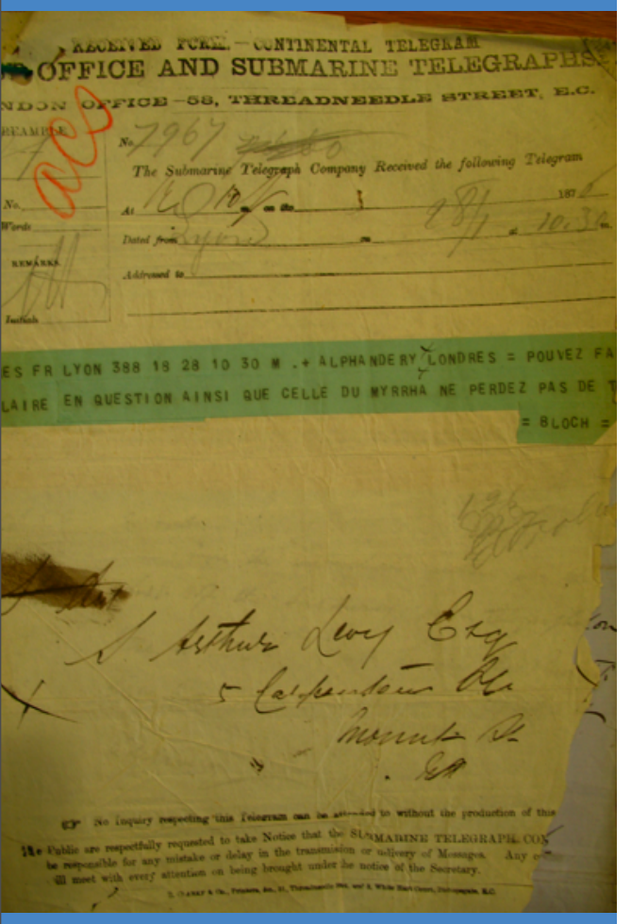


narrowcast

telephone & telegraph

History of Information

March 8, 2011

aob

Nobutoshi Kihara, Sony Engineer, Dies at 84

By DOUGLAS MARTIN
Published: February 27, 2011

Nobutoshi Kihara, the engineer known as "the wizard of Sony" for his ingenuity in developing products, like Japan's first tape recorder and transistor radio, and later the Betamax videocassette recorder, that helped propel the company's rise from the ashes of war to become a global electronics giant, died on Feb. 13. He was 84.

Yoshikazu Tsuno/Agence France-Presse--Getty Images
Nobutoshi Kihara.

Howard Stringer, chairman of the Sony Corporation, announced the death in an internal memorandum. Mr. Kihara is believed to have died in Tokyo, Sandra Genelius, a Sony spokeswoman, said.

"Sony's audio and video technologies are only in existence today because of the technical foundations laid down by Mr. Kihara," Mr. Stringer wrote.

Mr. Kihara, whose innovations helped win more than 700 patents, led in developing products like the company's first success, a magnetic tape recorder and the magnetic tape to go with it. Other products included the transistor radio and television, one of the world's first videotape recorders, the Betamax, eight-millimeter video movies, the digital still camera known as Mavica and a catalog of smaller and lighter variations of these products.

Though Mr. Kihara was widely known as "Mr. Walkman," another engineer actually created the world's first commercial personal stereo system. But Mr. Kihara's earlier innovations provided the backbone for the Walkman. Akio Morita, one of Sony's two founders, had asked Mr. Kihara, then a top engineering executive, to find a way for him to listen to operas on long-haul business flights.

aob

MARCH 2, 2011, 4:33 PM MERGERS & ACQUISITIONS

News Corp. Offers to Spin Off Sky News

BY MICHAEL J. DE LA MERCED AND BRIAN STELTER

9:01 p.m. | Updated

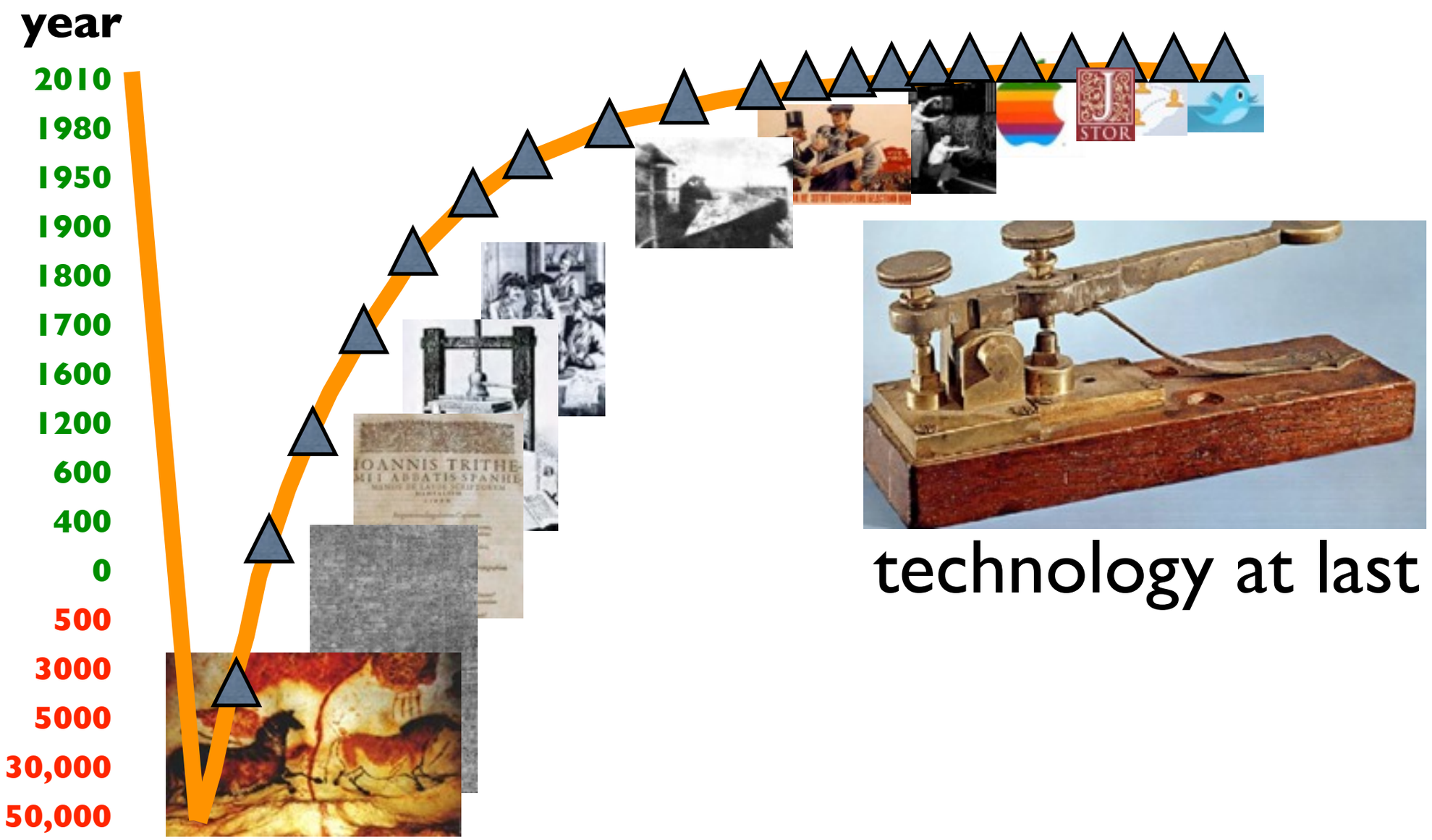
The News Corporation has proposed spinning off the Sky News unit, in an effort to finally win government approval of its takeover of British Sky Broadcasting, a person briefed on the matter said on Wednesday.

The plan — in which the Sky News channel would formally be separated from BSkyB to head off concerns that the News Corporation would gain too much control over British news media — could be announced Thursday, said this person, who would not speak for attribution because the matter was confidential.

By spinning off Sky News, the News Corporation is hoping to finally secure approval for its effort to buy the roughly 61 percent of BSkyB it does not own. The American media conglomerate first proposed taking over BSkyB last summer for about £7.8 billion ($12.7 billion).

Taking over BSkyB would strengthen the News Corporation's grip on the British media market, giving it control of a sprawling satellite television operation that owns Sky1, a popular entertainment channel, and four Sky-branded sports channels that are the British equivalent of ESPN.

something happened



technology at last

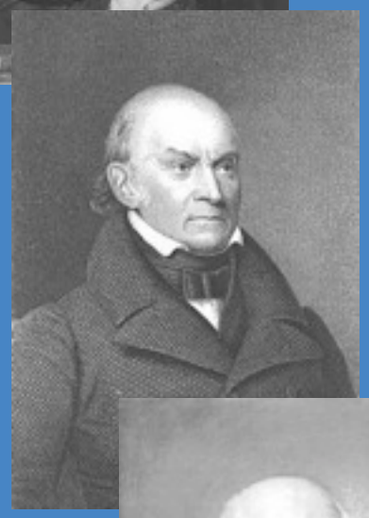
central themes

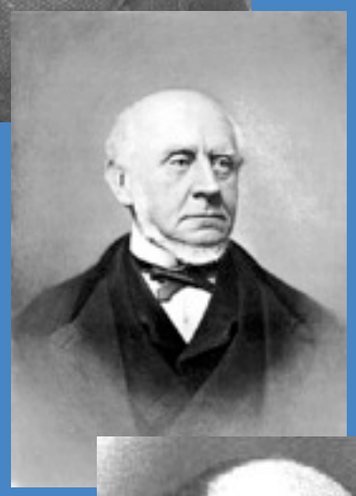
beyond presentism

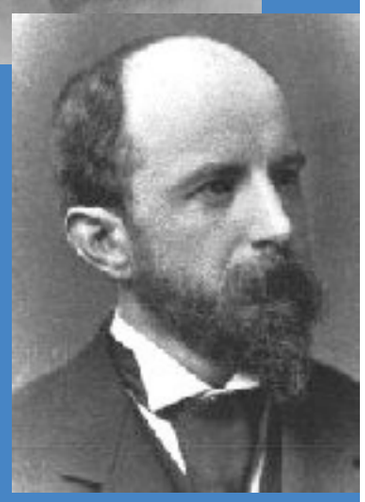
"The real, central theme of history is not what happened, but what people felt about it when it was happening"

George M Young,

Victorian *England: Portrait of an Age*, 1960







Henry Adams
1838-1918

eye witness

"Only on looking back, fifty years later, at his own figure in 1854, and pondering on the needs of the twentieth century, he wondered whether, on the whole, the boy of 1854 stood nearer to the thought of 1904, or to that of the year 1 ... in essentials, the American boy of 1854 stood nearer to the year 1 ... Before the boy was six years old he had seen four impossibilities made actual--the ocean-steamer, the railway, the **electric telegraph**, and the Daguerreotype."

