Become a “Friend of SMPTE-NY”
Breaking the Pictures Barrier:
Why Television Research Began in 1877
(and Why Almost No One Knows It)

Mark Schubin, SchubinCafe.com
1967 Movie

SPOILER ALERT!
“Cerebrum Communicator”
polysensual cerebrum communicator
Polygon data were generated by Database Center for Life Science, BodyParts3D

SMPTE PDA webinar Thursday: MIT “hat” for direct stimulation of visual cortex
Here (-ish)

- VR/AR/MR/360
- UHD
- HDR
- WCG
- HFR
- Soundwave Reconstruction
- Haptic/Tactile
- Olfactory/Palatal

ETRI 4D at IBC 2010

Mark Schubin, SMPTE LI, 2017 Mar. 28
When Did TV *Really* Start?

common U.S. idea: TV was introduced at the RCA pavilion at the 1939 New York World’s Fair

Mark Schubin, SMPTE LI, 2017 Mar. 28

David Sarnoff Library
When Did TV *Really* Start?

common U.S. idea: TV was introduced at the RCA pavilion at the 1939 New York World’s Fair (ignores even Crosley, GE, GM, and Westinghouse at same fair)
Markova danced Blue Bird with Harold Turner before King George V and Queen Mary. She will be seen in the same ballet today with Anton Dolin.

Markova, a student of Seraphina Astafieva, joined the Diaghilev Ballet in 1924, appearing in Swan Lake, Aurora's Wedding, Camarasia, The Cat, and The Story of the Nightingale. This, and her subsequent work with the Ballet Club, the Camargo Society, and the Vic-Wells company, put her in the first rank of prima ballerinas. Sadler's Wells enthusiasts will remember her dancing in a special season of ballet with Dolin in 1935. Dolin, whose real name is Patrick Healey-Kay, is a dancer whose fame is known all over the world. He made his first appearance on the stage at the Prince's Theatre in 1916.

9.35 'PICTURE PAGE' (Fifty-Fourth Edition)
A Magazine Programme of General and Topical Interest
Edited by Cecil Madden
Produced by Royston Morley
The Switchboard Girl: Joan Miller
A characteristic of Cecil Madden's 'Picture Page' that has made it a distinctive part of television programmes has been its unfailing topicality. The big events of the day, celebrities who are headlined in newspapers and eagerly discussed by the public, little-known people who have interesting tales to tell—all these have been featured. This evening's edition will be appropriate to the occasion, the eve of Coronation Day.

Because of programme alterations made necessary by the televising of the Coronation, both editions of 'Picture Page' this week are being televised today instead of tomorrow.

2.0 THE CORONATION PROCESSION
Televised from the North and South faces of the main arch of Apsley Gate, Hyde Park Corner
Part 1
Views of the Park, and crowd scenes between Stanhope Gate and Hyde Park Corner; and on the south side of Apsley Gate, from Piccadilly by Wellington Arch to St. George's Hospital and Knightsbridge
Part 2
Their Majesties The King and Queen, and the complete Procession from Stanhope Gate to Apsley Gate, on its return journey to Buckingham Palace

9.0 THE POET LAUREATE
John Masefield will read his Coronation Ode

9.5 MUSIC-HALL CAVALCADE
with
ALBERT WHELAN
TOM COSTELLO
MARIE LLOYD, Jnr.
IDA BARR
ADA CERITO
WALTER WILLIAMS
TOM E. HUGHES
ARTHUR PRINCE
AND 'JIM'
Chairman, FRED WILLET
The BBC Television Orchestra
Conductor, Hyam Greenbaum
Presentation by Harry Pringle
But

video camera at 1936 Berlin Olympic Games

“television cannon”
But

Presented by the Postmaster-General to Parliament by Command of His Majesty
January, 1935

HIGH DEFINITION TELEVISION

27. With a view to extending the application of Television to a wider field and thereby increasing its utility and entertainment value, much attention has been given in recent years to the problem of obtaining better definition and reduced “flicker” in the received pictures.

