

TELECOMMUNICATIONS HISTORY

A QUICKLY DOES IT TOUR THROUGH OLD MEDIA

SIGNS, SYMBOLS AND CODE

- REPRESENTATION OF VISUAL LIFE
- REPRESENTATION OF SOUNDS AND MEANING
- REPRESENTATION OF ABSTRACTIONS, COMPLEX THOUGHT
- BEGINNINGS IN CRO-MAGNON 65,000 TO 30,000 YRS BCE
- WRITTEN LANGUAGES PERHAPS 10,000 BCE



CAVES AT LESCAUX - SOUTHERN FRANCE



... AND OF THREATS

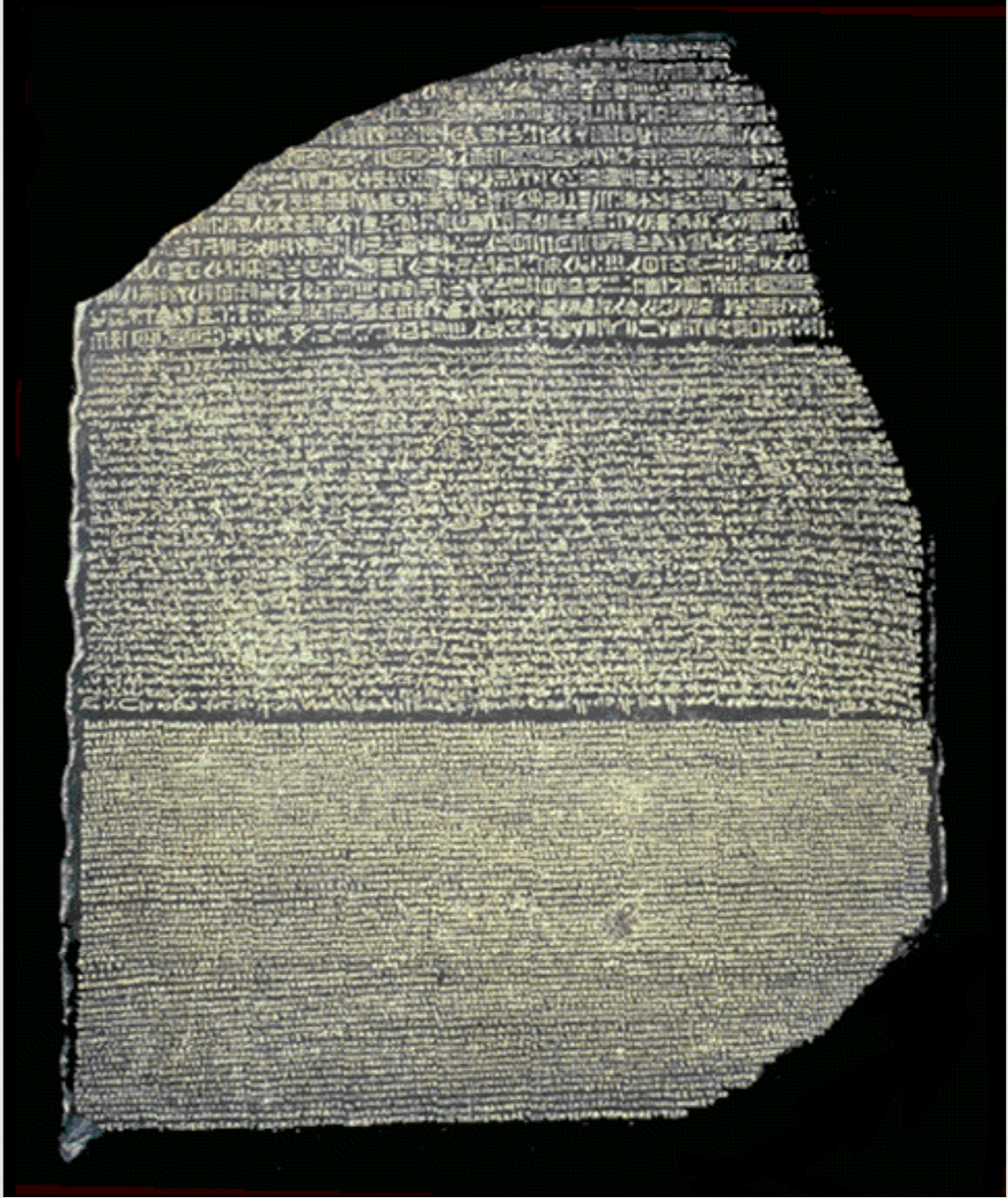


PETROGLYPHS BECOME SYMBOLIC - THESE FROM MIDDLE EAST



AZTEC ALLIGATOR AND OZZIE WARNING SIGN

Handwritten symbols and characters arranged in four vertical columns, likely representing a form of shorthand or a specific script.



TEXT AS STORY IN PICTOGRAMS/THE ROSETTA
STONE: FROM PICTURES TO SOUNDS



GREEK UTILITY VESSEL - PHONETIC ALPHABET



本紀第一
南齊書一
梁 蕭子顯 撰
大明南京國子監 祭 酒 趙用賢
司 業 張一桂同校
高帝上
太祖高皇帝諱道成字紹伯姓蕭氏小諱鬪將
漢相國蕭何二十四世孫也何子鄴定侯延生
侍中彪彪生公府掾章章生皓皓生仰仰生御
史大夫望之望之生光祿大夫育育生御史中

IDEOGRAPHIC PRIMER ON LEFT, TEXT ON RIGHT

● Consonants:

ㄱ

\k,g\
kiyok

ㄴ

\n\
niun

ㄷ

\t,d\
tikut

ㄹ

\r,l\
riul

ㅁ

\m\
mium

ㅂ

\p,b\
piup

ㅅ

\s,sh\
siot

ㅇ

\ng\
iung

ㅈ

\ch,j\
chiut

ㅊ

\ch\
ch'iut

ㅋ

\k\
k'iuk

ㅌ

\t\
t'iut

ㅍ

\p,f\
p'iup

ㅎ

\h\
hiut

● Vowels

ㅏ

\a\
la

ㅑ

\ya\
lya

ㅓ

\eo\
leo

ㅕ

\yeo\
lyeo

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leu

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\ee\
lee

IDEOGRAPHS TO PHONETICS - HANGUL

A S P E C I M E N

By WILLIAM CASLON, Letter-Founder, in Chiswell-Street, LONDON.

ABCD
ABCDE
ABCDEF
ABCDEFG
ABCDEFGH
ABCDEFGHI
ABCDEFGHIJK
ABCDEFGHIJKL
ABCDEFGHIJKLM

DOUBLE FACE ROMAN.
Quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere ista tua avaritia? quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere ista tua avaritia?

DOUBLE FACE ITALIC.
Quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere ista tua avaritia? quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere ista tua avaritia?

DOUBLE FACE GOTHIC.
Quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere ista tua avaritia? quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere ista tua avaritia?

Quousque tandem abutere, Catilina, patientia nostra? quousque tandem abutere, Catilina, patientia nostra?

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Quousque tandem abutere, Catilina, patientia nostra? quousque tandem abutere, Catilina, patientia nostra?

Quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere, Catilina, patientia nostra? quando nos etiam abutere, Catilina, patientia nostra?

Quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere, Catilina, patientia nostra? quando nos etiam abutere, Catilina, patientia nostra?

Quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere, Catilina, patientia nostra? quando nos etiam abutere, Catilina, patientia nostra?

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Quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere, Catilina, patientia nostra? quando nos etiam abutere, Catilina, patientia nostra?