--Henry Adams,

The Education of Henry Adams [1905]

recurring themes & eye witnesses

determinism & revolution

"a **revolution** unsurpassed in moral grandeur by any discovery ... to the present day"

"It is evident that the system of Telegraphing news is destined to **supersede,** in a great degree, the publication of commercial newspapers"

recurring themes & eye witnesses

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--Congressman F. (Fog) Smith, 1838

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"It is evident that the system of Telegraphing news is destined to **supersede,** in a great degree, the publication of commercial newspapers"

--Samuel Colt

a changed world

scientific society

public sphere

organization of knowledge

political revolution

United States

France

growing business interest

John Gast
American Progress
1872

long-distance trade

(not entirely new)

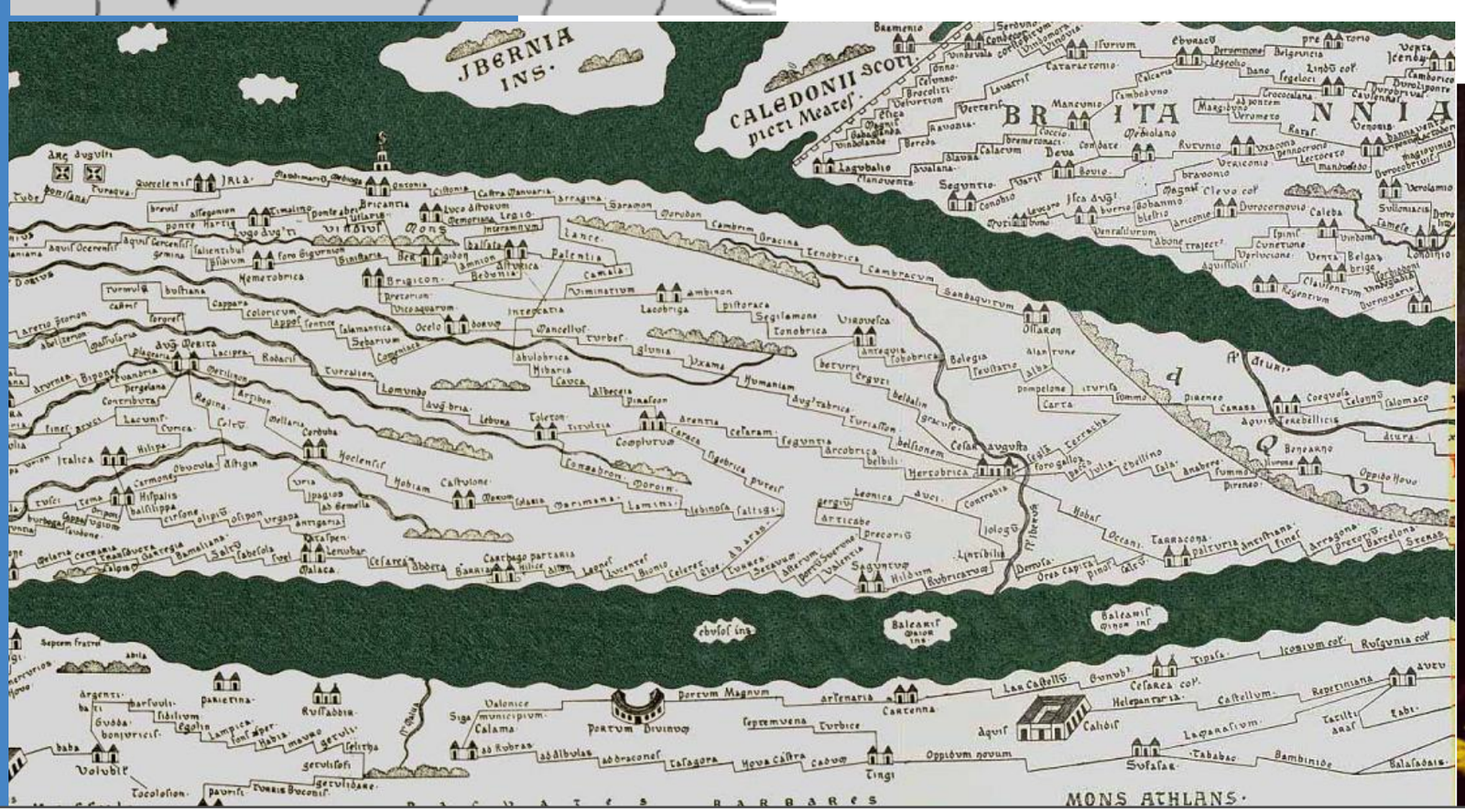
new markets

shifting population

developing communications

Rome to Holy Roman Empire

"it took twenty-six days for Caesar to send a letter from Britain to his dear friend Cicero in Rome"

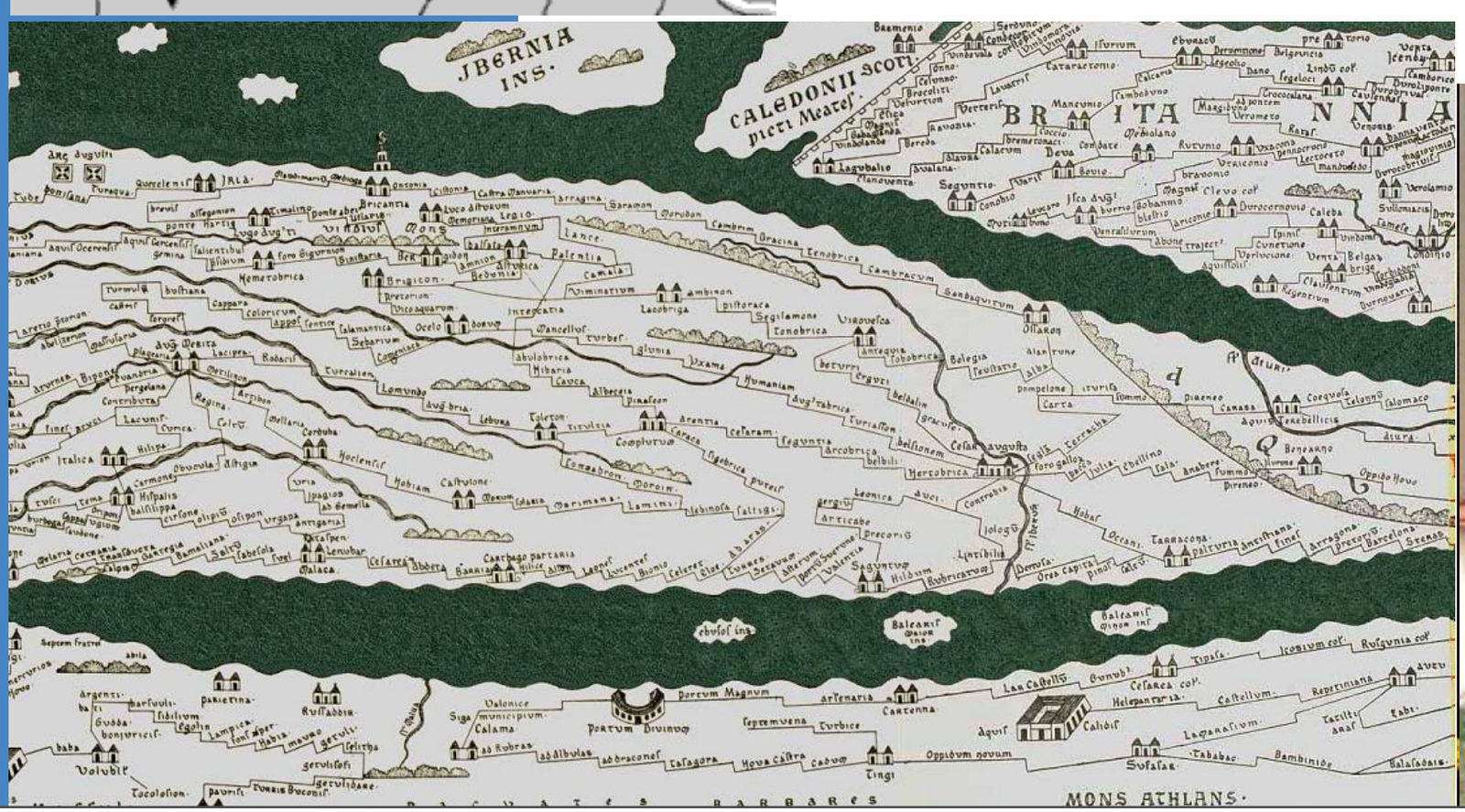


Franz von Tassis, 1489

developing communications

Rome to Holy Roman Empire

"it took twenty-six days for Caesar to send a letter from Britain to his dear friend Cicero in Rome"



Franz von Tassis, 1489

developing communications

TRADE BETWEEN LONDON AND BOSTON, U.S.A., 1765-71 (clxxi. 158).—In 1775 the postal communication with the British Dominions in America was by five packet-boats between Falmouth and New York, sailing from the former the first Saturday, from the latter the second Saturday in every month, they were,

Halifax, Capt. John Bolderson.
Duke of Cumberland, Capt. John Mitchell.
Lord Hyde, Capt. Norris Goddard.
Harriot, Capt. Geo. Oake.
Mercury, Capt. Rob. Dillon.

The postage between London, and any port within the British Dominions in America, of a single letter (i.e., one sheet of paper) was 12d., which covered inland conveyance in the Dominions up to 60 English miles; from 60 to 100 miles, 6d.; 100 to 200 miles, 8d., not passing through a chief office; and so in proportion increasing two-pence for any distance above every 100 miles. All double, treble,

communication needs

speed

frequency

regularity

messages by sea

irregular: merchant ships

regular: packet boats


63

To and from Albany and Buffalo, by the Erie Canal.

Passengers by the Canal will reach Buffalo from Albany, or Albany from Buffalo, if travelling by line boat, in about six days. The usual rate of fare is 1 cent per mile without, or 1½ cents with board. Traveling by packets, passengers from and to Buffalo and Schenectady arrive in about 3½ days. No packets ply between Albany and Schenectady.

Albany			Canastota	2	146	Port Gibson	3	235
West Troy	7	7	New Boston	4	150	Palmyra	5	240
Junction	2	9	Chittenango	3	153	Fairport	12	252
Schenectady	21	30	Kirkville	5	158	Fellam's Basin	1	253
Amsterdam	17	47	Manlius	4	162	Pittsford	6	259
Schoharie Creek	5	52	Orville	3	165	Rochester	10	269
Fultonville	5	57	Syracuse	6	171	Spencer's Basin	12	281
Spraker's Basin	9	66	Geddesburg	2	173	Adams	3	284
Canajoharie	3	69	Nine-mile Creek	5	178	Brockport	5	289
Fort Plain	3	72	Camillus	1	179	Holley	5	294
Little Falls	16	88	Canton	5	184	Hulbertson	4	298
Herkimer	7	95	Jordan	6	190	Albion	6	304
German Flats	2	97	Weed's Port	6	196	Eagle Harbour	3	307
Frankfort	4	101	Centre Port	1	197	Knowlesville	4	311
Utica	9	110	Port Byron	2	199	Medina	4	315
Whitesboro	4	114	Montezuma	6	205	Middleport	6	321
Oriskany	3	117	Lockpit	6	211	Lockport	12	333
Rome	8	125	Clyde	5	216	Pendleton	7	340
New London	7	132	Lyons	9	225	Tonewanta	12	352
Loomis	6	138	Lockville	6	231	Black Rock	9	361

Eerie Canal

1825

infrastructure

roads

canals

railways

Manchester-Liverpool
1830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Eerie Canal
1825

infrastructure

Manchester-Liverpool
1830

speeding up

MAIL-COACH BUILT BY WAUDE, 1830.

mail coach

roughly 8 mph

train

"the Average speed of the early railways in England is 20 to 30 miles an hour, which is roughly three times the speed previously achieved by by stagecoaches"

