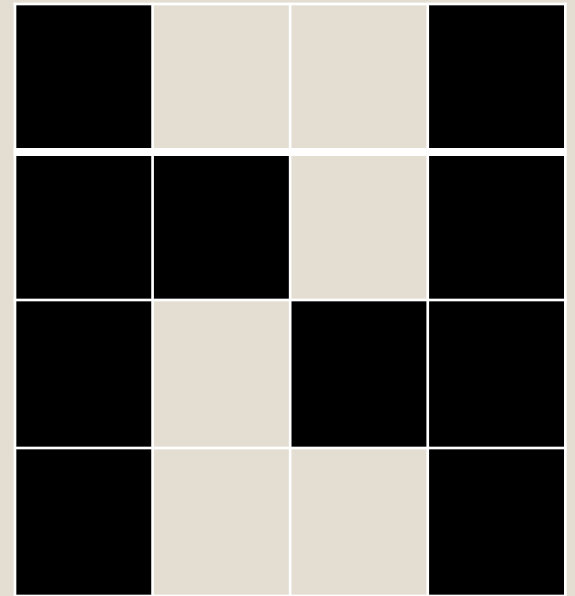
Who Invented Television?

Multiple inventors in

- England
- Germany
- Russia
- United States
- France
- Austria

19th Century Ideas (1)

Low resolution B&W still images via wires (telegraphy). Images broken down into pixels. Information about each pixel transmitted via a coded scheme



19th Century Ideas (2)

Joseph May's 1873
observation of the electrical
response of selenium to
light – the idea of using
photocells to scan
an image

19th Century Ideas (3)

If you can transmit the information from a frame fast enough, you can transmit moving images over wires!

19th Century Ideas (4)

If you can transmit moving images over wires, why not send the images wirelessly?

Television Milestones

- First use of the term “Television”?
- First book on the *history* of television?
- First color television patent?

Television Milestones

- First use of the term “Television”?
Constatin Persky, Paris 1900
- First book on the *history* of television?
1911
- First color television patent?
1904

19th Century Ideas (5)



**Karl Braun invents
the cathode ray
tube - 1897**



Envisioning Electronic Television

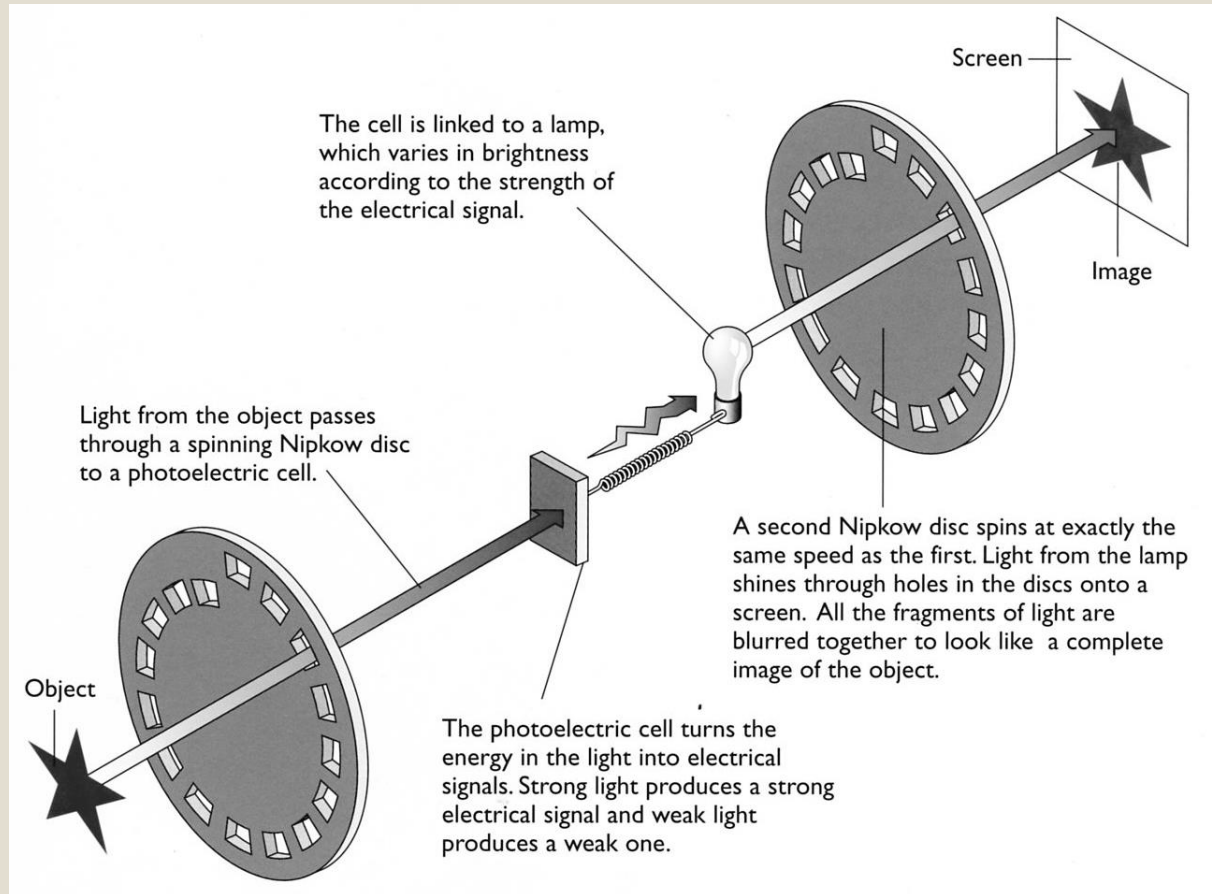


Following Braun's invention of the CRT, Alan Archibald Campbell-Swinton envisioned all-electronic television in 1911, with cathode ray devices at the transmitter and at the receiver