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Quousque tandem abutere, Catilina, patientia nostra? quando nos etiam abutere, Catilina, patientia nostra? quando nos etiam abutere, Catilina, patientia nostra?

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890(.,!/?&\$£€)

Qa

CASLON (16TH C.) AND TIMES ROMAN (200 BCE) FONTS



MEDIA - STORES AND TRANSPORTS MESSAGES (HERE CHINESE PAPER MADE FROM BAMBOO IN MANNER OF 1800 YRS BCE)



COMMUNICATION TOOLS TIMELINE - RISE IN INDUSTRIAL REVOLUTION AND ENLIGHTENMENT

MEDIA SINCE RENAISSANCE

- COST
- TRANSPORT
- LITERACY
- ARCHIVING
- LIBRARIES AND RETRIEVAL
- MEANING AND MEDIA LIMITATIONS

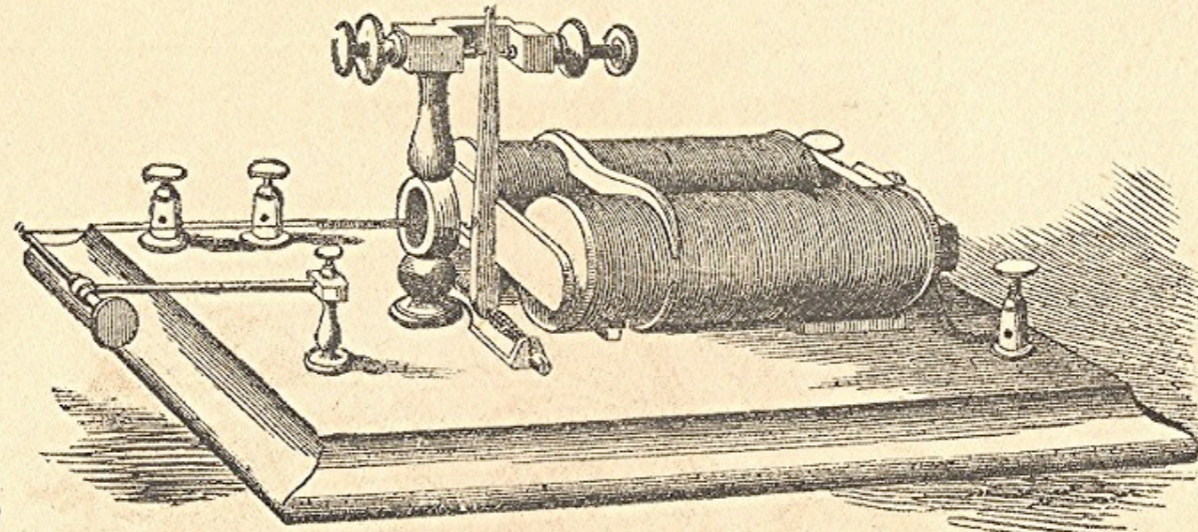
PRINTING CHINA, KOREA AND GERMANY

- ADMINISTRATION AND CENTRAL GOVERNMENT
- SIMPLIFICATION (KOREAN)
- ARCHIVING AND TRANSPORT OVER DISTANCE
- SIGNATURES, SEALS AND SECRECY
- MISSIONARIES AND RELIGIOUS FERVOUR
- AUTHORITY AND STATUS CONFERRAL, SOCIAL EFFECTS