--Wolfgang Schivelbusch,
"Railroad Space & Railroad Time," 1978

political contrasts

centralized vs distributed

France vs Britain vs US

federal vs several

public vs private

rights of way vs private property

state monopoly vs private monopoly

national interest

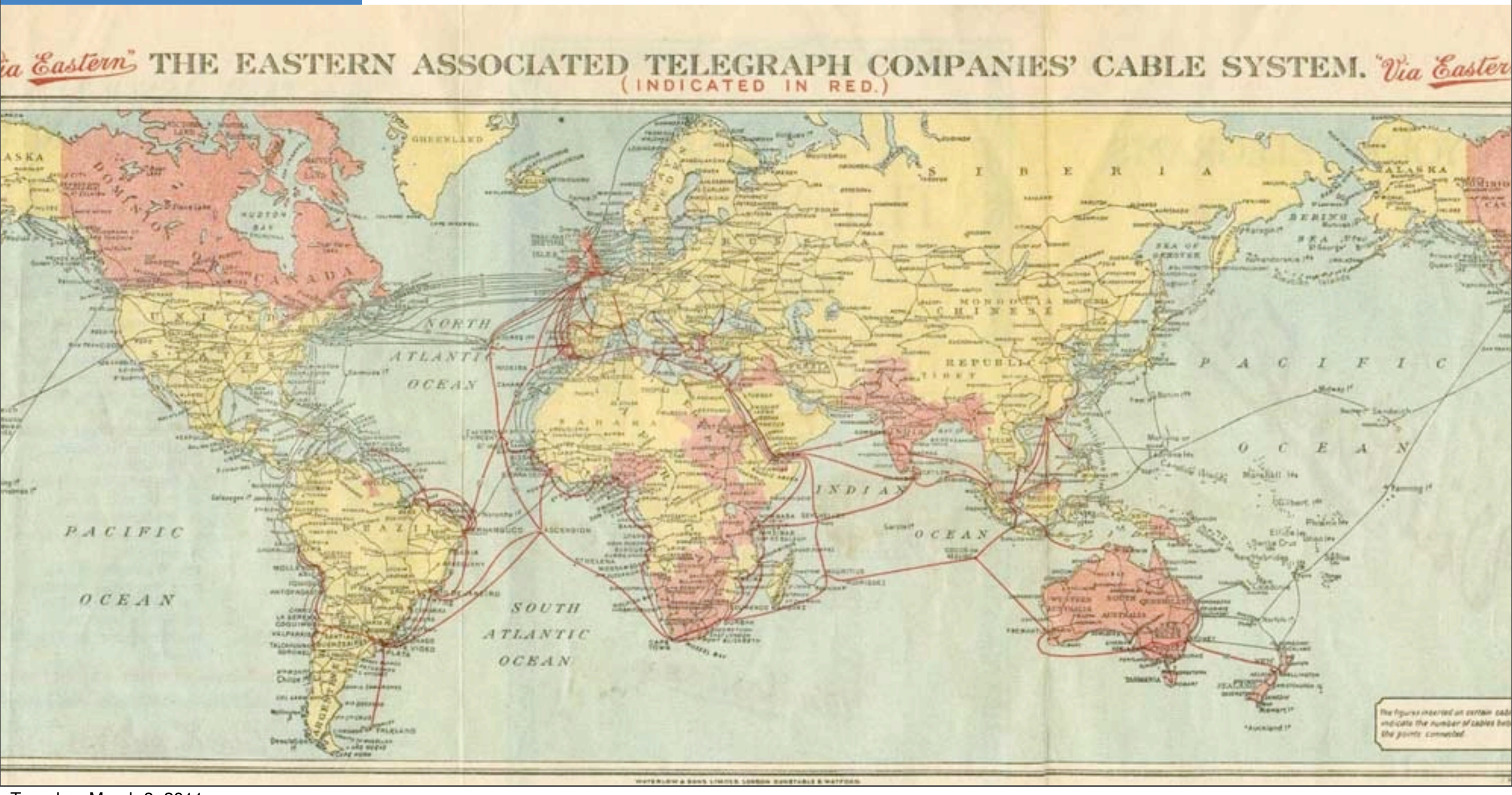
"Telegraphs are machines for conveying information over extensive lines with great rapidity. They have generally been established for the purposes of transmitting information during war, but the increasing wants of man will probably soon render them subservient to more peaceful objects."

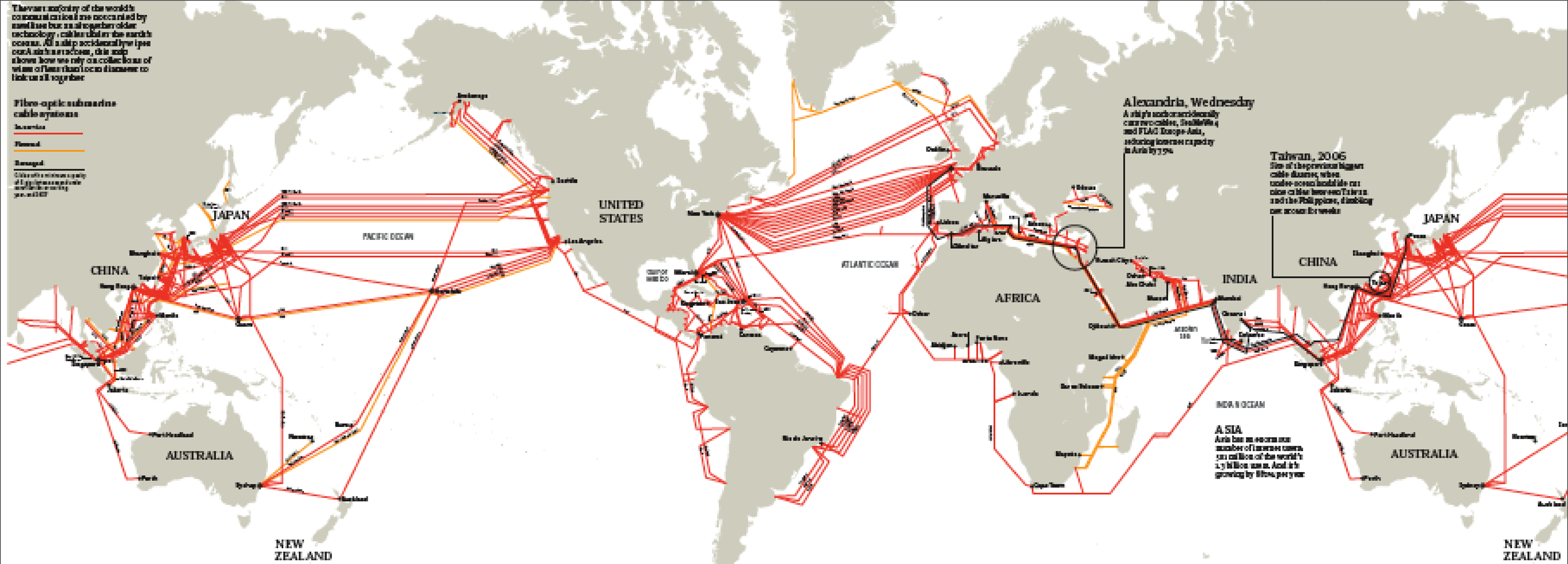
-- Charles Babbage,

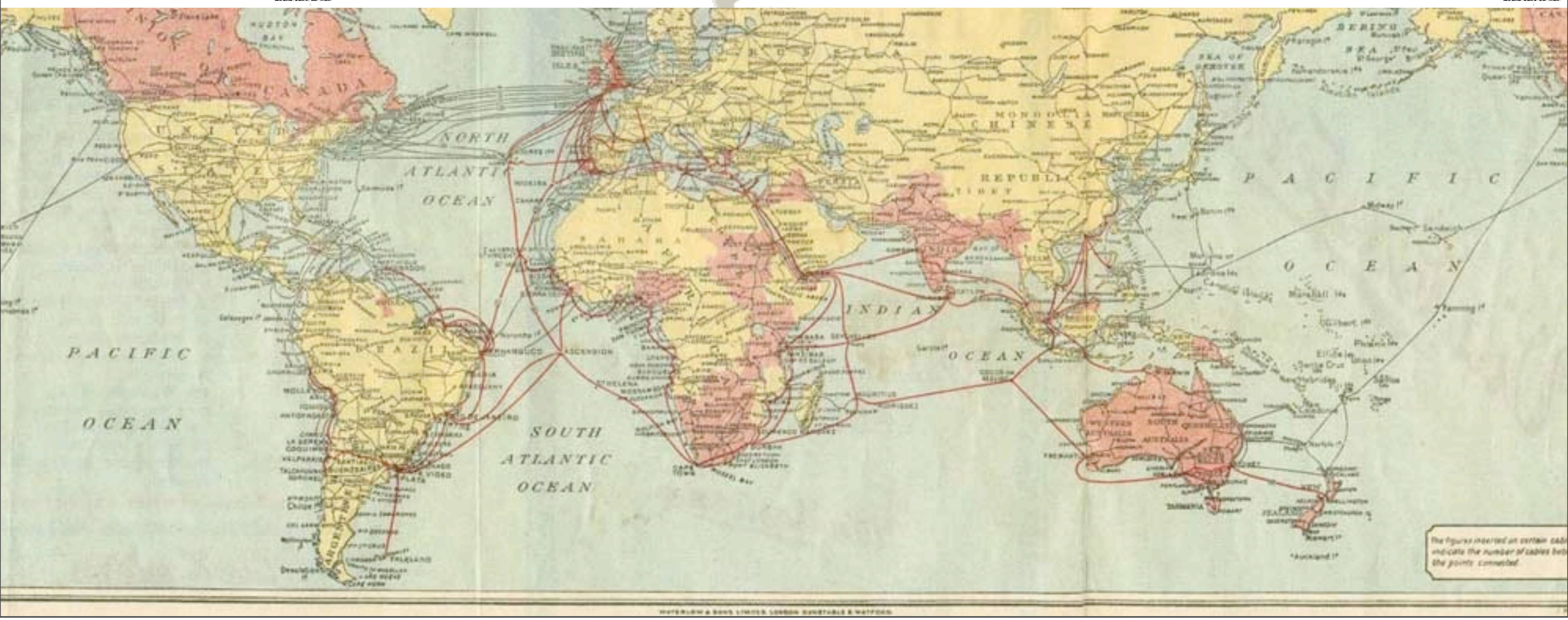
Economy of Machinery and Manufacture,

3d ed 1833

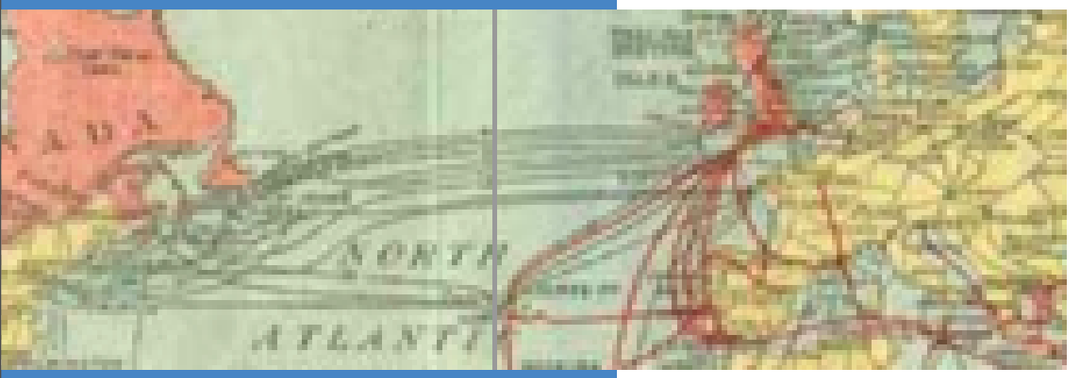
interconnections




Fibre-optic submarine cable systems
JAPAN
CHINA
AUSTRALIA
NEW ZEALAND
PACIFIC OCEAN
UNITED STATES
ATLANTIC OCEAN
AFRICA
INDIA
Alexandria, Wednesday
Taiwan, 2006
ASIA
INDIAN OCEAN