28. The degree of definition it is essential to obtain is necessarily a matter of opinion, but the evidence received and our own observations lead us to the conclusion that it should be not less than 240 lines per picture, with a minimum picture frequency of 25 per second. The standard which has been used extensively for experimental work it should be not less than 240 lines
But

TV coverage of Tokyo baseball games 1931
But

ad for a TV demo in a 1930 newspaper

*The Schenectady Union-Star*, May 22, 1930
The First Television Show

R. D. Kell, Operating Television Theater Projector, Showing How the Picture Is Projected from Backstage; beside the Screen Are Loud Speakers for Reproducing Accompanying Radio Voice
But

1928: regularly scheduled television newscasts at the same place (GE in Schenectady) with anchor Kolin Hager (shown later)
And

1928: August Karolus demo at the Berlin Radio Show
Introduced Hyping Higher Spatial Resolution

Gerhart Goebel, “From the history of television - The first fifty years,”
50 Years of Fernseh: 1929-1979, Bosch Technische Berichte, Vol. 6, May 1979
30 Lines Wasn’t That Bad

30-line

actual off-screen 30-line photo

96-line
And

1928: experimental video recording *Miss Pounsford* by John Logie Baird

restored by Donald F. McLean

TVDawn.com used with permission

Got Better Quickly

off-air recording (Baird disk) of Betty Bolton singing 1932-5

restored by Donald F. McLean
TVDawn.com
used with permission

1928

- Germany, Japan, UK, U.S.

- Conventional
  - Regularly Scheduled TV Newscasts
  - Live Remote TV Coverage
  - Dramatic TV Programming
  - Intercity TV Distribution
  - Video Recording with Varispeed Playback
  - Home TV & Theatrical Large-Screen TV
  - Color TV

- Special
  - 3DTV
  - See-in-the-Dark TV
  - Two-Way TV

Baird Noctovisor
WRNY to Start Daily Television Broadcasts; Radio Audience Will See Studio Artists

The first regular broadcasting of images by television over the radio from New York will begin tomorrow, it was learned last night from Station WRNY in the Hotel Roosevelt. WRNY, which is owned by The Radio News Magazine, has recently transmission as an intermittent high-pitched whirr, varying with the action before the transmitter.

Officers of WRNY saw the images at a set installed in a private home a few hundred yards from the transmitting station.

But

1927: all-electronic scanned television achieved by Philo T. Farnsworth earlier diagram reported
And

1927:
Ernst Alexanderson used speed and phase controls to watch GE's mechanical TV.
And

1927: long-distance large-screen TV at Bell Labs in NYC with Herbert E. Ives
But

1926: John Logie Baird demoed TV w/ recognizable faces (1st achieved 1925)
But

1923: Vladimir Zworykin filed for a patent on scanned all-electronic television.
And

1923: SMPTE-founder Charles Francis Jenkins demoed television
But

- 1922 patent app. for videotape recording (Russia June 27)
But

- 1922 patent app. for videotape recording (Russia June 27)
- 2 problems in 1922:
  - no video
  - no tape
1914: (pre-SMPE) *New York Times* front-page account of a TV demo in London by Archibald Montgomery Low

*But*

**SAYS HE'S INVENTED SEEING BY WIRE**

Dr. A. M. Low, an English Scientist, Gives a Demonstration of a New Apparatus.
But

1912: publication of a diagram of all-electronic scanned television by Alan Archibald Campbell Swinton (idea publ. 1908)
But

1909: television in a consumer publication by Hugo Gernsback
But

Boris Rosing
Russian patent
18,076

1907: patent-application diagram for a scanned picture tube (and the tube itself, which might date to 1902)
But

“The International Electricity Congress,” *The Electrician*, September 21, 1900, p. 822

1900: *television* coined at the Paris World’s Fair by Russian Constantin Perskyi on August 24
But

“At the afternoon sitting on Friday, M. C. Perskyi read a communication on “Television,” describing a number of apparatus based on the magnetic properties of selenium.”

“The International Electricity Congress,” *The Electrician*, September 21, 1900, p. 822

“Television? The word is half Latin and half Greek. No good can come of it”
- attributed to Charles Prestwich Scott, editor of *The Manchester Guardian*
Before “Television”

artificial eye, diaphote, electric, electric camera, telescope, electroscope, fernsehen, hyaloscope, phantoscope, phoroscope, phototel, phototelegraph, telectroscope, teleoscope, telephane, telephonoscope, telephot, telescopophone
But

1897: Frantz Dussaud téléoscope
Which Was to Be Large Screen: Film or TV?