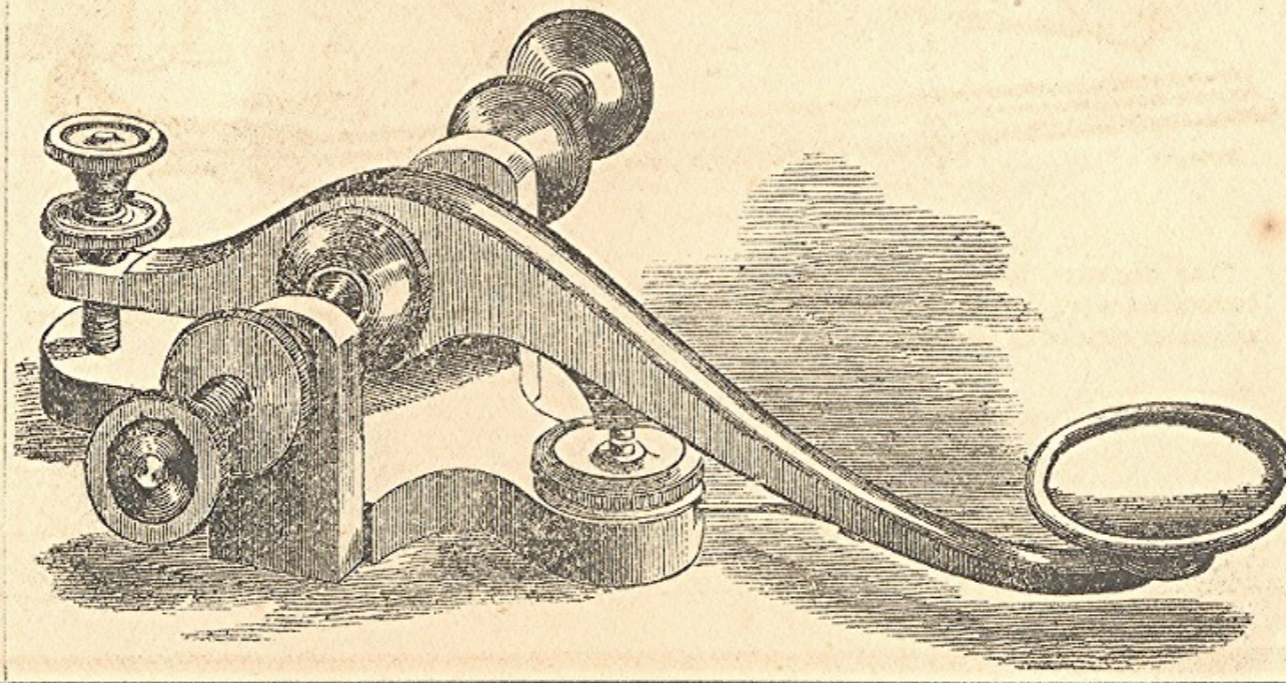


VISUAL TELEGRAPH CA 1800

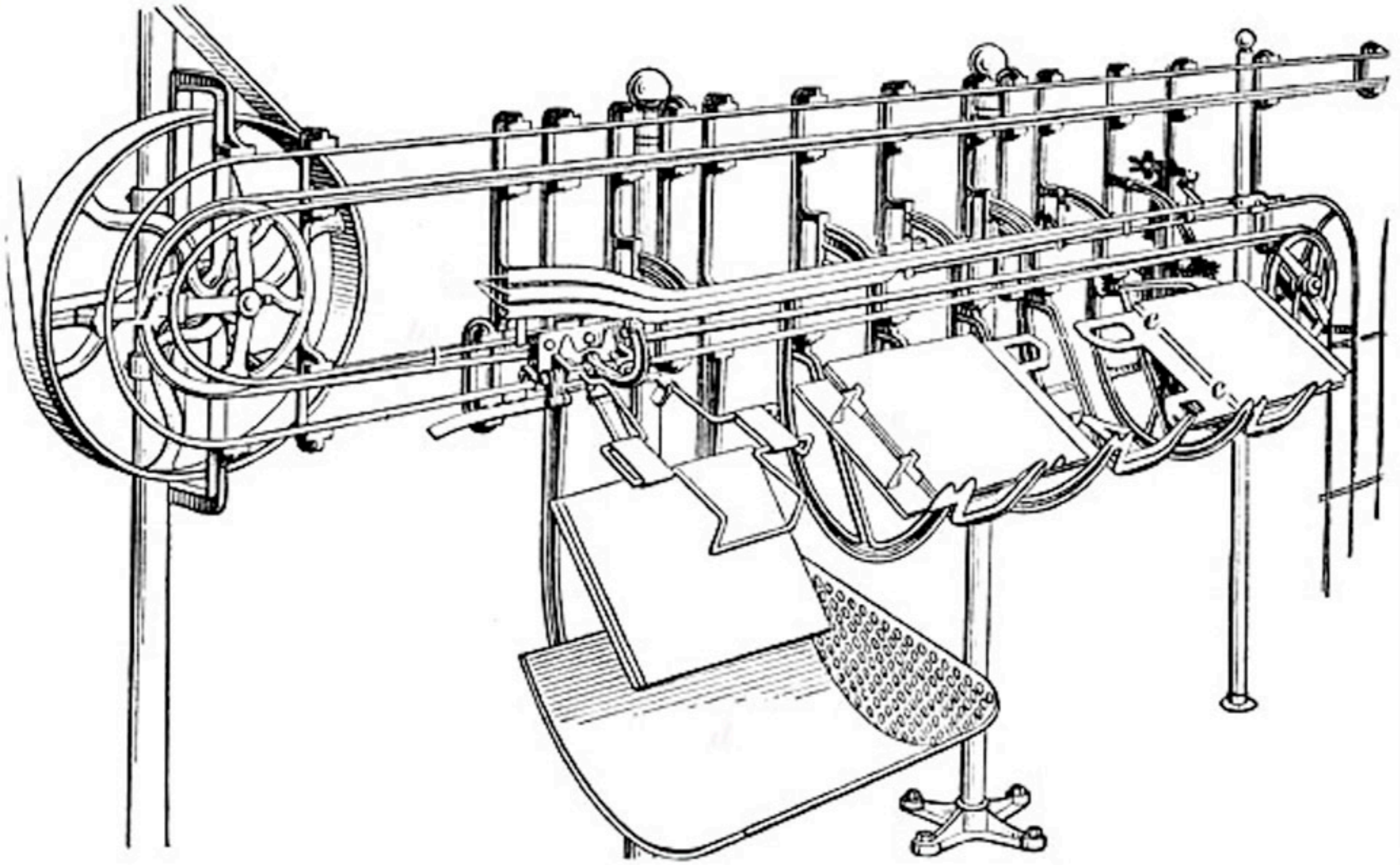
Morse's Receiving Magnet.



Morse's Manipulating Key.



MORSE REPEATING TELEGRAPH - VICTORIAN "INTERNET"



MECHANICAL MESSAGING, CA 1880

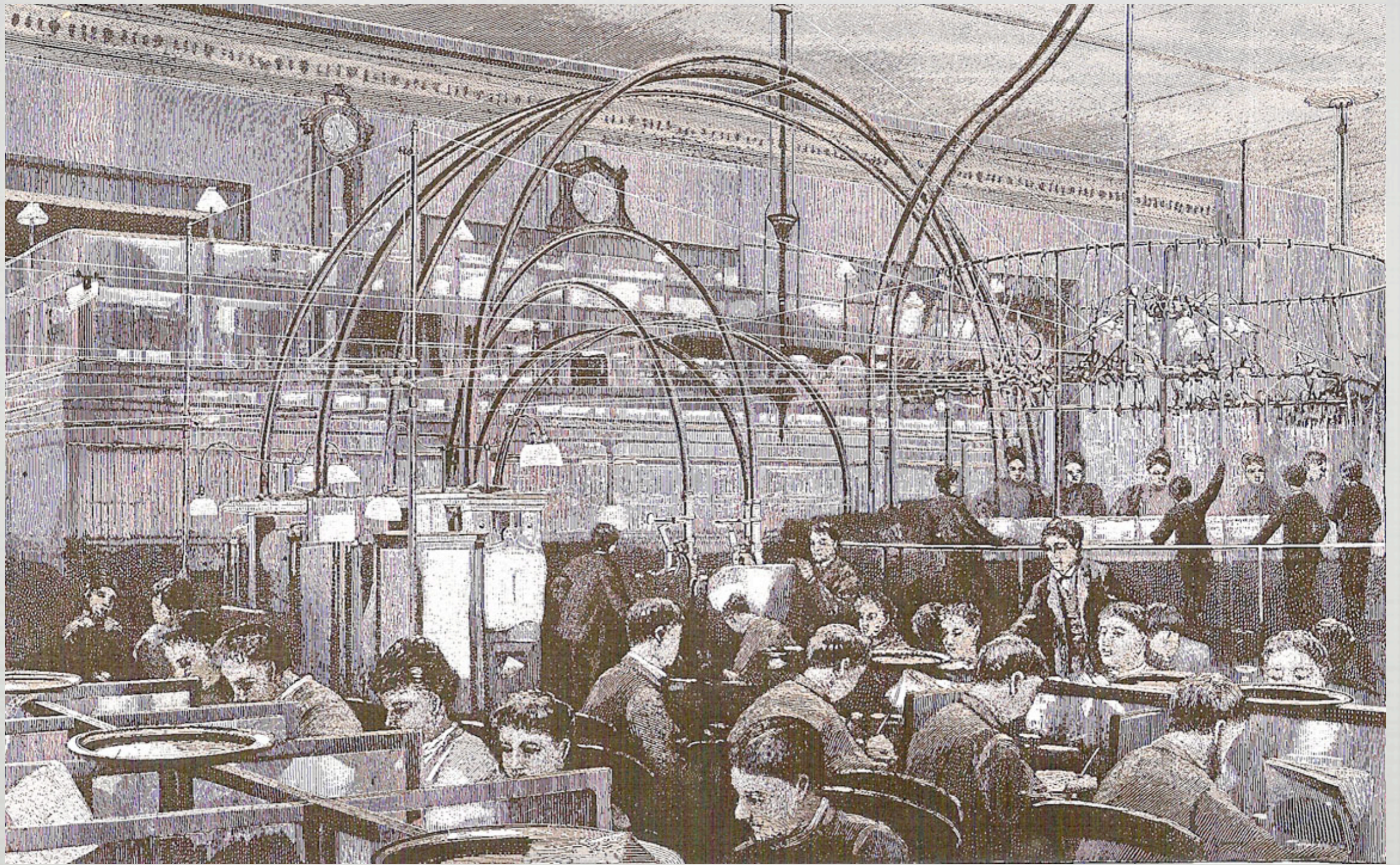


**HOLCOMB'S PATENT
ACOUSTIC SPEAKING TELEPHONE.**

Patented in United States July 9th, 1878. Patented in Canada Oct. 14th, 1878.

J. R. HOLCOMB & CO.,
MANUFACTURERS AND SOLE PROPRIETORS,
MALLET CREEK, MEDINA CO., OHIO.

PARLOUR TRICK OR USEFUL INNOVATION, CA 1876



WESTERN UNION TERMINUS NYC ABOUT 1880



MODERN OFFICE OF THE 1900'S:
PHONE, ELECTRICITY, DICTATION AND TELEGRAPHY

MASS MEDIA: ONE-TO-MANY

- LITERACY
- LEISURE
- INDUSTRIAL PRODUCTION AND CONTROL
- MIDDLE CLASS AND DISPOSABLE INCOME
- MASS ENTERTAINMENT
- BEGINNINGS OF AN INFORMATION ECONOMY

WHAT IS AN INFORMATION ECONOMY?