PACIFIC OCEAN
NORTH ATLANTIC OCEAN
SOUTH ATLANTIC OCEAN
INDIAN OCEAN

interconnections & disconnections



cables
(but also treaties, standards)

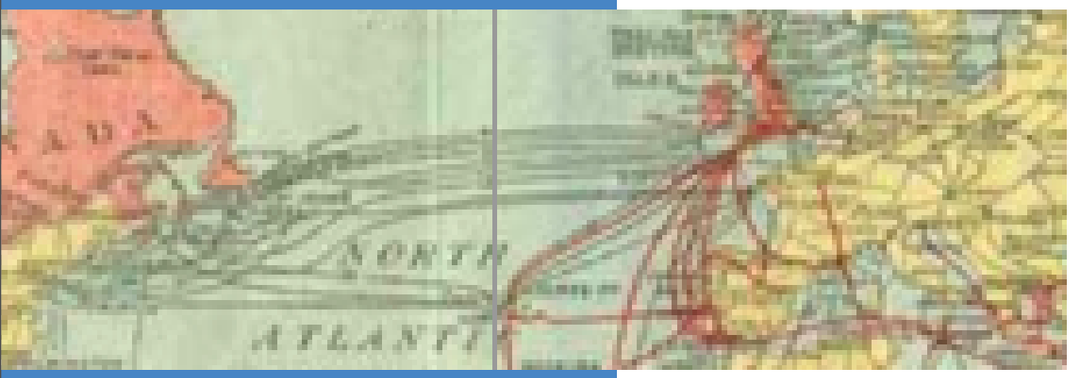
Prussia-Austria: 1849

England-France: 1851

New York-Newfoundland: 1856

Britain-North America: 1858-1866

interconnections & disconnections



cables
(but also treaties, standards)

Prussia-Austria: 1849

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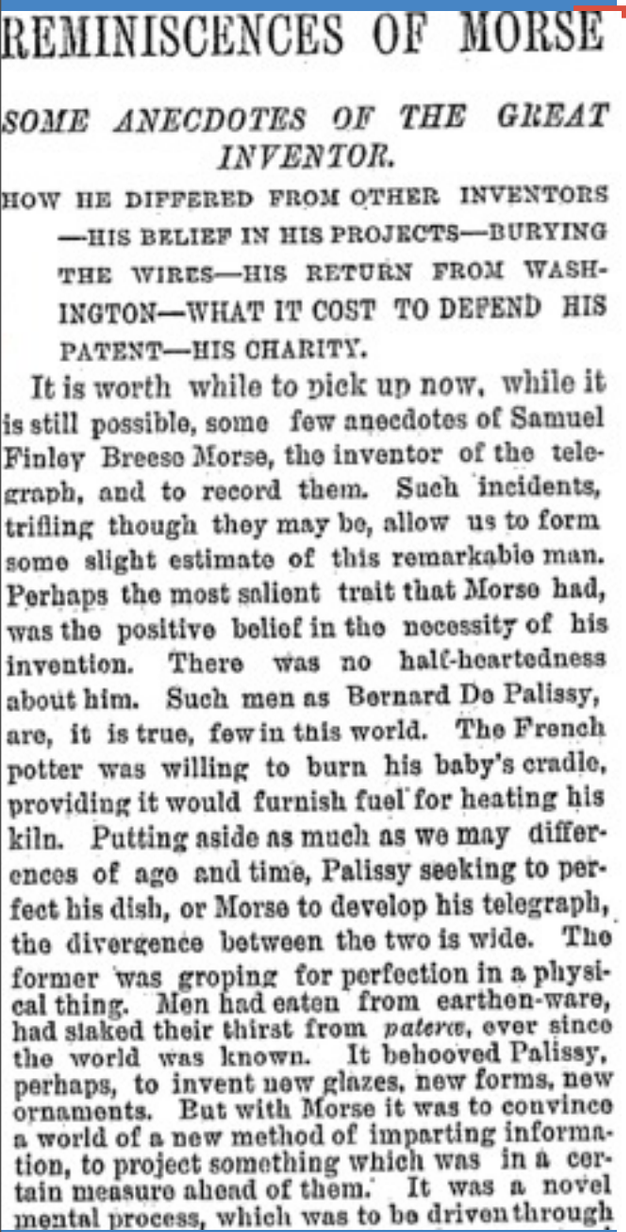
so, along comes Morse

"the great inventor ... to convince the world of a new method of imparting information ... on a higher plane than that accorded to mere inventors" --*NYT*, 1879



REMINISCENCES OF MORSE

SOME ANECDOTES OF THE GREAT INVENTOR.

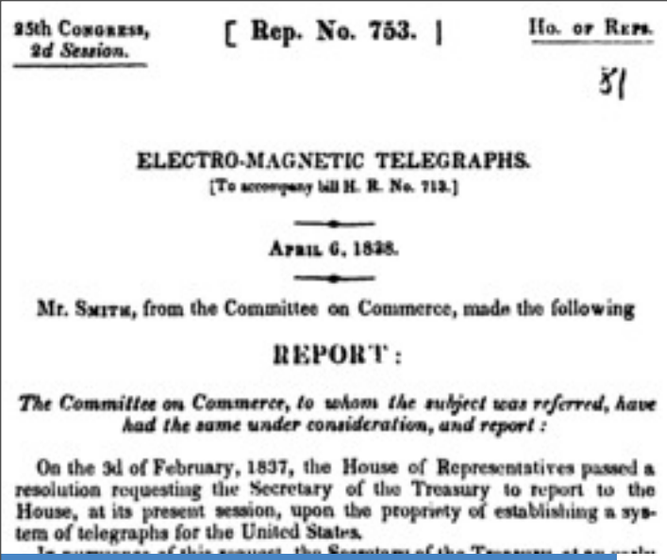
HOW HE DIFFERED FROM OTHER INVENTORS —HIS BELIEF IN HIS PROJECTS—BURYING THE WIRES—HIS RETURN FROM WASHINGTON—WHAT IT COST TO DEFEND HIS PATENT—HIS CHARITY.

It is worth while to pick up now, while it is still possible, some few anecdotes of Samuel Finley Breese Morse, the inventor of the telegraph, and to record them. Such incidents, trifling though they may be, allow us to form some slight estimate of this remarkable man. Perhaps the most salient trait that Morse had, was the positive belief in the necessity of his invention. There was no half-heartedness about him. Such men as Bernard De Palissy, are, it is true, few in this world. The French potter was willing to burn his baby's cradle, providing it would furnish fuel for heating his kiln. Putting aside as much as we may differences of age and time, Palissy seeking to perfect his dish, or Morse to develop his telegraph, the divergence between the two is wide. The former was groping for perfection in a physical thing. Men had eaten from earthen-ware, had slaked their thirst from *paterœ*, ever since the world was known. It behooved Palissy, perhaps, to invent new glazes, new forms, new ornaments. But with Morse it was to convince a world of a new method of imparting information, to project something which was in a certain measure ahead of them. It was a novel mental process, which was to be driven through

New York Times
1879

unveiling of Morse's statue June 10, 1871

Hofl 11 - Narrow 18


25th Congress, 2d Session. [Rep. No. 753.] Ho. of Reps.

51

ELECTRO-MAGNETIC TELEGRAPHS.

[To accompany bill H. R. No. 713.]

April 6, 1838.

Mr. Smith, from the Committee on Commerce, made the following

REPORT:

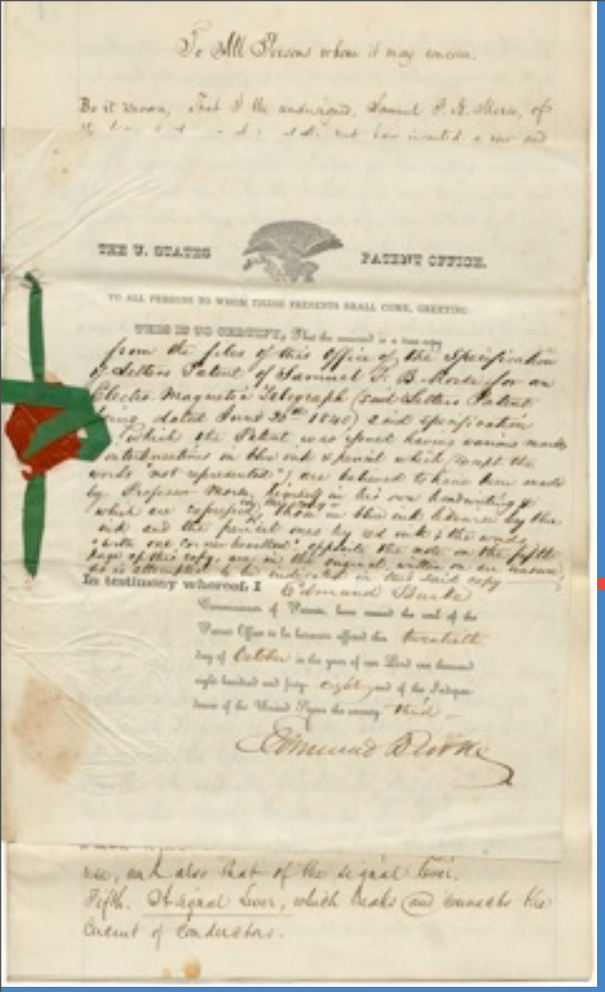
The Committee on Commerce, to whom the subject was referred, have had the same under consideration, and report:

On the 3d of February, 1837, the House of Representatives passed a resolution requesting the Secretary of the Treasury to report to the House, at its present session, upon the propriety of establishing a system of telegraphs for the United States.

congressional approval

"its great and incalculable practical importance and usefulness to the country, and ultimately to the whole world ... presumptuous ... to attempt ... to calculate ... usefulness .. political, commercial, or social ... it is obvious, however, ... a **revolution unsurpassed in moral grandeur by any discovery** ... to the present day."

Congressman Smith, "Electro-Magnetic Telegraph," 1838


To All Persons to whom it may concern.

Be it known, That I the undersigned, Samuel F. B. Morse, of

THE U. STATES PATENT OFFICE.

TO ALL PERSONS TO WHOM THESE PRESENTS SHALL COME, GREETING:

WHEREAS, I, Edmund Burke, Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed, this twelfth day of October, in the year of our Lord one thousand eight hundred and forty-eight of the Independence of the United States the seventy-third.

Edmund Burke

Henry L. Ellsworth
1791-1858

patent worthiness

It is a matter of proud congratulation that we witness the rapid advancement of the arts and sciences on this side of the Atlantic, and to hear how frequently the skill and experience of our citizens are purchased by the wisest monarchs of Europe. The liberality with which our artisans are compensated abroad, is the highest proof of their superiority. Our manufactures are extending throughout the world. The ocean and the land alike bear testimony to American ingenuity. Praise is but a tribute due to her constitution and the laws, which extend equal rights and privileges to all.

Among the most brilliant discoveries of the age, the electro magnetic telegraph deserves a conspicuous place; destined, as it is, to change as well as hasten transmission of intelligence, and so essentially to affect the welfare of society, all that concerns its further developments will be hailed with joy.

Imagination can scarcely conceive what is now accomplished by the electric fluid, when confined and tamed, as it were, to the purposes of life. Thought has found a competitor! Nor is it less gratifying that this invention is American. To a native citizen belongs the merit of the discovery, and it is hoped that the country of his birth will reward him accordingly.