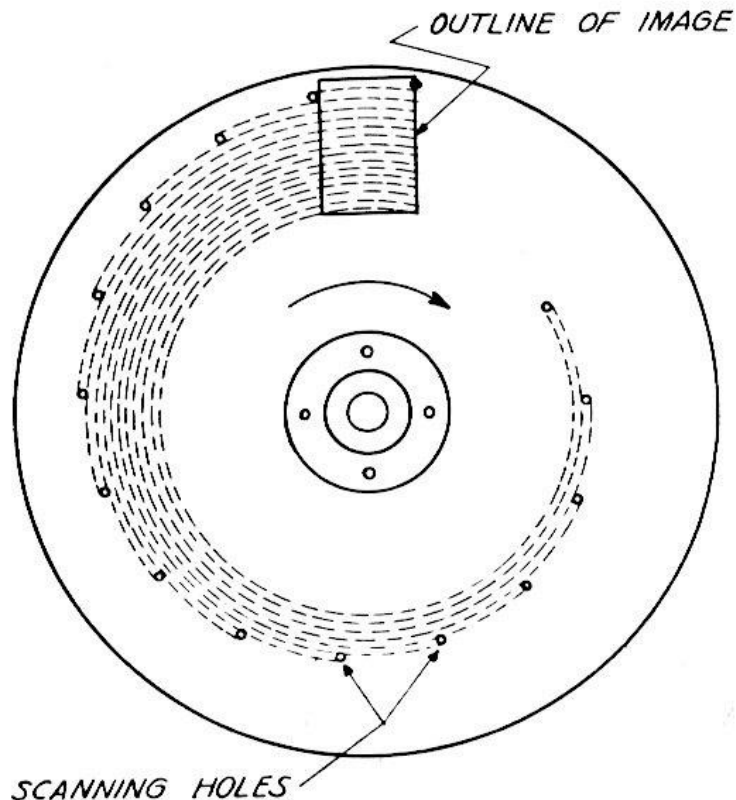
Envisioning Television



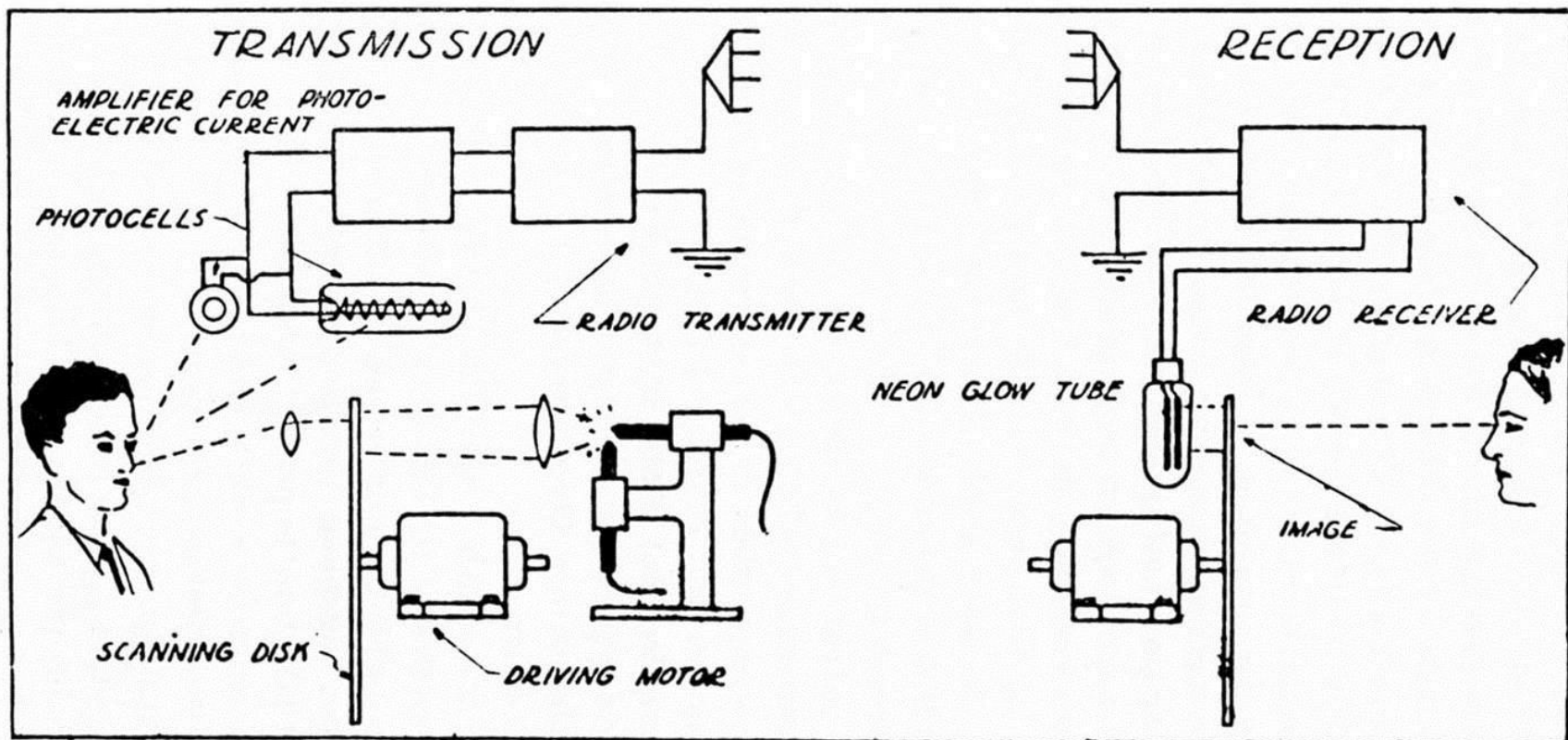
Paul Nipkow :
Concept of
mechanical scanning
of image with a
rotating disk (1884)