- EXCHANGE OF HIGH VALUE-ADDED KNOWLEDGE, CF "KNOWLEDGE ECONOMY"
- OBSERVATION -> DATA -> INFORMATION -> KNOWLEDGE
- NETWORKS AND SHARED KNOWLEDGE
- MOVEMENT OF JOBS TO KNOWLEDGE INTENSIVE, INNOVATIVE INDUSTRIES
- RUST BELTS OF LOW EDUCATION, LOW ACHIEVEMENT COMMUNITIES. INCREASING SOCIAL DISPARITIES

STAGES OF INFORMATION ECONOMY

- AGRARIAN SUBSISTENCE FARMING. EVOLVES TO BIG AGRICULTURE; PROTEIN FACTORIES
- HEAVY INDUSTRIAL, RESOURCE-INTENSIVE, DEVELOPMENT OF SKILLED WORKING CLASS, GROWTH OF CITIES AND TELECOMMS NETWORKS; MFG MOVES TO DEVELOPING NATIONS (I.E. CHINA)
- POST-INDUSTRIAL KNOWLEDGE ECONOMY, PREMIUM ON EDUCATION, RESEARCH AND KNOWLEDGE INFRASTRUCTURE

IBM

- COMBINE OF HOLLERITH TABULATING, DAYTON SCALE AND TIME CLOCKS
- INFLUENCE OF CHAS BABBAGE ("ON THE ECONOMY OF MACHINERY AND MANUFACTURERS")
- FREDERICK TAYLOR AND "TAYLORISM" - TIME-MOTION STUDY; SCIENTIFIC MANAGEMENT.
- CHANGE IN EARLY 1980'S FROM MANUFACTURING OF HARDWARE TO LARGELY SYSTEMS AND SOFTWARE "SOLUTIONS" PARADIGM SHIFT.

NETWORKS

- TRADE, ROADS, CURRENCY, TRANSSHIPMENT, CANALS;
REGULATION OF TRAFFIC AT DISTANCE - A PROBLEM
- POSTAL NETWORKS
- TELEGRAPHS NETWORKS
- THE "CONTROL" SOCIETY AND THE IDEA OF FLOW
- RADIATING (ROADS, BROADCAST)
- LINEAL (TELEGRAPHS, RAIL, CANALS)
- HIERARCHICAL (TELEPHONE, INTERNET)