1897: Frantz Dussaud téleoscope

1895: Edison kinetophone
1894: SMPTE-founder Jenkins’s first published article on television.
But

THE TELELECTROSCOPE.

By LEON LE PONTOIS.*

I DESIGNATE by this name an apparatus having for its object the transmission of pictures or views of moving or stationary objects at great distances, and as I use electricity for the purpose of obtaining this result, I call this apparatus a telectroscope.

First let me say that by the transmission of pictures to great distances I do not mean the graphic transmission of sketches or writing as done, for instance, by the very ingenious invention of Prof. Elisha Gray, namely, the telautograph.

I intend to describe to you to-night the general outline of an apparatus that I have conceived for the purpose of seeing over as great distances as we hear by the long distance telephone.
nice TV-set chimney

give a name to their harmonious groupment (what the musicians call a chord), because each sound or its harmonies vibrates one of our nerves of hearing and only this one.

Vision is the sensation produced on the nerves dispersed all around the retina by the rhythmic motion called light.

Each of the nerves can indistinctly vibrate for the different light radiations known as colors, and we have

* Read before the Pittsburg Electric Club

oldest depiction of a camera-mounted light?
But

1892: depiction of home shopping by television
Albert Robida, *La vie électrique : le vingtième siècle*

caption translation: purchases via television
1891: Edison said he might introduce color TV at the World’s Columbian Exposition.
Milton Berle Quip

“If it wasn’t for Edison, we’d all be watching television by candlelight”
- “Mr. Television”

highest ratings in Nielsen’s first year of TV ratings: 61.6
for comparison, Super Bowl LI (51, not Long Island): 45.3
But

1890: description of 1885 design for a television system with an oil-lamp backlight in the display

Henry Sutton’s telephane
*The Telegraphic Journal and Electrical Review*, November 7, 1890
But

1885: patent for a complete television system (applied for in 1884)
1882: image of HDTV war coverage
Albert Robida, *Le vingtième siècle*

caption translation: the TV news
Including handheld camera, "PRESS" marking on the mobile unit, the wounding of the reporter becoming the story, & a really long cord
But

1880 book published about television in French, English, & Portuguese
1980: Birth of the 24-Hour News Cycle?
1846: 1st 24-Hour News Cycle!

- *Le Grand Pan*, a continuous, subscription newspaper in *The World As It Shall Be* by Émile Souvestre
- followed closely the invention of continuous-roll wood-pulp newsprint (1844)
AN ELECTRIC TELESCOPE.

[15374.]—It may be of interest to your readers to know the details of some experiments on which I have been engaged during the last three months, with the object of transmitting a luminous image by electricity.

To transmit light alone all that is required is a battery circuit with a piece of selenium introduced at the transmitting end, the resistance of which falling as it is exposed to light increases the strength of the current, and renders a piece of platinum incandescent at the receiving end thus reproducing the light at the distant station.

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An attempt to reproduce images with a single circuit failed through the selenium requiring some time to recover its resistance. The principle adopted was that of the copying telegraph, namely, giving both the platinum and selenium a rapid synchronous movement of a complicated nature, so that every portion of the image of the lens should act on the circuit ten times in a second, in which case the image would be formed just as a rapidly-whirled stick forms a circle of fire. Though unsuccessful in the latter experiment, I do not despair of yet accomplishing my object as I am at present on the track of a more suitable substance than selenium.

Denis D. Redmond.

Belmont Lodge, Sandford, Dublin.

1879 report of actual transmission of a video image, including references to scanning and frame rate
But

1878: published image of television by George du Maurier (called a "prediction" in Erik Barnouw's TV history book *Tube of Plenty*)
EDISON’S ANTI-GRAVITATION UNDER-CLOTHING—(continued).
Edison’s Real 1878 Telephonoscope

patent caveat
But 1877: 8 or 9 people writing about or working on television in multiple countries and languages.
And Before Them?