Television in the 1920s



The image produced by a scanning disc with progressive scanning



Scanning Disc TV Scheme

Television Pioneers



**Max
Dieckmann
(Austrian)**

Television patent in
1906 (using CRTs to
display images)

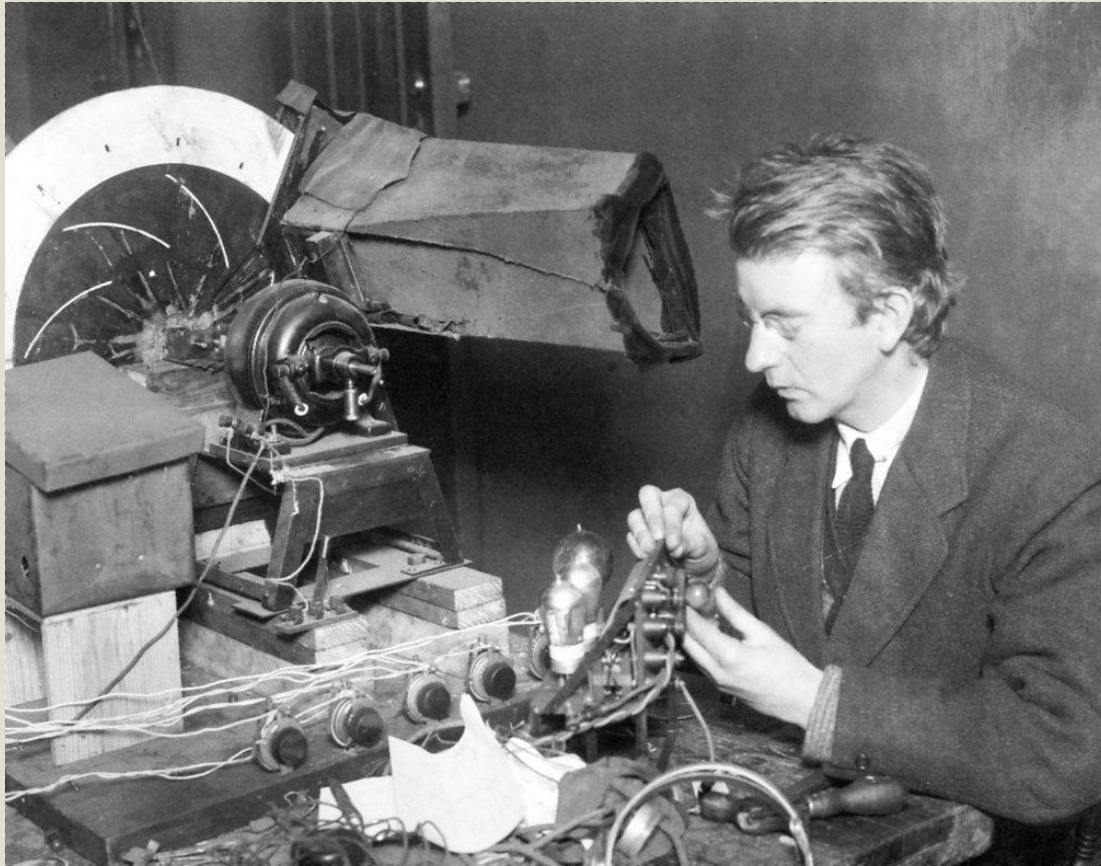
Television Pioneers



Boris Rosing

Russian television
patent in 1907
(with CRT display)

Television Pioneers



**John Logie
Baird
(England)**

His 1st television
patent: 1923
(scanning disc)

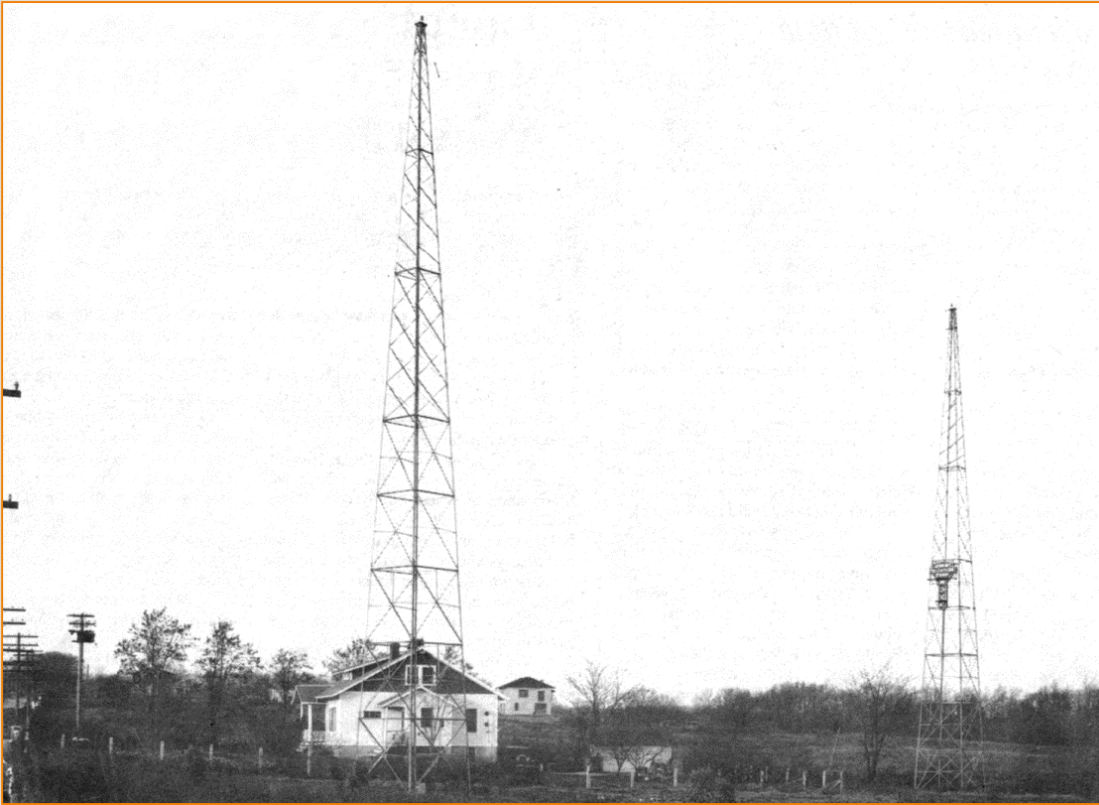
Television Pioneers



**C. Francis
Jenkins (US)**

His 1st television
patent: 1922
(scanning disc)