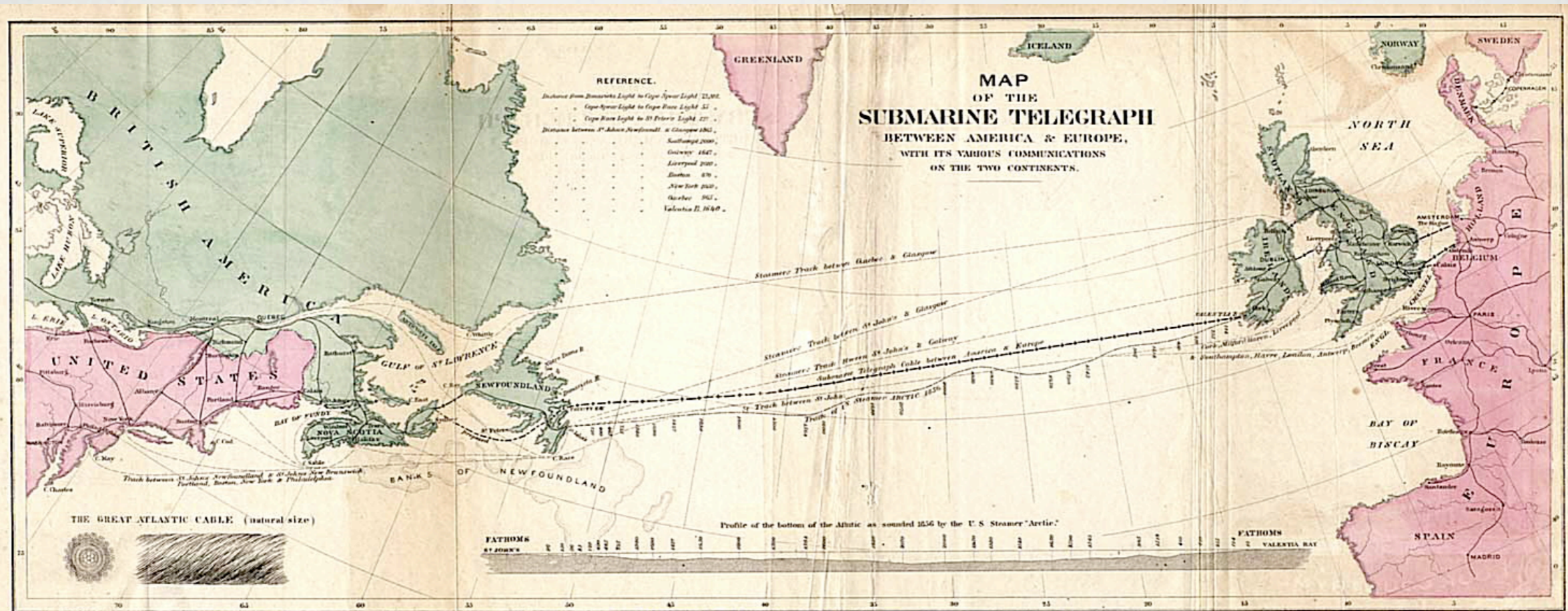


rpf00409.jpg Rochester Public Library Local History Division

ERIE CANAL CROSSING THE GENESEE RIVER
AT ROCHESTER, NY CA. 1885

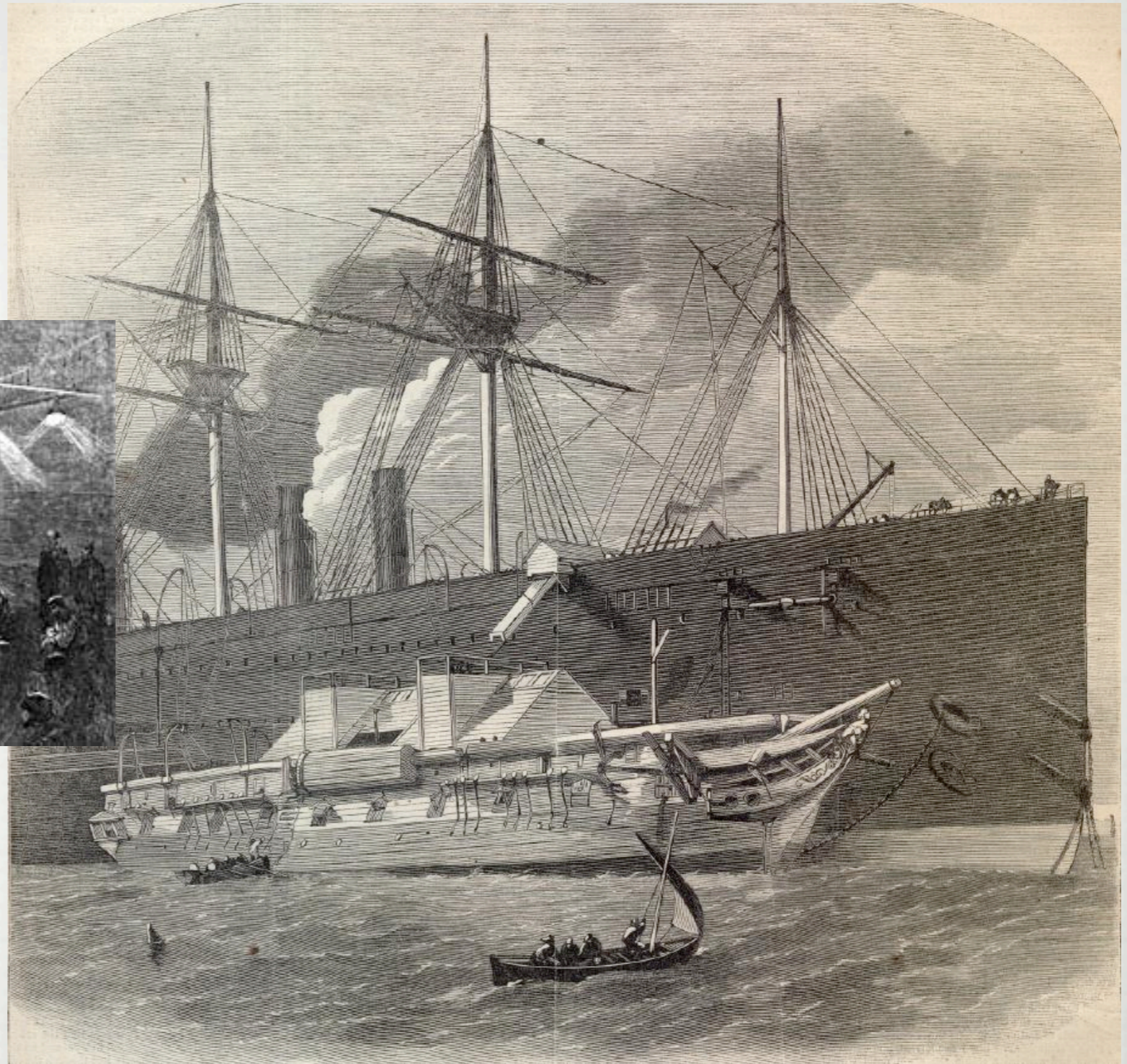
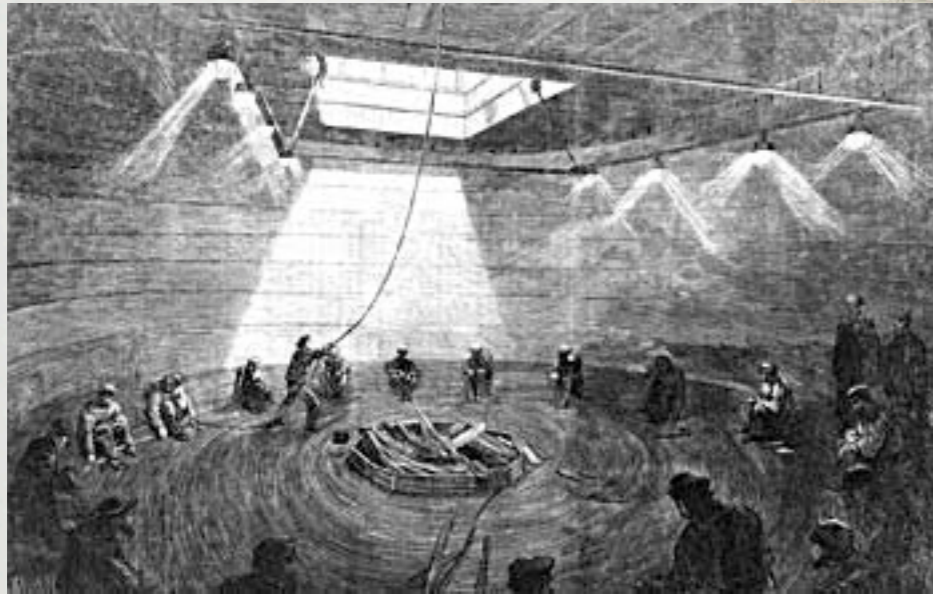


STOCK TICKERS GIVE REALTIME BUSINESS DATA, CA. 1880



Printed for HOWE'S ADVENTURES & ACHIEVEMENTS OF AMERICANS.

UNDERSEA TELEGRAPH CABLE, FIRST EFFORT 1856



BRUNEL'S 'GREAT EASTERN' LAID FIRST SUCCESSFUL CABLE



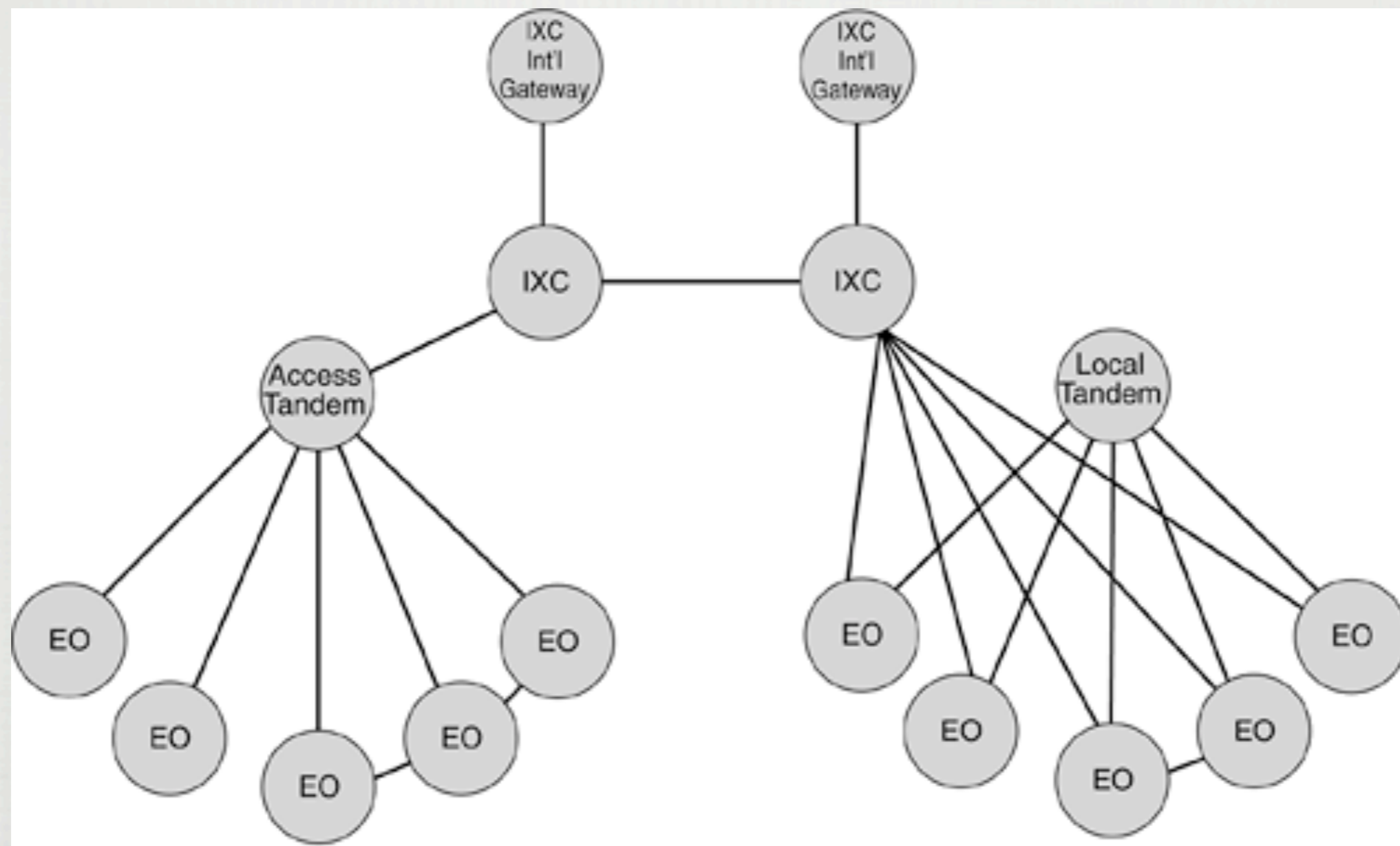
ALLEGORY IN CABLE & WIRELESS MURAL

STANDARDS & INTEROPERATION

- DE JURE INDUSTRIAL STANDARDS
- INTERNATIONAL TREATIES GOVERNING TELECOMMS. TELECOMMS LAW AND ORGANISATIONS SUCH AS ITU AND CCITT
- RISE OF AUTOMATIC NETWORK CONTROL, SWITCHING
- "NATURAL MONOPOLIES" OF 19TH C. "ONE SYSTEM, UNIVERSAL SERVICE" REGULATION IN "PUBLIC INTEREST"
- NATIONAL SECURITY RECOGNITION OF TELECOMMS