The public, at first, could scarcely believe it possible that intelligence can be sent at the rate of 188,000 *miles* in a *second;* nor that the earth would suffice for half of the current of communication; nor that currents of electricity from opposite poles would traverse the same wire at the same time,

--Henry Ellsworth, commissioner of patents

Annual Report of US Patent Office, 1844

troubling testimony

25th Congress, 2d Session. [Rep. No. 753.] Ho. of Reps.

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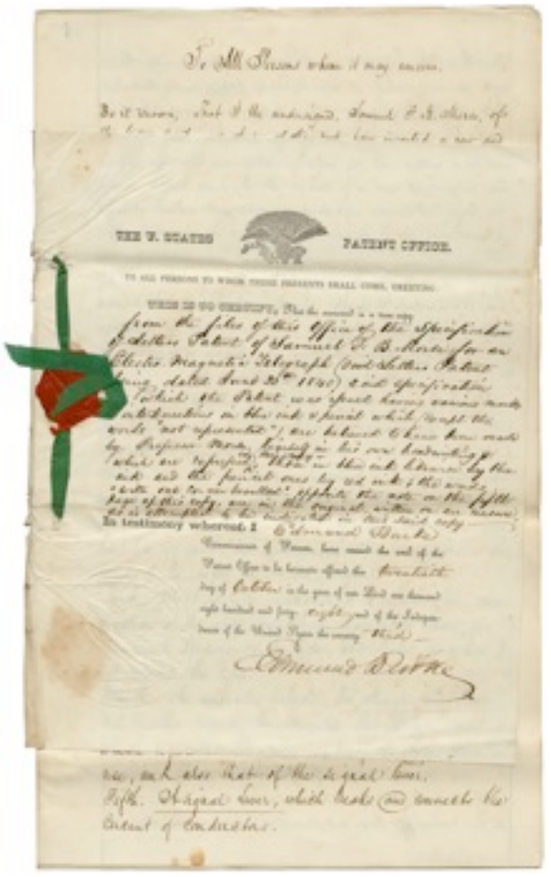

To All Persons to whom these presents shall come, Greeting:

Hofl 11 - Narrow 21

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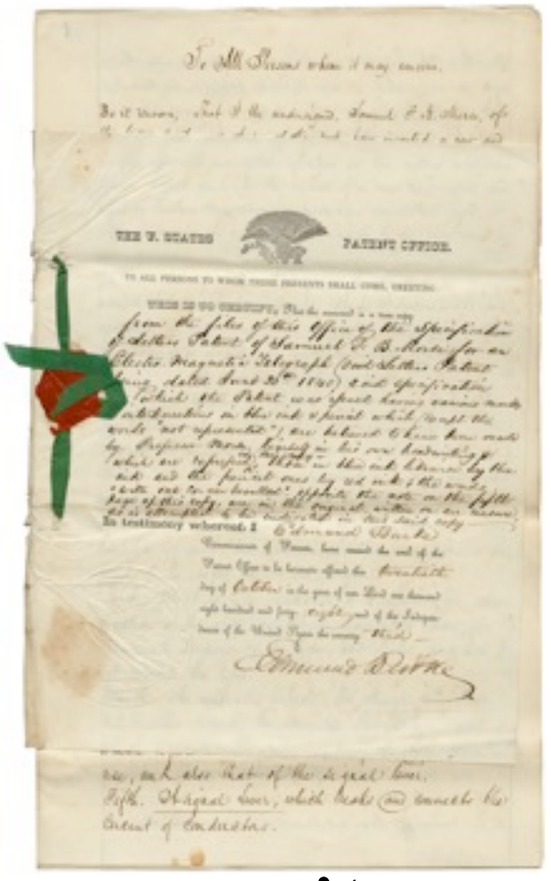
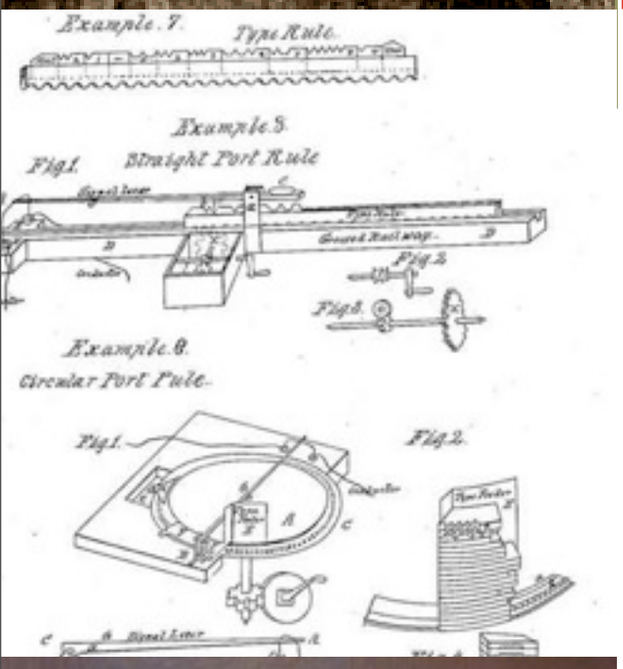


To All Persons to whom these presents shall come, Greeting:

THE U. STATES PATENT OFFICE.

eye witness

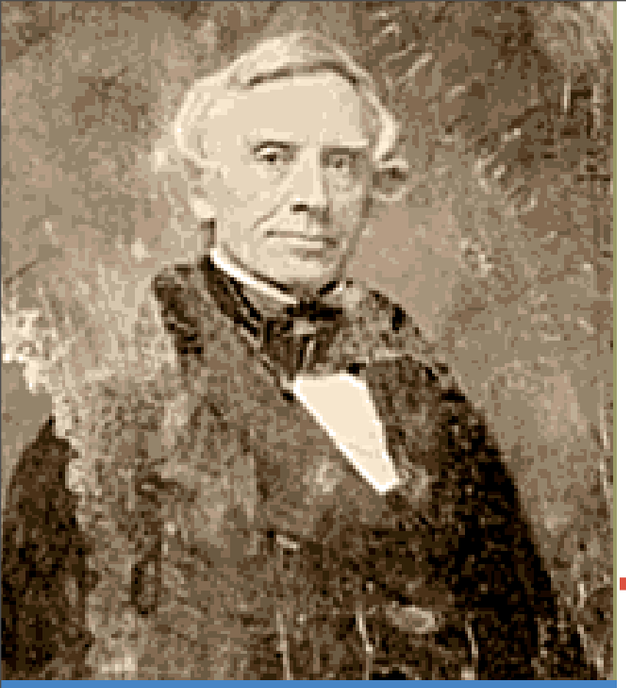
"It is singular" that a series "of mechanical and scientific failures [has] given a man such a name and so proud a place in history" --William Baxter, "The Real Birth of the Electric Telegraph," [n.d.]



electric telegraph

Samuel Morse
(1791-1872)

"If the presence of electricity can be made visible in any desired part of the circuit, I see no reason why intelligence may not be instantaneously transmitted by electricity to any distance."



in his own words

1838 Gauss--Gottingen

Manchester Birmingham Railway

Scotland

1839: England, and Germany, and France ...

1842: other systems of telegraphs on the electric plan (among which were Wheatstone's, of London, Steinheil's, of Munich, and Masson's, of Caen

1842: Deem[ed] most fortunate that no definite system of telegraphs should hitherto have been adopted ... it enables them to establish this improved system

prior art

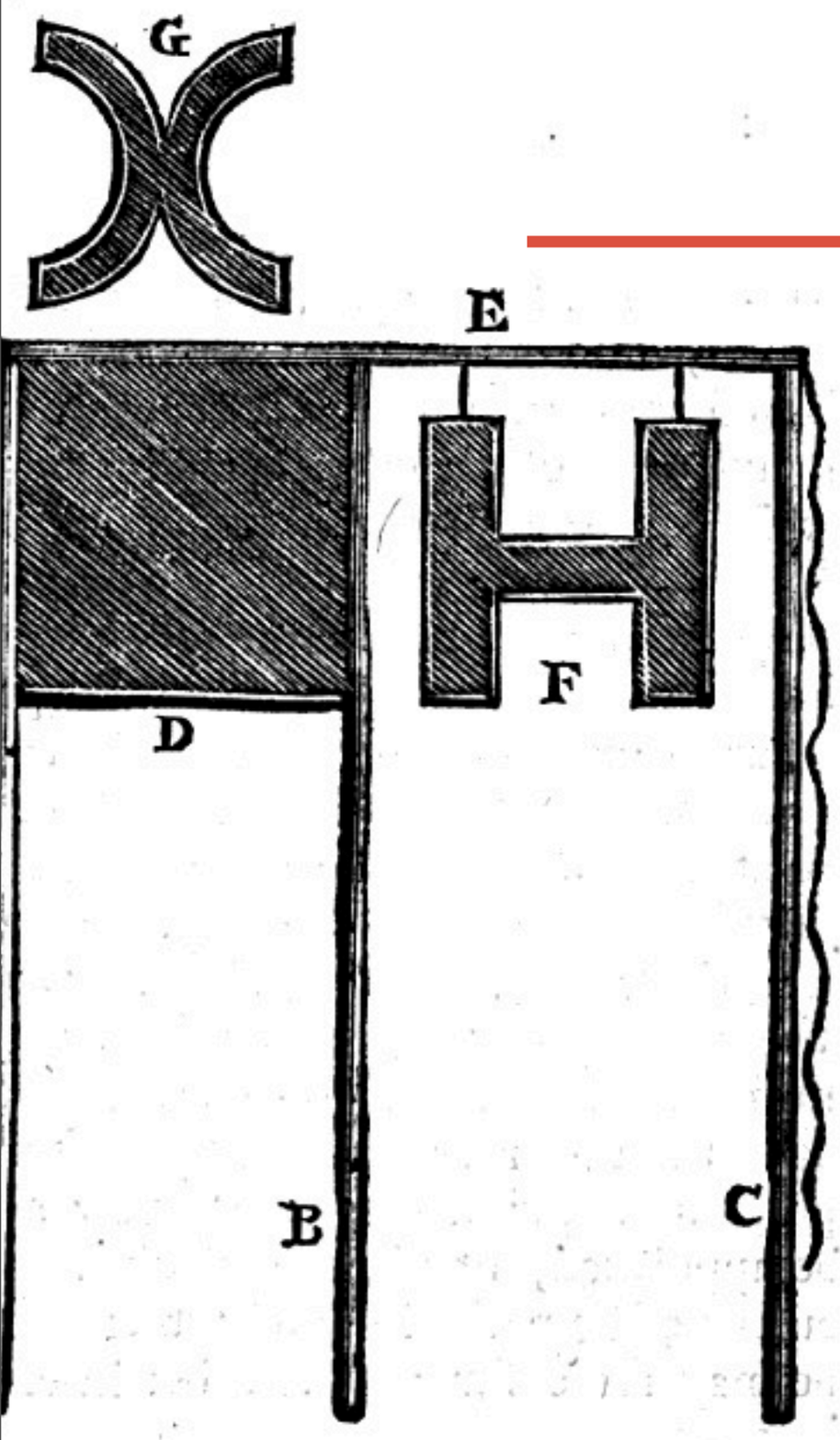
"Telegraphs are machines for conveying information over extensive lines with great rapidity. They have generally been established for the purposes of transmitting information during war, but the increasing wants of man will probably soon render them subservient to more peaceful objects."