Television Pioneers



**C. Francis
Jenkins**

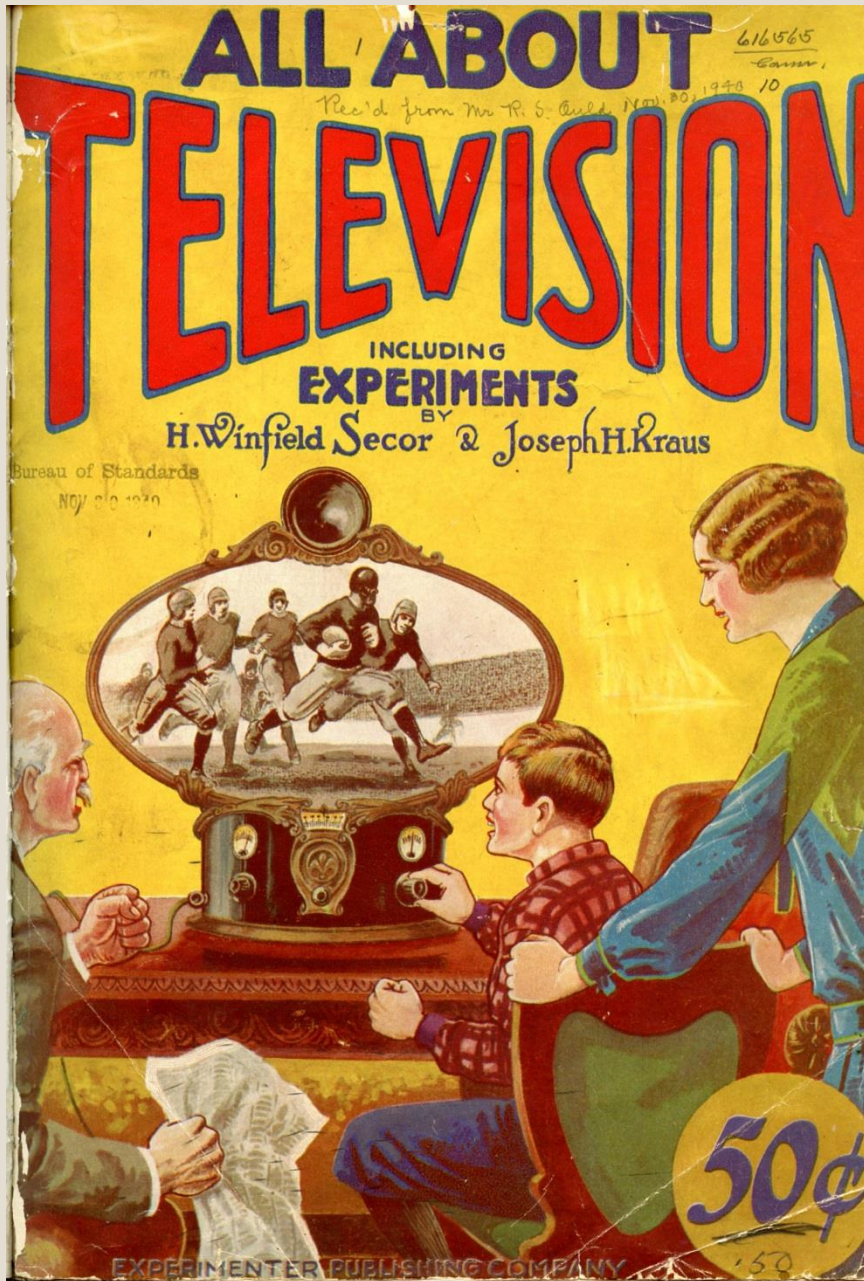
Television
station W3XK
on
Georgia Ave.