PANEL, CROSSBAR AND ESS TELEPHONE CO'S



ONE-TO-ONE NETWORK MECHANICAL SWITCHING HIERARCHY



STROWGER STEP-BY-STEP DIALLED PHONE, CA 1905



IMAGE TRANSMISSION: FACSIMILE MACHINE, CA 1920

WIRELESS

- PROBLEM WITH SHIP SAFETY AND CONTROL SPAWNED WIRELESS; LATER, AIRCRAFT AND MILITARY USES
- CRUDE TRANSMITTERS IN 1880'S, PATENTS BY 1895 (MARCONI)
- SPARK GAP COULDN'T BE TUNED; FREQUENCY STABLE BY 1898 (FESSENDEN); VOICE MODULATION OF CARRIER (AM) BY 1905; FM BY 1935 (ARMSTRONG).
- RADIO AS ENTERTAINMENT; PROGRAMMING. FRANK CONRAD, KDKA, CA 1919



A MOVIE BRAND TAG TO DOMINANT TECHNOLOGY
SOON TO BE REALISED WITH TV

WITH CONTENT CAME IP AND PUBLIC REGULATORY PRESSURE

- CTSC AND FCC, SYSTEMS OF PUBLIC CONTROL OVER THEIR AIRWAVES
- DE JURE TECHNOLOGY STANDARDS - WHAT FREQUENCIES TO USE?
- WHAT STANDARDS OF SOCIAL TASTE AND BENEFIT? PUBLIC INTEREST, CONVENIENCE AND NECESSITY.
- HOW TO FUND: COMMERCIAL, INSTITUTIONAL VS TAX-BASED SYSTEMS. WHO HAS CONTROL OF CONTENT? ABUSE: WARTIME PROPAGANDA, NAZIS, DECEPTIVE ADS
- CULTURAL EFFECTS: LANGUAGE, ART, AND CONSUMERS

PROGRAMMING

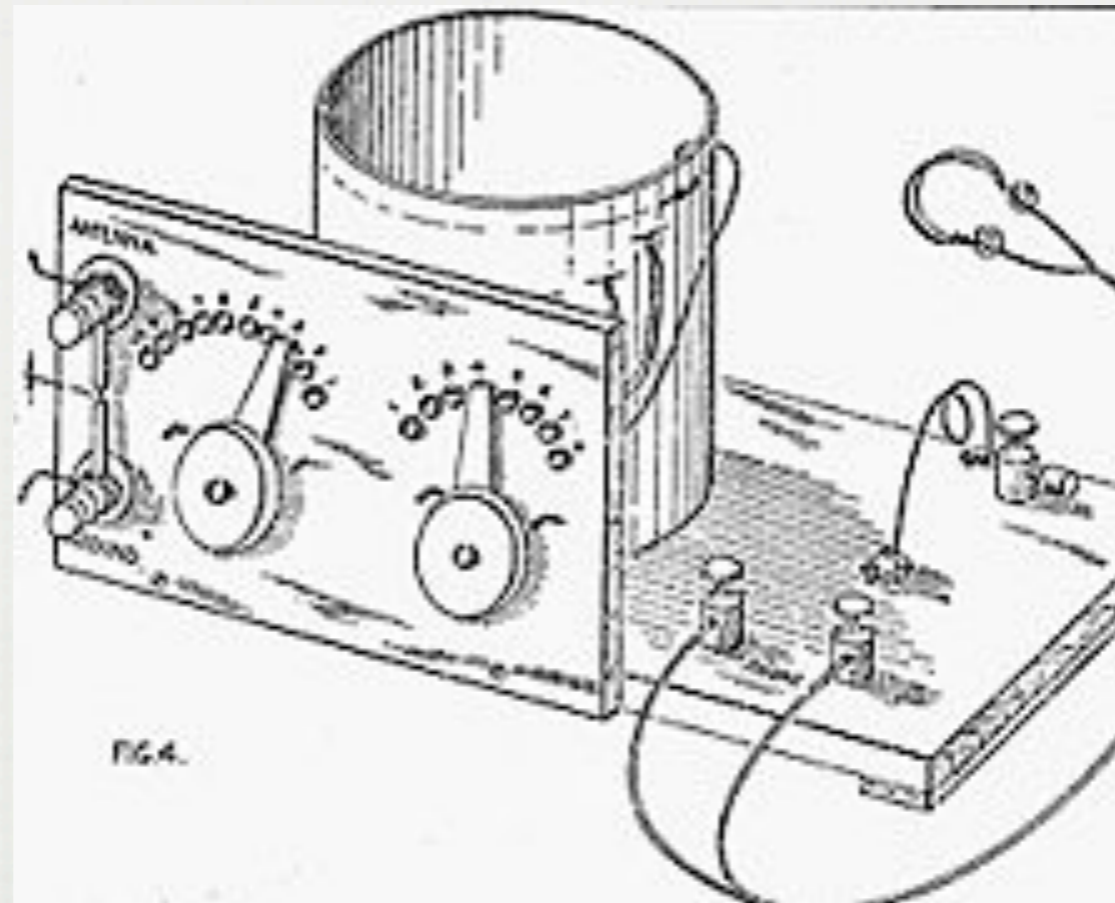
- SUSTAINING LENGTH, STORY AND NARRATIVE. RISE OF FILM FROM ONE REEL TO D.W. GRIFFITHS
- USE OF MUSIC FOR AFFECTIVE SUPPORT
- CINEMA AND AURAL "GRAMMAR" TO EXPRESS TIME AND INTERIOR EMOTION
- DISTINCT GENRES OR STYLE OF FILMOGRAPHY, RADIO DRAMA. A-V "REALISM", MEDIA DISTORTION
- CROSS-OVER OF DRAMATIC FORMS INTO "ACTUALITY"