-- Charles Babbage,

Economy of Machinery and Manufacture,

3d ed 1833

way prior art



Dr. Hook's *Discourse to the* Royal Society, May 21. 1684. *shewing a Way how to communicate one's Mind at great Distances.*

THAT which I now propound, is what I have some Years since discoursed of; but being then laid by, the great Siege of *Vienna*, the last Year, by the *Turks*, did again revive in my Memory; and that was a Method of discoursing at a Distance, not by Sound, but by Sight. I say therefore 'tis possible to convey Intelligence from any one high and eminent Place, to any other that lies in Sight of it, tho' 30 or 40 Miles distant, in as short a Time almost, as a Man can write what he would have sent, and as suddenly to receive an Answer, as he that receives it hath a Mind

Claude Chappe

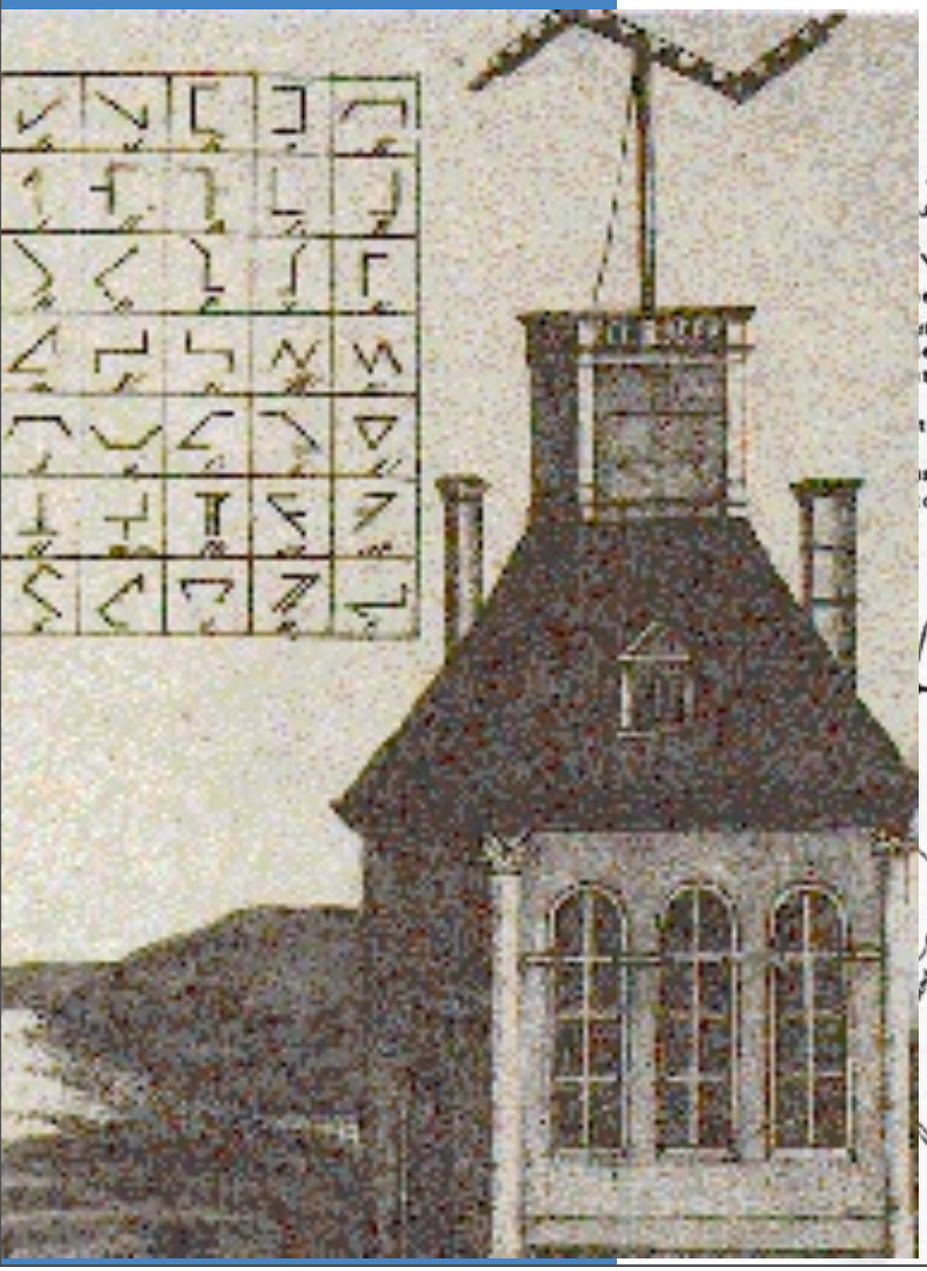
(1763–1805)

prior art

Chappe *sémaphore*

La Ligne Paris-Lille

16 stations



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(1763–1805)

prior art

Chappe *sémaphore*

La Ligne Paris-Lille

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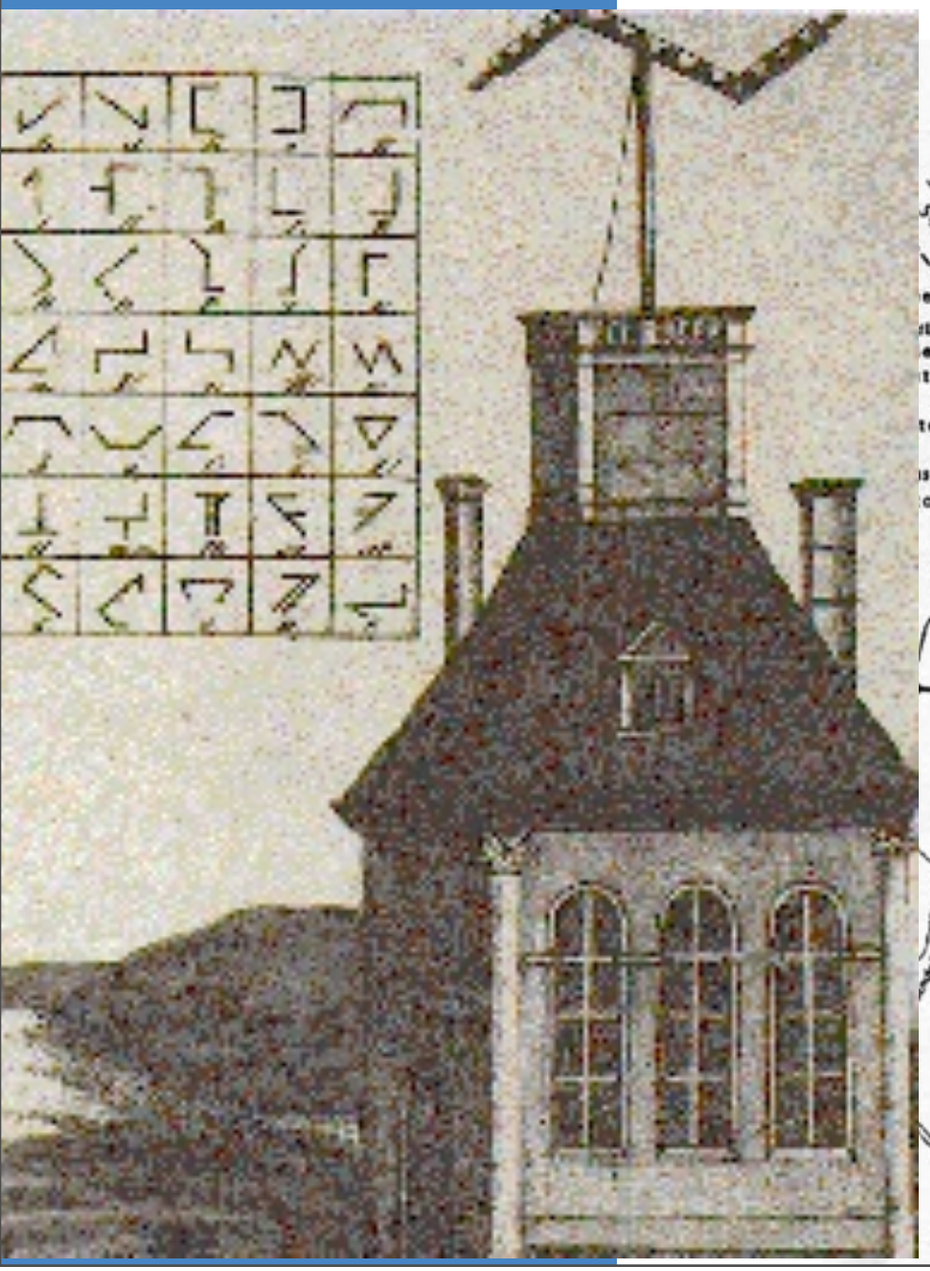
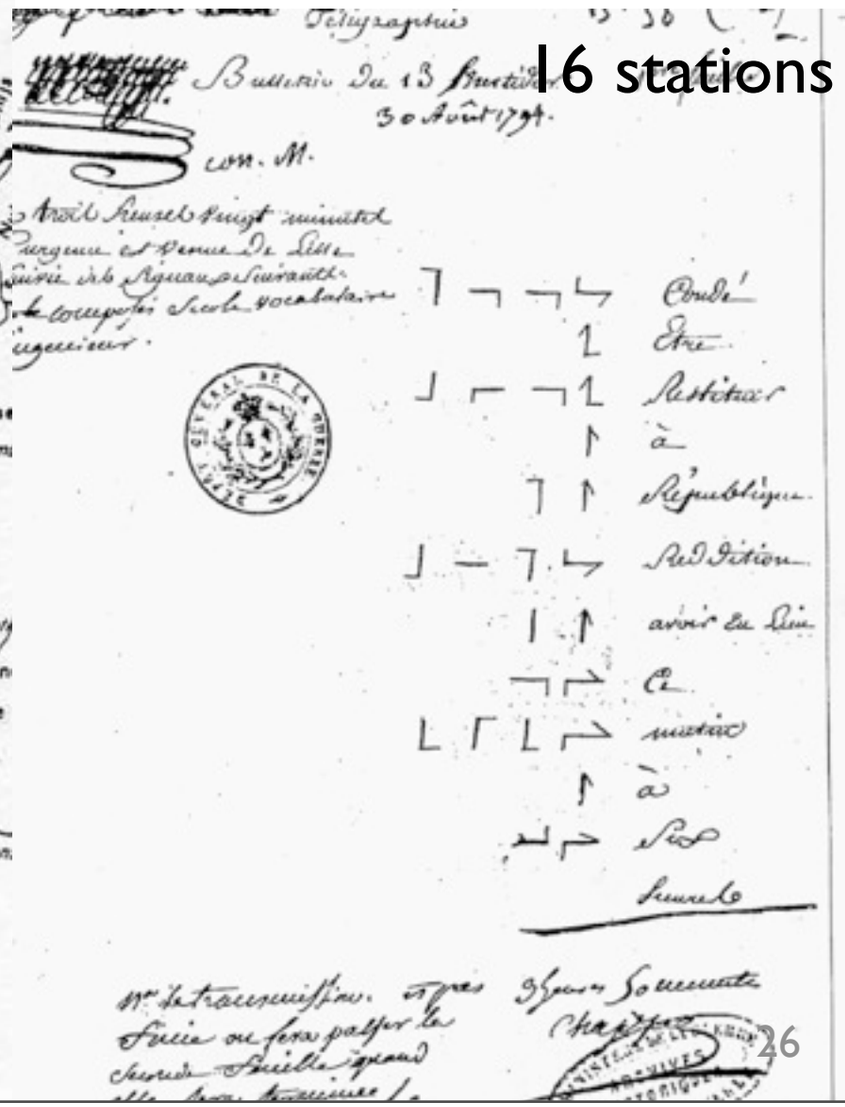




Claude Chappe

(1763–1805)

"Voici le rapport du télégraphe qui nous arrive à l'instant. Condé être restituée à la République. Reddition avoir eu lieu ce matin à 6 heures."