Television Pioneers

Philo Farnsworth



Farnsworth
with 1928
image
dissector
(camera) tube

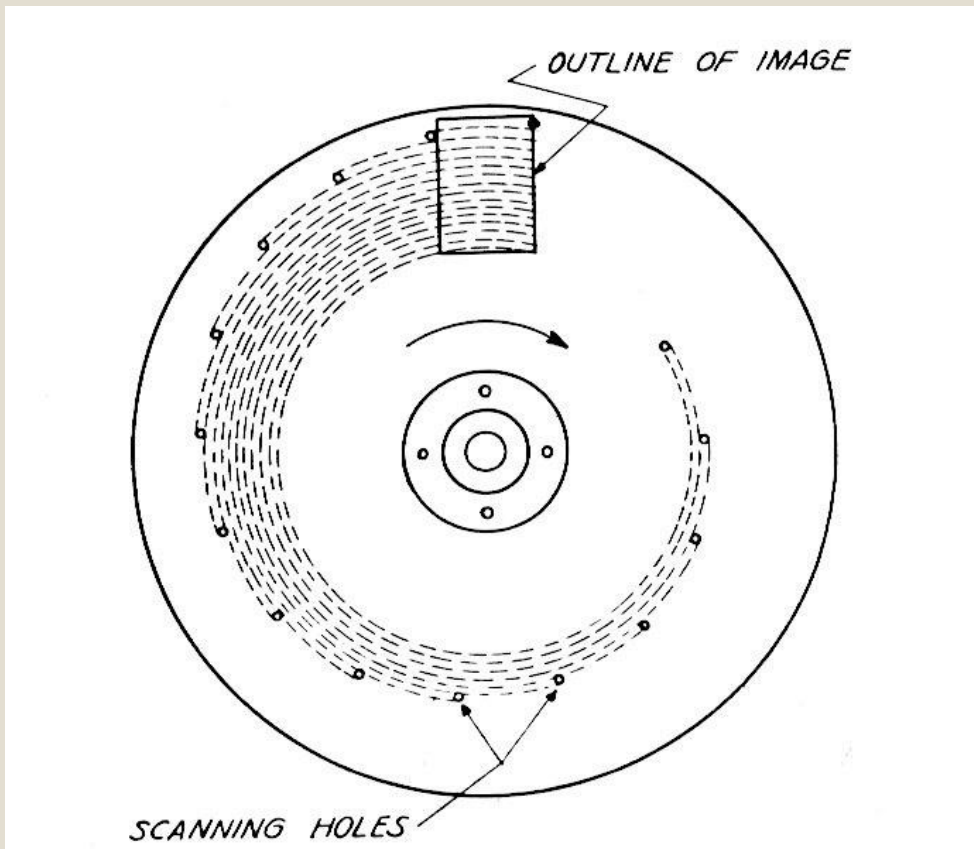


Cover of

***All About
Television***

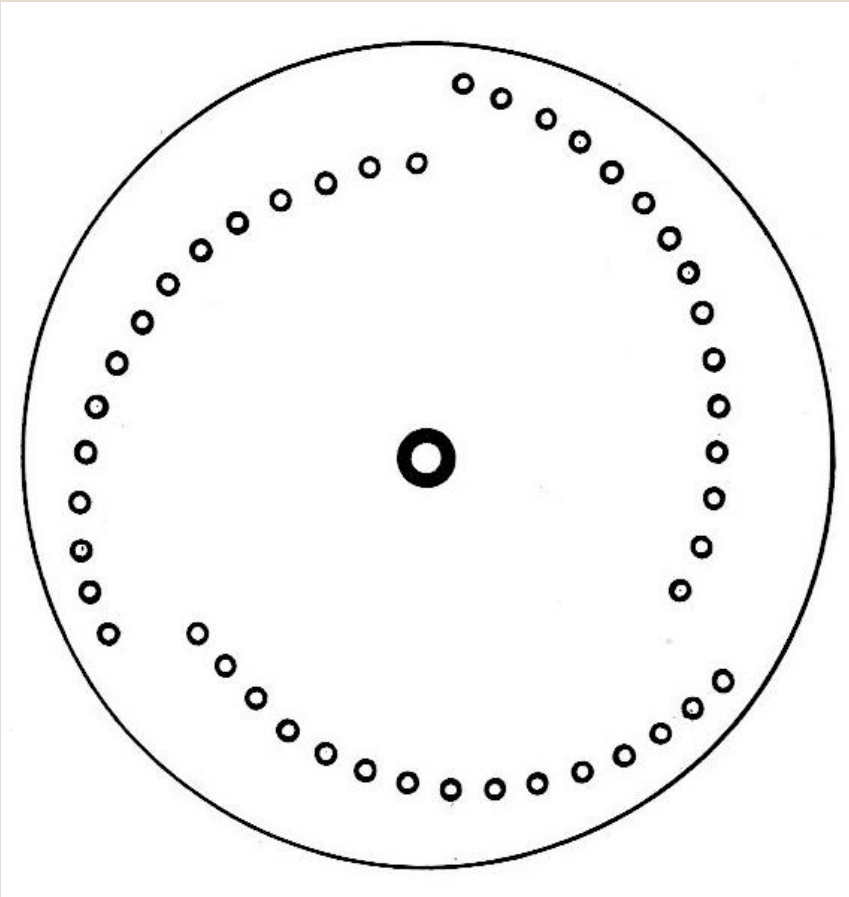
Published 1927

Television in the 1920s



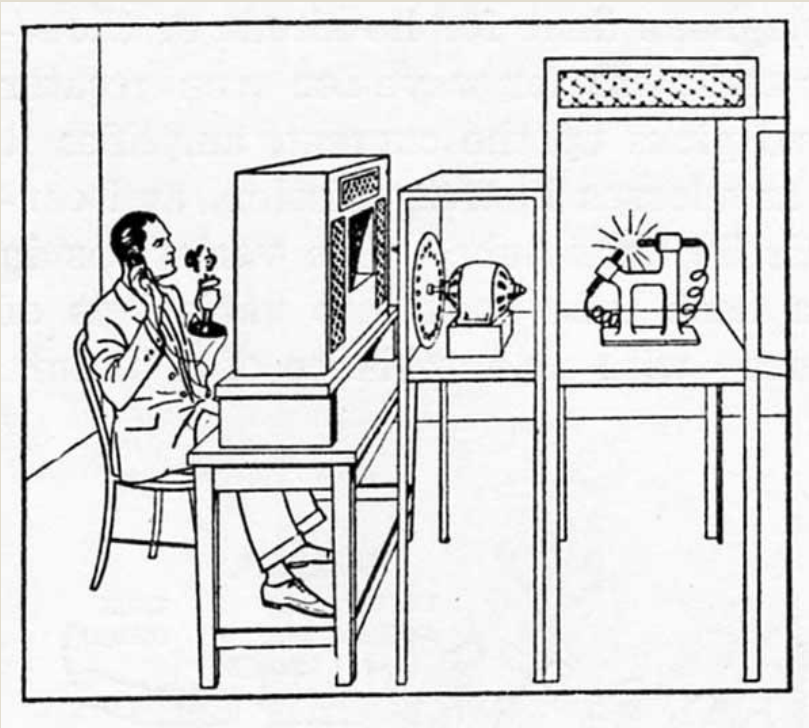
The image produced by a scanning disc with progressive scanning