PROPAGANDA AND ADVERTS

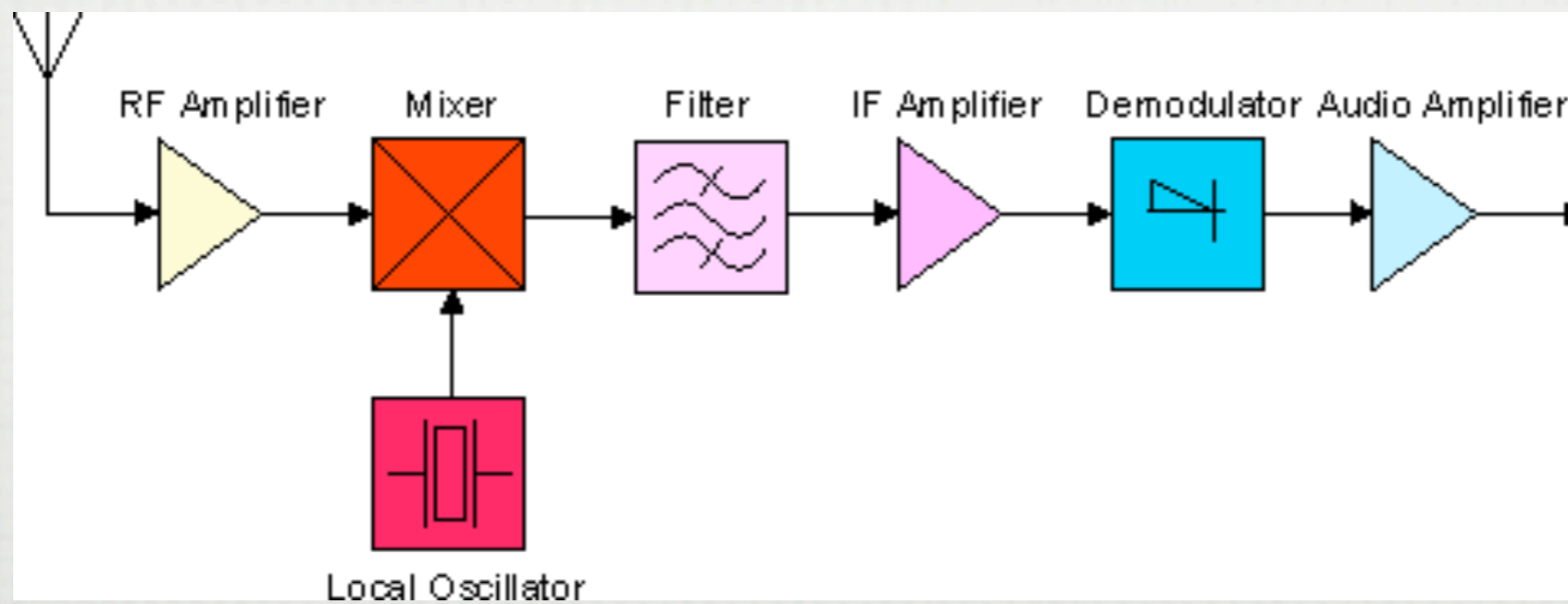
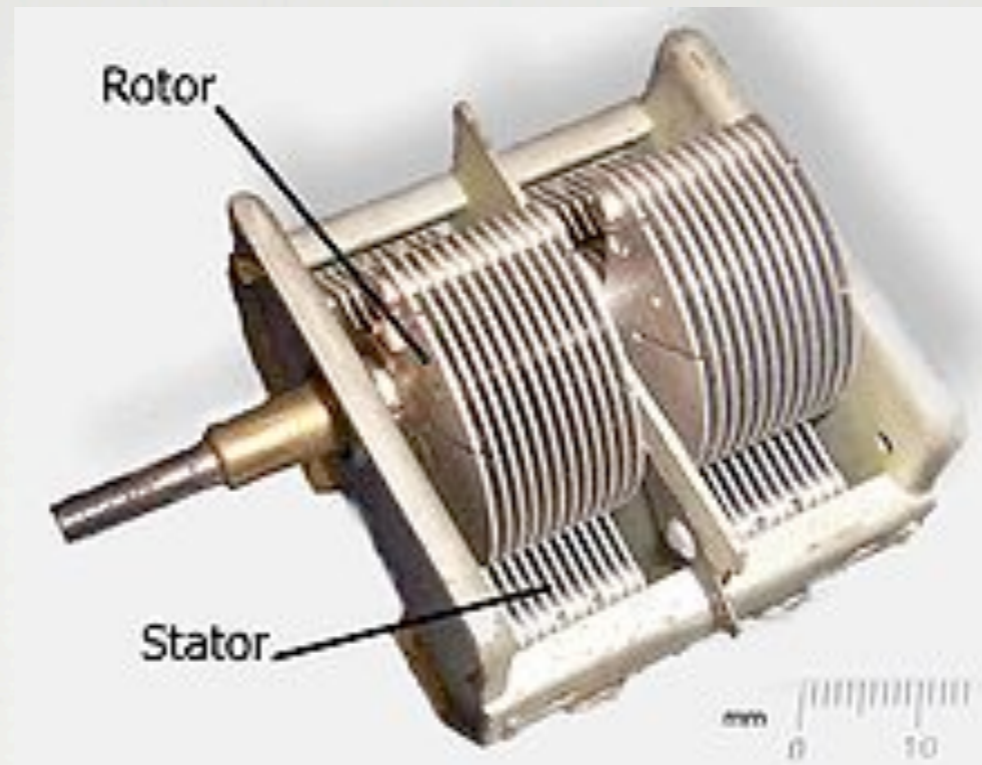
- NEWER MEDIA DON'T REQUIRE LITERACY
- STANDARDISED AND CO-ORDINATED MESSAGE, ONE-TO-MANY
- CULTURAL STANDARDISATION, NATIONAL GENRES
- LANGUAGE CONFORMITY, LINK WITH NATION-STATES AND GOVERNMENT IDEOLOGY
- MASS MOVEMENTS: POLITICS, CONSUMERISM, FASHION