- John Cammack, London
- George R. Carey, Boston
- “Electrician,” New York
- Louis Figuier, Paris
- Frederick Glew, Wakefield, UK
- Julijan Ochorowicz, Lwów, Poland*
- Adriano de Paiva, Porto, Portugal
- William Sawyer, New York
- Constantin Senlecq, Ardres, France

* publication in Polish, politically different even at the time

1877 1879 1882 1885 1890 1900 1907 1912 1914 1928 1930 1936 1939 2017 future
Not Quite True

- St. Clare of Assisi (1194-1253)
  - reportedly, one Christmas night, when illness prevented her from leaving her convent cell, she heard and saw the mass at the church across town “as if present in person”
  - on that basis, she was proclaimed Patron Saint of Television by Pope Pius XII, “with all liturgical honors and privileges,” February 17, 1958
Powerful Displays

c. 1828 illustration by John William Wright for Sir Walter Scott’s *My Aunt Margaret’s Mirror* (magic mirrors, crystal balls, and the like don’t have cameras, so can see the future, the past, through walls, mountains, etc.)

www.metmuseum.org

Dr. Baptista Damiotti showed two women in Scotland a motion view in Italy via a special mirror system.

www.metmuseum.org
Besides Faith and Fiction: Telescopes

1608 patent application for a telescope by Hans Lippersheyn

1609 earliest known illustration of a telescope, by Giambattista della Porta

1884 ad for a telescope using a German word that today means a TV set

Leipzig Illustrierte Zeitung
Back to Scotland

1753: detailed description of electrical telegraphy (including instructions for insulating wires)

To the author of the Scots Magazine.

SIR, Renfrew, Feb. 1, 1753.

It is well known to all who are conversant in electrical experiments, that the electric power may be propagated along a small wire, from one place to another, without being sensibly abated by air. To prevent the objection, and save longer argument, lay over the wires from one end to the other with a thin coat of jeweller’s cement. This may be done for a trifle of additional expense; and as it is an electric per se, will effectually secure any part of the fire from mixing with the atmosphere. ——I am, etc.

C. M.
1792: Claude Chappe “telegraph” (originally “tachygraph” because messages could cross the country in minutes)
Another Great Scot

1842: having developed the printing telegraph & the remote synchronized clock, Alexander Bain combined them to get scanning for image transmission.

The IET Archives
Really?

1843 British patent for the first fax machine (this image from the U.S. patent)
In 1997, for the 25th anniversary of the Institute of Image Electronics Engineers, Masayuki Miyazawa built a fax pair based on the 1843 Bain patent.
So Bain Won an Emmy
...in 2016

But Bain Didn’t Invent TV, Just Scanning

faxes transmitted in 1850 (oldest existing?) The IET Archives
Giovanni Caselli

1856: began experiments on an improved version of Bain’s fax machine
Alexandre Edmond Becquerel

1858: demonstrated an improved version of Caselli’s fax at the French Academy of Science.
Becquerel Prize
for Outstanding Merits
in Photovoltaics

so named because in 1839 Becquerel discovered the photovoltaic effect and published papers about it in scientific journals in multiple countries.
so named because in 1839 Becquerel discovered the photovoltaic effect and published papers about it in scientific journals in multiple countries, and then everyone, including himself, seemingly forgot about it; he never wrote of using it in conjunction with a copying telegraph for a optical input
Sheet Music Transmitted in 1860

Sheet music transmitted in 1860 by the pantelegraph. The pantelegraph was invented by Giovanni Caselli and was based on Alexander Bain’s 1843 patent. This image shows a musical notation from the time period, with the signature of Gioachino Rossini, who is depicted in the middle of the image. The notation is dated 'Paris, ce 22 Jani 1860.'
Pantelegraph
the inventor telegraphed a painting of a full-blown rose from the Observatory to the Bureau of the Telegraphic Administration. The petals were of a beautiful pink color, and the leaves of an equally good green—in short, were exactly like the tints of the original. Rossini also telegraphed to Marseilles by this apparatus a melody which he improvised in honor of the inventor.
Commercial Fax Service: 1865

sometimes used for signature verification
All the Pieces in Place But No TV Idea

- camera: Mo-Ti 5\textsuperscript{th}-century BCE
  - camera lens: Girolamo Cardano c. 1550
- electro-optic conversion: Becquerel 1839
- electronic communication: C. M. 1753
- image scanning: Bain 1842
- glow varying with current
  - incandescence: Humphry Davy 1802
  - light valve: John Kerr 1875
Meanwhile, Back at the Telegraph...