Television in the 1920s

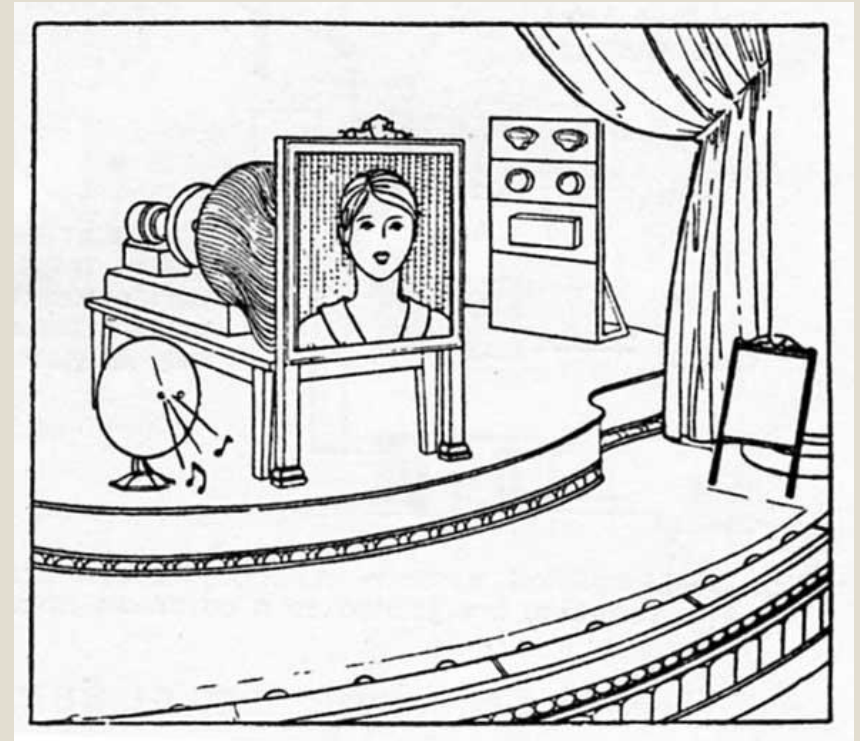


A disc
used for
interlaced
scanning

Television in the 1920s



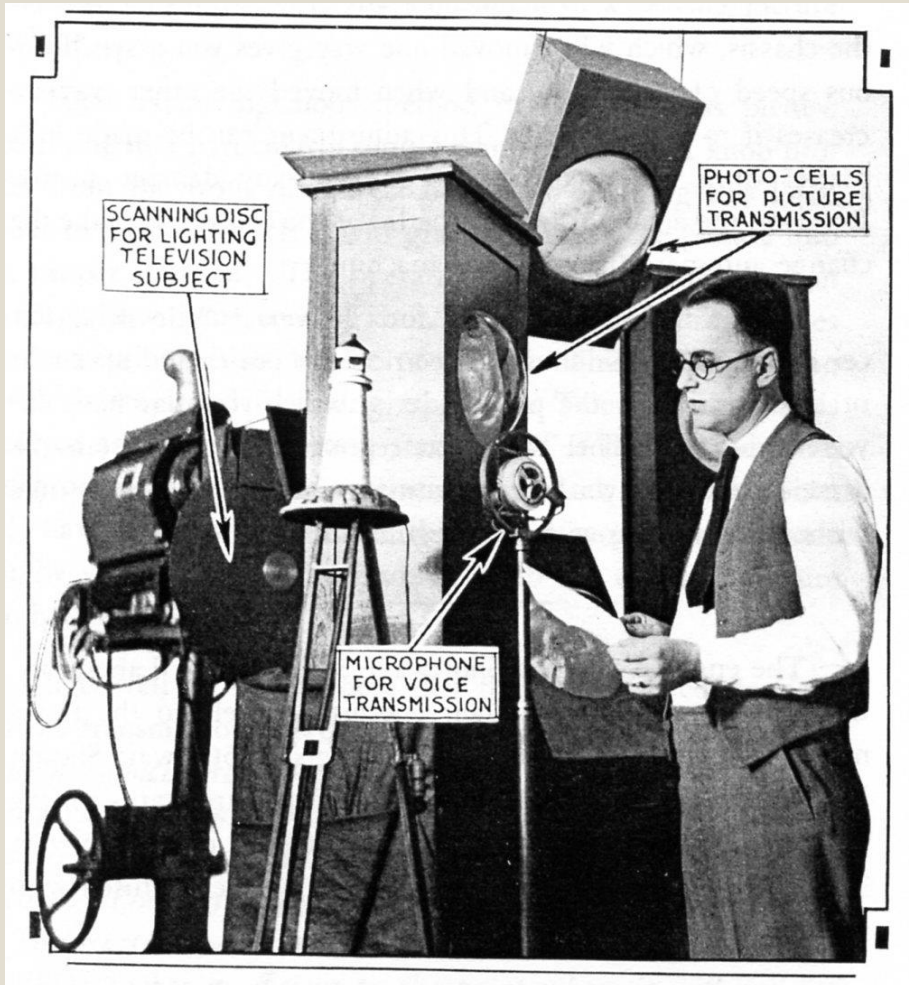
Transmitter



Receiver

Television in the 1920s

Typical
1920s
scanning
disc
apparatus



1920s Television Transmission

Two receivers needed:

- **Sound usually transmitted in the AM broadcast band**
- **Picture (AM) usually transmitted in a low-frequency shortwave band, e.g. 1.6 to 3 Megahertz**

Lack of Standards in the 1920s

- **Lack of agreement on:**
 - **Number of lines and number of frames per second**
 - **Sequential vs. interlaced scanning**
- **Synchronization by relying on synchronous electric motors tied to same electric grid**