EARLY AMERICAN MARCONI OPERATOR (SARNOFF), CA 1910



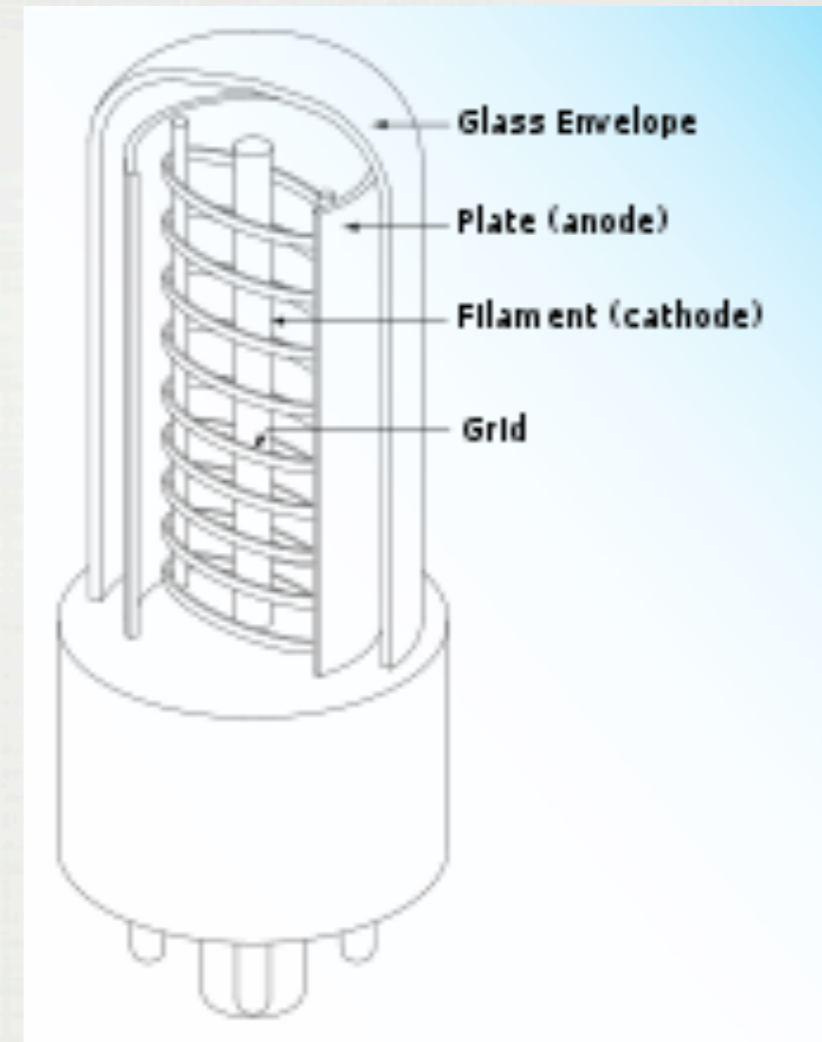
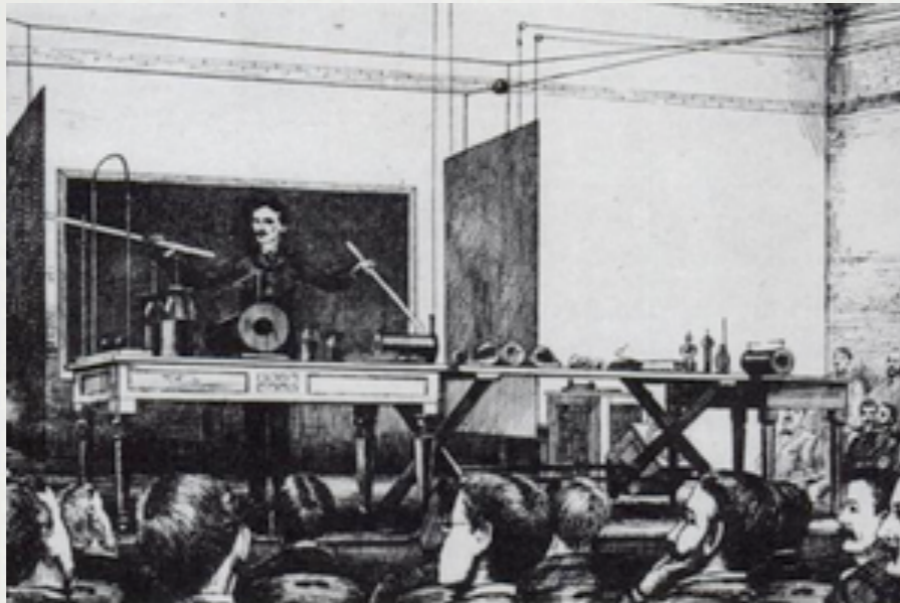
CHEAP, DIY CRYSTAL SETS, CA 1915



ARMSTRONG'S SUPERHETRODYNE. USED TODAY



12AX7 VACUUM TUBES (VALVES), MODERN, CHINESE



SPARK GAP AND TRIODE VALVE, CA 1895 - 1906



TELEPHON HIRMONDO (HUNGARY) PROGRAMMES BY WIRE



BRITISH RADIO SET (MILITARY) CA 1918

A New Industry is Born as RCA and NBC Present
TELEVISION
 Famous Broadcasting Begins as NBC is the first to
 and RCA Made Television Receivers are Ready!

THE NEW TELEVISION INDUSTRY IS BEING BORN IN THE UNITED STATES AS THE FIRST TELEVISION STATION IN THE COUNTRY, THE NATIONAL BROADCASTING COMPANY, HAS ANNOUNCED THAT IT WILL BEGIN BROADCASTING TELEVISION PROGRAMS ON SUNDAY, SEPTEMBER 8, 1941, AT 7:30 P. M. EST. THE PROGRAMS WILL BE BROADCASTED FROM THE NEW YORK CITY STATION, WJZ-TV, CHANNEL 42. THE PROGRAMS WILL BE BROADCASTED IN BLACK AND WHITE AND WILL INCLUDE A VARIETY OF ENTERTAINMENT AND EDUCATIONAL PROGRAMS. THE NATIONAL BROADCASTING COMPANY HAS ANNOUNCED THAT IT WILL BE THE FIRST TO BROADCAST TELEVISION PROGRAMS IN THE UNITED STATES. THE COMPANY HAS ANNOUNCED THAT IT WILL BE THE FIRST TO BROADCAST TELEVISION PROGRAMS IN THE UNITED STATES. THE COMPANY HAS ANNOUNCED THAT IT WILL BE THE FIRST TO BROADCAST TELEVISION PROGRAMS IN THE UNITED STATES.

RCA Victor TELEVISION RECEIVERS

EARLY TV, CA. 1948

PATENT AND STANDARDS FIGHTS

- RCA AND GENERAL SARNOFF
- EDWIN ARMSTRONG AND 40 YRS OF PATENT FIGHTS
- PATENT SHARING IN WARTIME, LARGE CORPORATIONS
- EARLY TV BEGETS ISSUES OF NATIONAL STANDARDS, I.E. HOW IMAGES ARE TRANSMITTED
- VALUE OF CONTENTS REALISED: BY 1926 CONTENTS WORTH MORE THAN HARDWARE. VALUE OF FREQUENCY ALLOCATIONS.

CORPORATE CONVERGENCE

- TECHNOLOGIES BLEND, SHARING CROSS-MEDIA
- TELEGRAPHS NETWORKS; TELEPHONE NETWORKS, RADIO NETWORKS, MOVIE DISTRIBUTION AND PRINT
- SOUND FOR MOVIES (WESTERN ELECTRIC, GLEN GLENN)
- LARGE STUDIOS POOL CONTENTS, STANDARDISE TECHNOLOGIES: MPAA, MPEG (EARLY 1930'S)
- CONTENT REGULATION, VOLUNTARY AND NOT-SO-VOLUNTARY. THE 'BLUE BOOK STANDARDS. DEBATE ON PURPOSE OF MEDIA ENTERTAINMENT (A SCHOOL HOUSE OR BURLESQUE?)



TRIUMPH DES WILLENS AND MODERN TIMES, CA 1936

TELEVISION

- NATIONAL SYSTEMS. N. AMERICAN PREFERENCE FOR LOCALISM
- TV CONVERGES MOVIE TECHNIQUES AND RADIO INTO A NEW SYNTHESIS
- LIMITATIONS FELT BY 1960'S - LOW RESOLUTION, BAD STEREO SOUND AND INDIFFERENT COLOUR. NO INTERACTION
- HDTV SOUGHT IN 1970'S, TECHNOLOGY TOO COSTLY
- NEEDED CONVERGENCE WITH GRAPHICALLY CAPABLE

MULTICHANNEL ENVIRONMENT

- IMPORTATION OF DISTANT SIGNALS, CATV
- ADDITION OF PREMIUM CHANNELS, HBO, SPORTS
- SUBSCRIPTION SUPPORT UNDERCUTS AD SUPPORT
- TELECOMMS, CABLE, CONTENT AND TELEPHONE PROVIDERS ENTER. SALE OF CTV TO BELL; SALE OF GLOBAL TV TO ROGERS
- MASS MEDIA ON MULTIPLE DEVICES
- MASS MEDIA BECOMES CLOSED CIRCUIT, NOT OPEN BROADCAST

SAVING BANDWIDTH - HDTV

- COMPETING NEEDS FOR ANALOGUE CHANNELS, CROWDED SPECTRUM.
- ATV STANDARDS IN 1986, THE GRAND ALLIANCE
- THE CHANGEOVER: CANADA IN 2011, US IN 2009
- STANDARDS DIFFER IN MINOR WAYS AROUND THE EARTH
- MOVE FROM "FREE TV" TO "PAY TV" CARRIAGE BECOMES CHEAPER, CONTENT MORE EXPENSIVE. STREAMING, VOD



FINIS