1858: The first transatlantic cable went into operation
99 Words: 16.5 Hours

“The Queen desires to congratulate the President upon the successful completion of this great international work, in which the Queen has taken the deepest interest. The Queen is convinced that the President will join with her in fervently hoping that the Electric Cable which now connects Great Britain with the United States will prove an additional link between the two nations, whose friendship is founded upon their common interest and reciprocal esteem. The Queen has much pleasure in thus directly communicating with the President, and in renewing to him her best wishes for the prosperity of the United States.”
Edward Orange Wildman Whitehouse

1858: fired by the board of the Atlantic Telegraph Company (joined in 1856)
Why Was He Fired?

Wildman Whitehouse: Let’s put thousands of volts into the cable

William Thomson (later Lord Kelvin): Maybe that’s not such a good idea
Thomson’s Mirror Galvanometer

patented 1858

version by H. W. Sullivan
used at the Halifax, NS telegraph station shown

(effectively a precursor of the dynamic micromirror device used in digital cinema projectors today)
High Voltage But Also Defective Cable

http://atlantic-cable.com/Books/Whitehouse/DDC/
High Voltage But Also Defective Cable

Thomson came to Whitehouse’s defense even before this discovery

http://atlantic-cable.com/Books/Whitehouse/DDC/
1866: Second Transatlantic Cable
Isambard Kingdom Brunel
Willoughby Smith

needed to monitor the health of the cable
Needed High Resistance

tried tin-foil layers separated by gelatin, then switched to these selenium rods

The IET Archives
THE ACTION OF LIGHT ON SELENIUM.

The following communication from Mr. Willoughby Smith was then read:—

"Wharf Road,
"4th February, 1873.

"My dear Latimer Clark,—Being desirous of obtaining a more suitable high resistance for use at the shore station in connection

*Journal of the Society of Telegraph Engineers, 12th Feb., 1873*
Linda Hall Library (Eng. Societies Library, based on Latimer Clark’s Library)
Bain Joined STE in 1872 (its first year)

sponsored by Latimer Clark
EFFECT OF LIGHT ON SELENIUM DURING THE PASSAGE OF AN ELECTRIC CURRENT.

BEING desirous of obtaining a more suitable high resistance for use at the Shore Station in connection with my system of testing and signalling during the submersion of long submarine cables, I was induced to experiment with bars of selenium, a known metal of very high resistance. I obtained several bars varying in length from 5 to 10 centimetres, and of a diameter from 1 to 1½ millimetres. Each bar was hermetically sealed in a glass tube, and a platinum wire projected from each end for the purpose of connection.

The early experiments did not place the selenium in a very favourable light for the purpose required, for although the resistance was all that could be desired—some of the bars giving 1,000 mega, absolute—but there was a great discrepancy in the tests, and seldom did different operators obtain the same results. While investigating the cause of such great differences in the resistance of the bars, it was found that the resistance altered materially according to the intensity of light to which it was exposed. When the bars were filed in a box with a sliding cover, so as to exclude all light, their resistance was at its highest, and remained very constant, failing all the conditions necessary to my requirements; but immediately the cover of the box was removed, the conductivity increased from 10 to 100 per cent, according to the intensity of the light falling on the bar. Merely intercepting the light by passing the hand before an ordinary gas-burner placed several feet from the bar increased the resistance from 2 to 20 per cent. If the light be intercepted by rock salt or by glass of various colours, the resistance varies according to the amount of light passing through the glass.

To ensure that temperature was in no way affecting the experiments, one of the bars was placed in a trough of water so that there was about an inch of water for the light to pass through, but the results were the same; and when a strong light from the ignition of a narrow band of magnesium was held about nine inches above the water the resistance immediately fell more than two-thirds, returning to its normal condition immediately the light was extinguished.

discovery by John Mayhew, reported to Joseph May, reported to Smith
Letter to *Nature*, March 6, 1873

Effect of Light on the Electric Conductivity of Selenium

It is of course impossible not to feel intense interest in the statement (NATURE, vol. vii. p. 303) which Mr. Willoughby Smith makes and which Mr. Latimer Clark endorses. That I have been unable to obtain the same result has doubtless been due to my having worked under conditions different from those existing in Mr. Smith’s experiments. My failure has not been one of degree, but has been absolute. I have not only been unable to find that light increases the electric conductivity of selenium, but I have failed to get a current through selenium at all, even through a thickness of 0.1 millimetre. As I do not know how to put myself at once in direct communication with Mr. Smith, perhaps you will permit me to ask him through your columns to guide me on the following points:—

(a.) What was the form of battery employed, and what its power of overcoming British Association units of resistance?