U.S. Companies Engaged In Television Research or Manufacturing, Circa 1930

- **General Electric**
- **AT&T**
- **Westinghouse**
- **RCA**
- **Jenkins (DC area)**
- **Shortwave and Television Laboratories (Boston)**
- **Western Television (Chicago)**
- **Farnsworth (San Francisco)**
- **Others (Echophone, etc.)**

Television in the 1920s

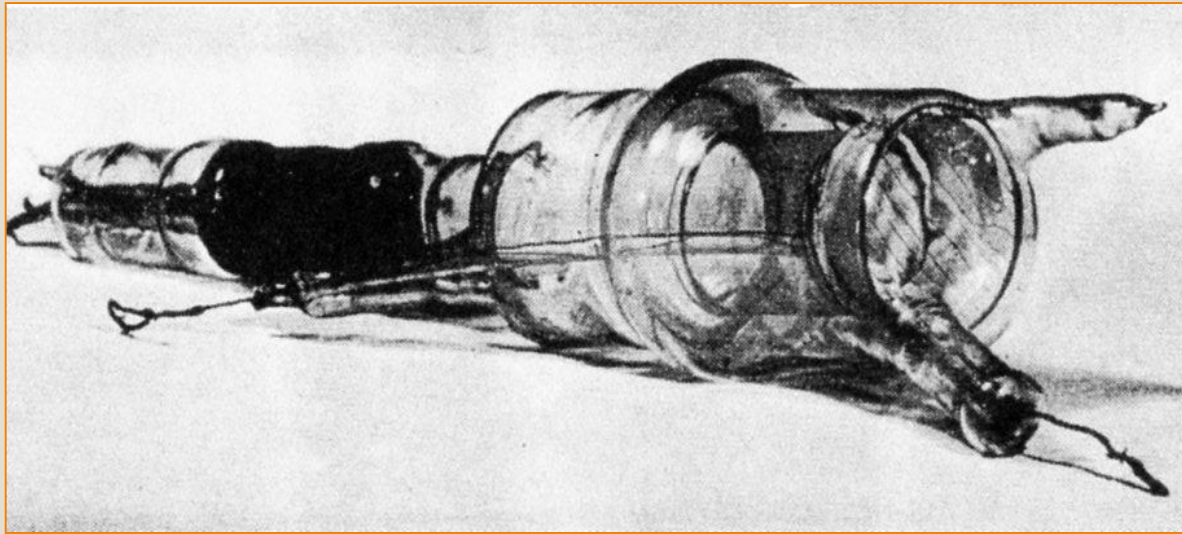
Westinghouse
(Later RCA)

Vladimir Zworykin
with photocell,
circa 1925



Television in the 1920s

Westinghouse



Zworykin's camera tube,
circa 1925

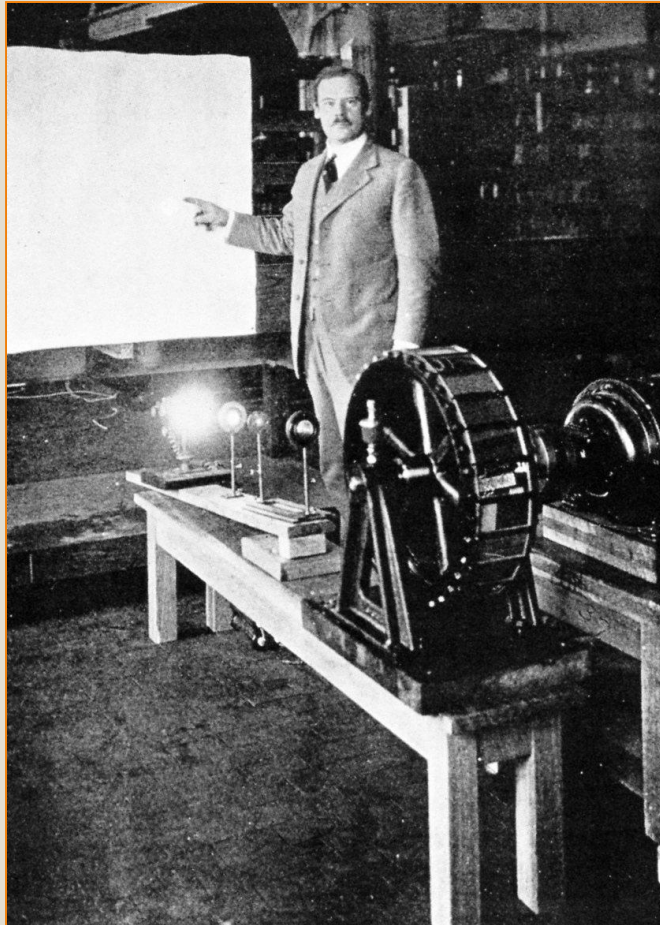
Television in the 1920s

Westinghouse



Zworykin
with 1929
Westinghouse
prototype
TV set

Television in the 1920s



**General Electric
Ernst
Alexanderson
with projection TV
apparatus
(W2XAF, 8-MHz
demo in 1928)**

Television in the 1920s



**General
Electric**

**Prototype
TV set**

Television in the 1920s



General Electric

**First televised
drama**

(September 1928)

*The Queen's
Messenger*

Television in the 1920s

RCA



NBC/RCA's television station W2XBS
(CBS had W2XAB on the air 1931-32)