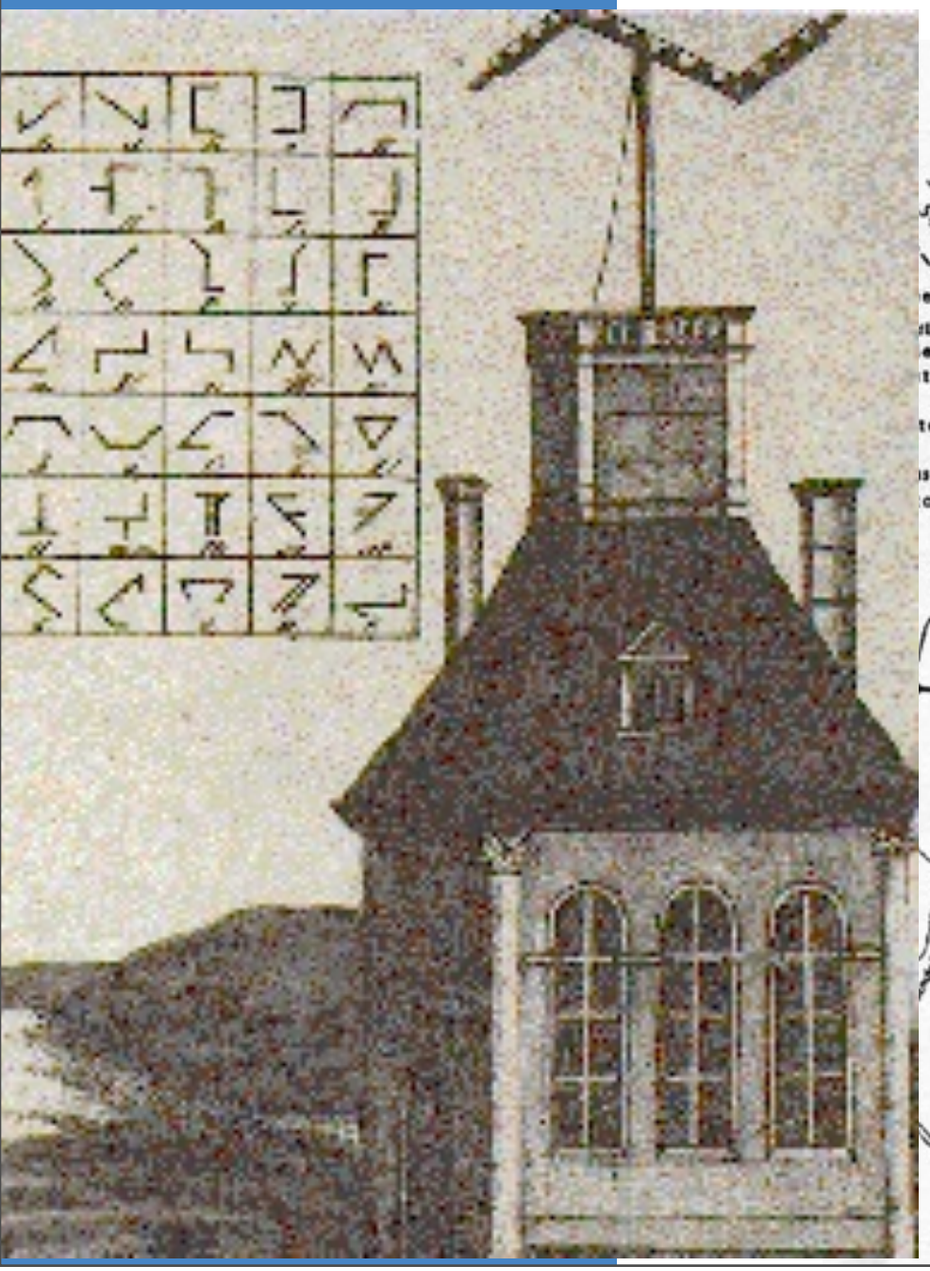
30 August, 1794

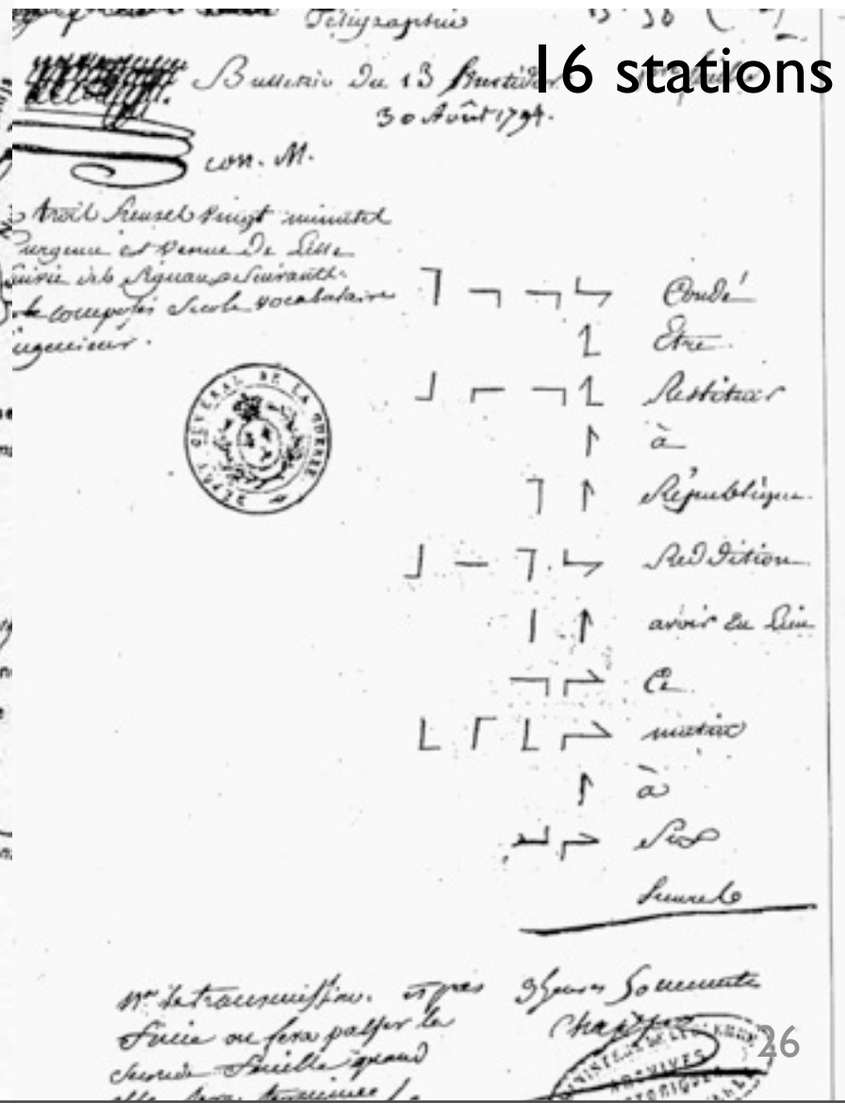
prior art

Chappe *sémaphore*

La Ligne Paris-Lille

16 stations





national aspiration

revolutionary ideas

"The establishment of the telegraph is ... the best response to the publicists who think that France is too large to form a Republic. The telegraph shortens distances and, in a way, brings an immense population together at a single point."

--Claude Chappe, 1793

national system

5,000 km/3,125 m

534 stations

c. 6 miles apart

in service until c 1853

a single point?

national system

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a single point?

national system

5,000 km/3,125 m

534 stations

c. 6 miles apart

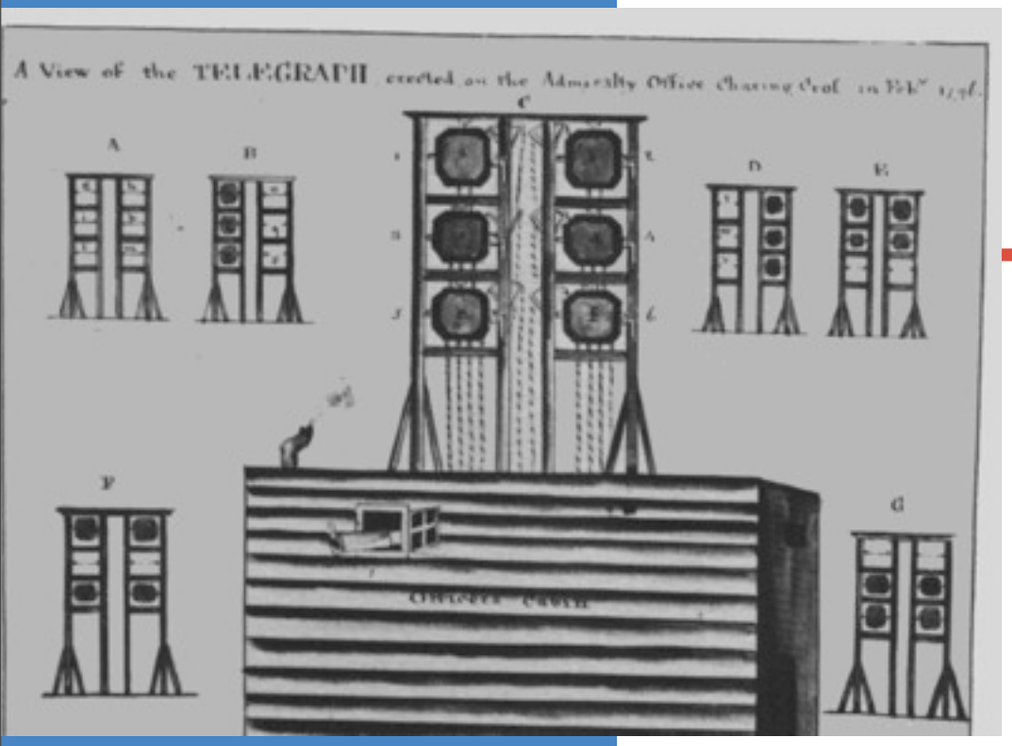
in service until c 1853

a single point?

heard this elsewhere?

"at bottom, this invention might suffice to make possible the **establishment of democracy among a large population ... no reason why it would not be possible for all the citizens of France to communicate their will ...** in such a way that this communication might be considered instantaneous."