(b.) What was the molecular condition of the “metal” (sic) employed,—vitreous or crystalline?

(c.) Where can “bars” of selenium be obtained which will afford the results stated?

(d.) Are there any unstated conditions essential to the successful production of the phenomenon?

Harry Napier Draper
Letter to *Nature*, March 6, 1873

statement (*NATURE*, vol. vii. p. 303) which Mr. Willoughby Smith makes and which Mr. Latimer Clark endorses. That I have been unable to obtain the same result has doubtless been due to my having worked under conditions different from those existing in Mr. Smith's experiments. My failure has not been one of degree, but has been absolute. I have not only been unable to find that light increases the electric conductivity of selenium, but I have failed to get a current through selenium at all, even through a thickness of 0.1 millimetre. As I do not polite, but...
Vigorous Defense Leads to Confirmations

Lawrence Parsons
Earl of Rosse
Historian Discovers Long-Lost Document?

Mark Schubin, SMPTE LI, 2017 Mar. 28

Metropolitan Opera Archives
Charles William Siemens

1st STE president, 1872
Lecture at the Royal Institution

WEEKLY EVENING MEETING,
Friday, February 18, 1876.

George Busk, Esq. F.R.S. Treasurer and Vice-President,
in the Chair.


The Action of Light on Selenium.

When, upon former occasions, I have ventured upon this arena, it has been for the purpose of placing before you the results of inquiries of my own into special subjects, which circumstance gave me some title to your indulgence.

This evening I cannot claim the same advantage, because the subject matter which I am about to bring before you is almost entirely the result of the investigations of others, and especially of my brother,
Before concluding, I wish to introduce to your notice a little apparatus which I have prepared to illustrate the extraordinary sensitiveness of my brother's selenium preparations, and an analogy between its action and that of the retina of our eye. It consists of a
Here we have then an artificial eye which is sensible to light
ARTIFICIAL EYES MADE SENSITIVE TO LIGHT.

Among the curious developments of Science is the recent production, by Dr C. W. Siemens, of an artificial eye that is sensitive to light. We wish we could add that it gives vision to the blind; but we cannot, though perhaps it contains a germ of promise in that direction. The new eye is composed of an ordinary glass lens, backed by an artificial retina of selenium. This mineral resembles and is allied to sulphur; it is distilled from bodies that contain sulphur in conjunction with metals, such as iron pyrites, a compound of sulphur and iron.
Every Publication in the World?

- at least English, French, German, Italian, Polish, Portuguese, & Spanish
  - œil artificiel, Künstliches Auge, occhio selenico, oko sztuczne, olho artificial, ojo artificial
- “A New Artificial Eye,” *The London Medical Record*
- “Artificial Eyes Made Sensitive to Light,” *Willamette Farmer* [Oregon]
- “Truly Artificial Eye,” *The Great Bend Weekly Tribune* [Kansas]
- [Siemens artificial eye], *The Wallaroo Times* [South Australia]
- “An Artificial Eye,” *Bruce Herald* [New Zealand]
- “Siemens’ Sensitive Artificial Eye,” *Scientific American* (2nd article)
- “An artificial eye,” *The Journal of Education for the Province of Quebec*
- “Artificial Eyes Made Sensitive to Light,” *The History of the Year 1876*
1877 Television Researchers

- de Paiva

- Senlecq

- Ochorowicz

- Carey?
Earliest Known Mention of Electrical Camera

The Karpeles Manuscript Library Museums

from the Caren Archive, auctioned by Bonhams 2014 Apr. 7

Mark Schubin, SMPTE LI, 2017 Mar. 28
I had my first idea of an electric camera in 1876 after reading an article in December 9, Page 374 (Scientific American) 1876. I have studied on the idea since then more or less and in January 1877 had worked up the instrument shown on pages 13-15-17 and so called this date the time of invention although I might with good reason reason say I invented it between 1876 and 1879. The instruments on pages 18-21 were invented in June 1878. But I had my first idea of them some months before this date.
SIEMENS' SENSITIVE ARTIFICIAL EYE

We have already alluded to Dr. William Siemens' curious device of an artificial eye sensitive to light, an invention based upon the action of light upon the electric conductivity of selenium. The construction of the eye is shown in the annexed engraving. A hollow sphere, suitably supported, is provided with two supports, in one of which is placed a concave lens A B.
AN ELECTRIC TELESCOPE.