Television in the 1920s

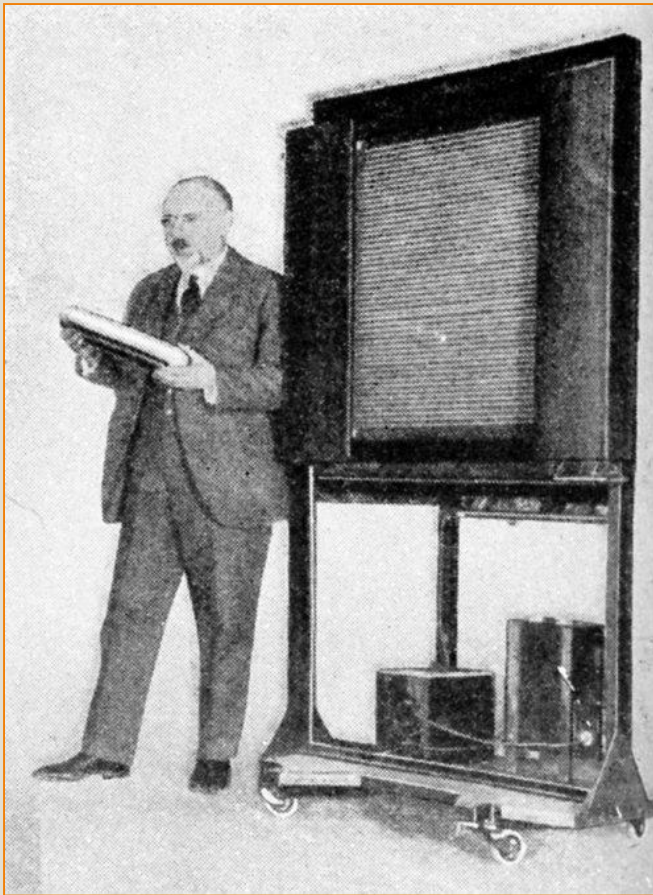
RCA



60-line RCA
TV, circa 1929

Television in the 1920s

Bell Labs/AT&T



Herbert Ives,
with large
display. (AT&T
used a flying
spot scanner)

Television in the 1920s



**Secretary of
Commerce
Hoover on TV
in 1927**

(AT&T wired demo)

Washington to NYC

Television in the 1920s

Western Television (Chicago)

Western
Television,
typical model

Courtesy Steve McVoy

TVhistory.TV Library



**1929 Western Television (USA)
Scanning Disc Television**

Television in the 1920s

Shortwave and
Television
Laboratories,
Inc. receiver
for home use
(W1XAV –
Hollis Baird)



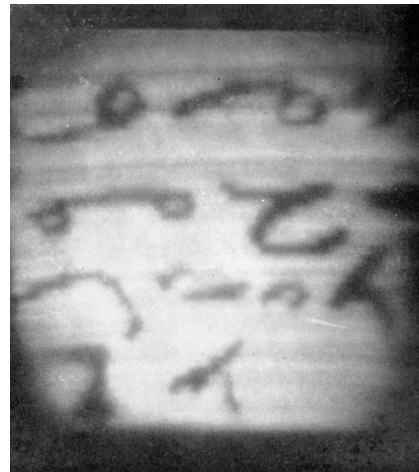
Trans-Atlantic Television in 1928

- **John Logie Baird wanted to demonstrate trans-Atlantic television**
- **February 1928 – Baird’s assistant Ben Clapp traveled to Hartsdale, NY, and received moving images from Baird’s station 2UK; sound from station 2KZ**
- **Thirty-four years later (1962), thanks to Telstar, trans-Atlantic television again took place**
- **Today, optical fibers and satellites make world-wide TV possible**

Example of an Educational TV Station: University of Iowa's W9XK

1931-1939

**Lectures on
Constellations,
Shorthand,
Identifying
Trees, etc.**

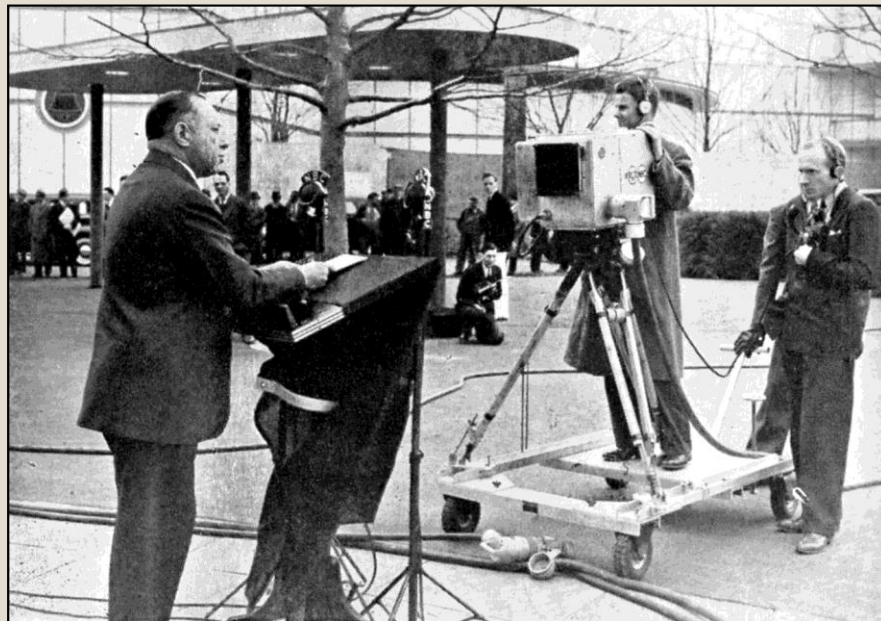


Mechanical Television Dies

- **The Depression killed consumer demand, companies bankrupt**
- **Scanning disc images: too small, low resolution**
- **By the mid-1930s, electronic television (camera tubes and CRTs) looked promising**

Mechanical Television Replaced by Electronic TV

- RCA and DuMont began to sell electronic television sets in 1939
- RCA began regular TV broadcasts at the World's Fair in April 1939



Visit the National Capital Radio & Television Museum



1931 Daven



1931 See-All

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ncrtv.org



Become a
Museum
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and receive
multiple
benefits!