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To transmit light alone all that is required is a battery circuit with a piece of selenium introduced at the transmitting end, the resistance of which falling as it is exposed to light increases the strength of the current, and renders a piece of platinum incandescent at the receiving end thus reproducing the light at the distant station.

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An attempt to reproduce images with a single circuit failed through the selenium requiring some time to recover its resistance. The principle adopted was that of the copying telegraph, namely, giving both the platinum and selenium a rapid synchronous movement of a complicated nature, so that every portion of the image of the lens should act on the circuit ten times in a second, in which case the image would be formed just as a rapidly-whirled stick forms a circle of fire. Though unsuccessful in the latter experiment, I do not despair of yet accomplishing my object as I am at present on the track of a more suitable substance than selenium.

Denis D. Redmond.

Belmont Lodge, Sandford, Dublin.
Emmy Awards Earlier This Year (Jan. 7)

- TCM (Willoughby Smith’s company)
- Society of Telegraph Engineers
- Siemens

© ATAS/NATAS
Why Not in TV History Books?

The History of Television
1880 to 1941

TELEVISION
an international history of the formative years
R. W. Burns

Early Television
A Bibliographic Guide to 1940
George Shiers

posthumously published
Propagated Error

- Alexandre Dauvillier

- repeated by (among many others)
  - Campbell Swinton (same year *Discovery* & next *Nature*)
  - Garratt & Mumford, *Proceedings of the IEE*
  - Zworykin, *Proceedings of the IRE*
  - Gorokhov, *Radio Engineering* [*Радиотехника*]
  - many SMPTE papers, including 1976 (60th Anniversary) “101 Years of Television Technology”

"La télévision électrique," *Revue Générale de l'Electricité* 7 jan. 1928
Television Inventions.

In Nature of April 27, p. 637, a notice appeared of a book by Mr. C. Francis Jenkins, of Dayton, Ohio, entitled "Radiomovies, Radiovision, Television". With some difficulty I have obtained a copy of this book from America, and find in it, in a picture which appears to be on page 74 (though no paging is given), a description copied from a journal of July 25, 1894, ascribing to C. Francis Jenkins an apparatus for transmitting pictures by electricity, under the name of the Jenkins' Phantoscope. This is identical in all essentials with the method of television proposed by G. R. Carey, an American, and dated 1875 according to "La Television Electrique", by A. Dauvillier, published much later, in 1928, by La Revue Generale de L'Electricite, of Paris; while an illustrated description of Carey's method also appears in a copy I possess of Design and Work for June 25, 1880.

went on to compare Baird's work to the earlier Nipkow patent

A. A.

Campbell Swinton

40 Chester Square, London, S.W.1,
May 28.
Historians have differed somewhat on the exact year of Carey's proposal but a number have placed it in 1875, the year reported above. However, the earliest published reference to Carey's work that could be found during the preparation of this paper was May 1879; therefore, there remains some uncertainty as to the exact year of Carey's proposal.
The Carey Legend

The most prevalent version of the beginnings of television gives credit to an invention by George R. Carey of Boston in 1875. Carey did not claim this early date nor is it supported by contemporary reports. This story appeared, perhaps for the first time in English literature, nearly fifty years ago in a survey article by Alan Archibald Campbell Swinton (1863–1930), well-known electrical engineer of London who was the first to suggest an all-electric television system. He stated:
Nov 1, 2001
Early Television
A Bibliographic Guide to 1940

Compiled by George Shiers
Assisted by May Shiers

Edited and Indexed
by Diana Menkes
Project Manager
Christopher H. Sterling
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a fully referenced version of this talk, “What Sparked Video Research in 1877? The Overlooked Role of the Siemens Artificial Eye,” was published in the March 2017 issue of the Proceedings of the IEEE free link at bit.ly/siemens-eye

these slides are available at bit.ly/smpteli-17-3 audio/video of Philadelphia Section presentation at bit.ly/smptephl-17-1

Questions?