Alexandre Vandermond, 1795



military connections

on land

the Admiralty "six-shutter" telegraph

Portsmouth, Deal, 1796

Portsmouth to London (75 miles):

from 3 days to 15 minutes

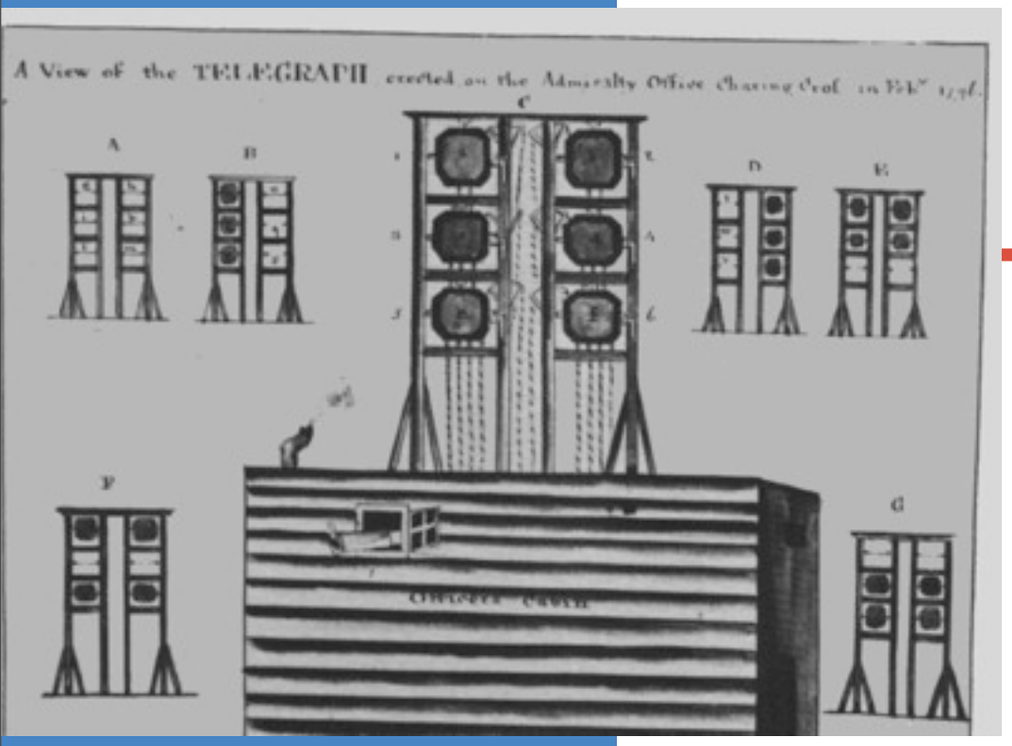
rebuilt as a

Chappe "semaphore" telegraph, 1815

"[B]y the telegraph [man] renders himself as it were present in the same moment at distant places."

Monthly Review

Hofl 11 - Narrow 30



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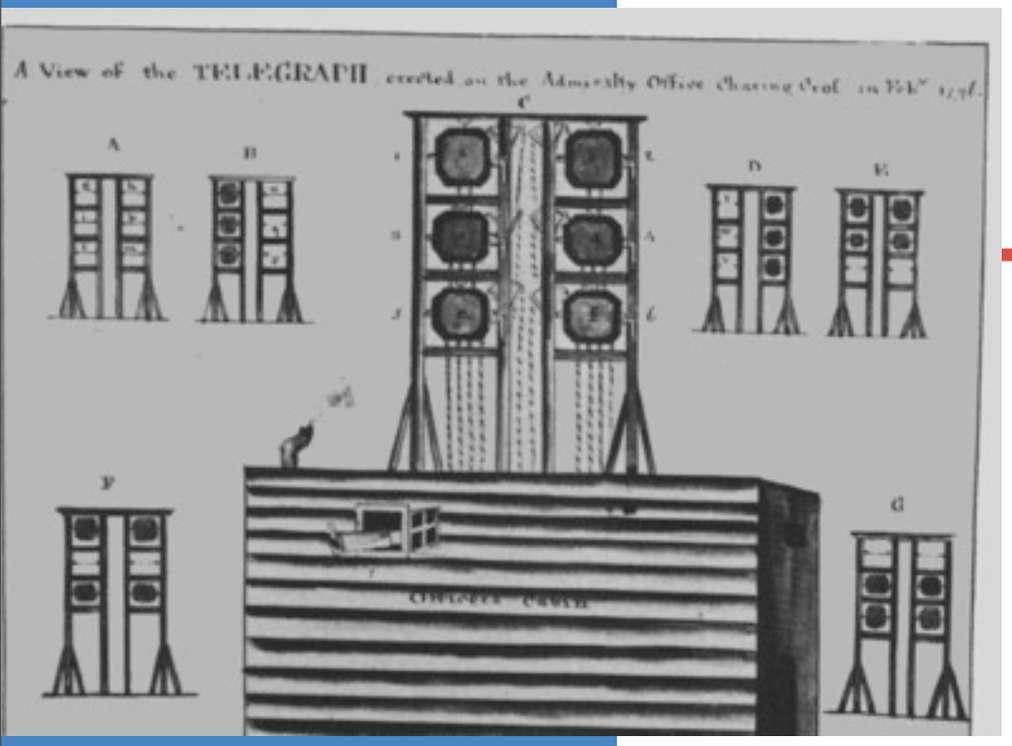

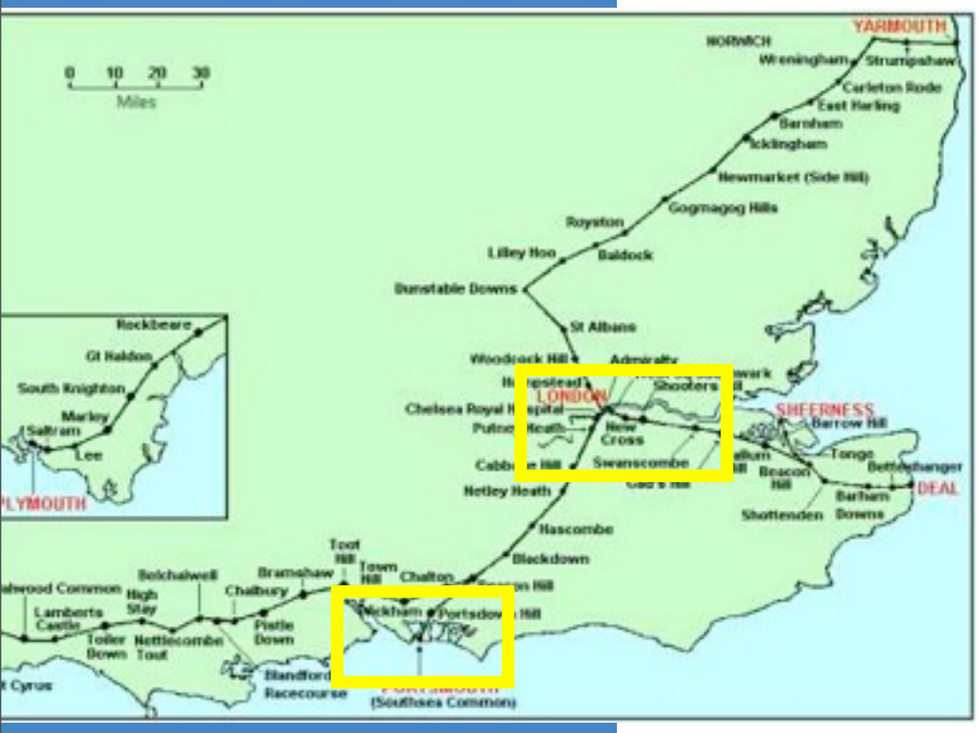

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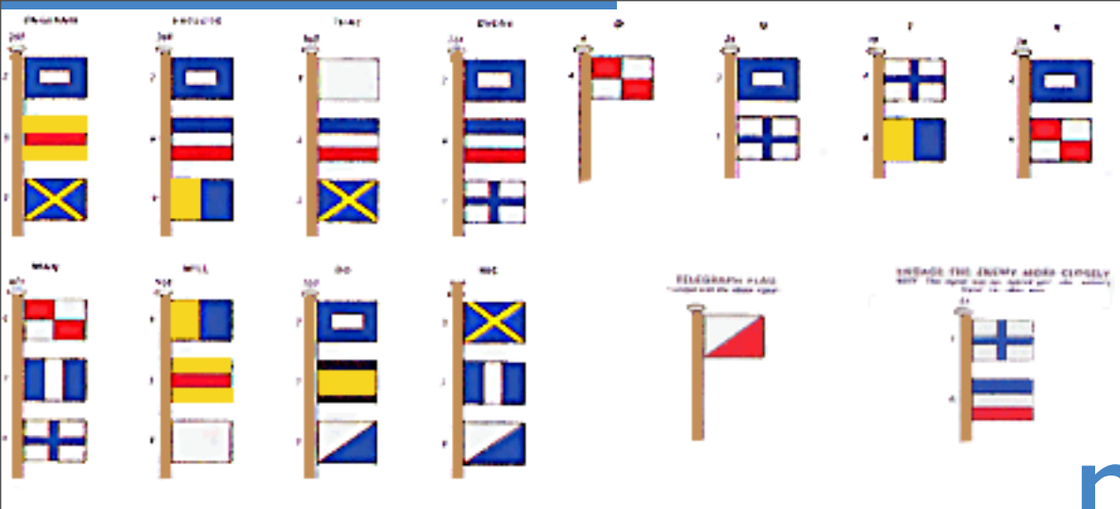


military connections

Home Popham
1762-1820)

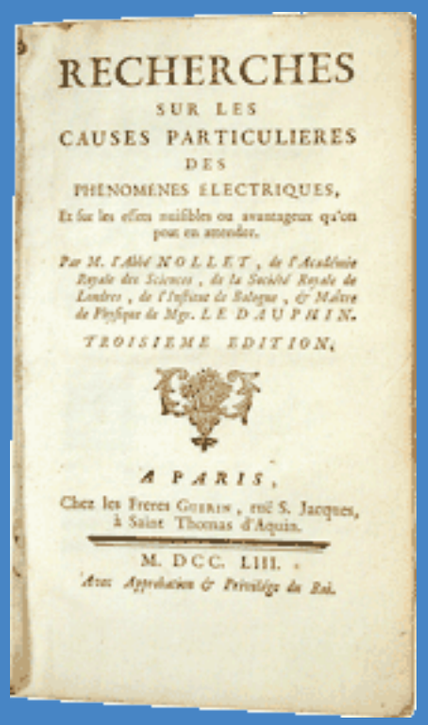
at sea

1805: "Trafalgar, a "revolutionary battle in its effects, owed its nature to revolutionary tactics; but those tactics ... were chiefly the product of a revolution in control, brought about by the innovation of Home Popham's telegraphic signalling system."

William Keegan, *Battle at Sea*, 1988

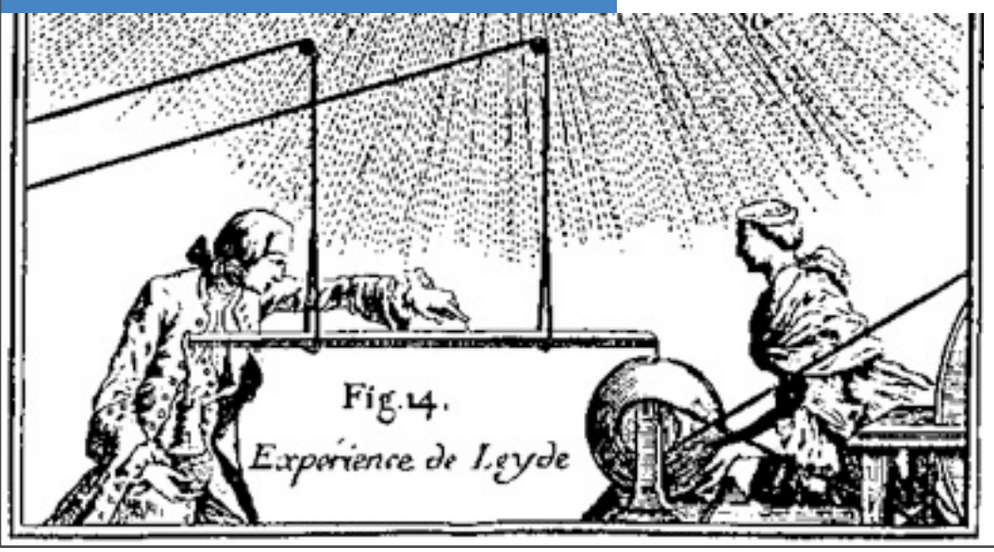
Home Popham *Telegraphic Signals, or Marine Vocabulary*, 1800

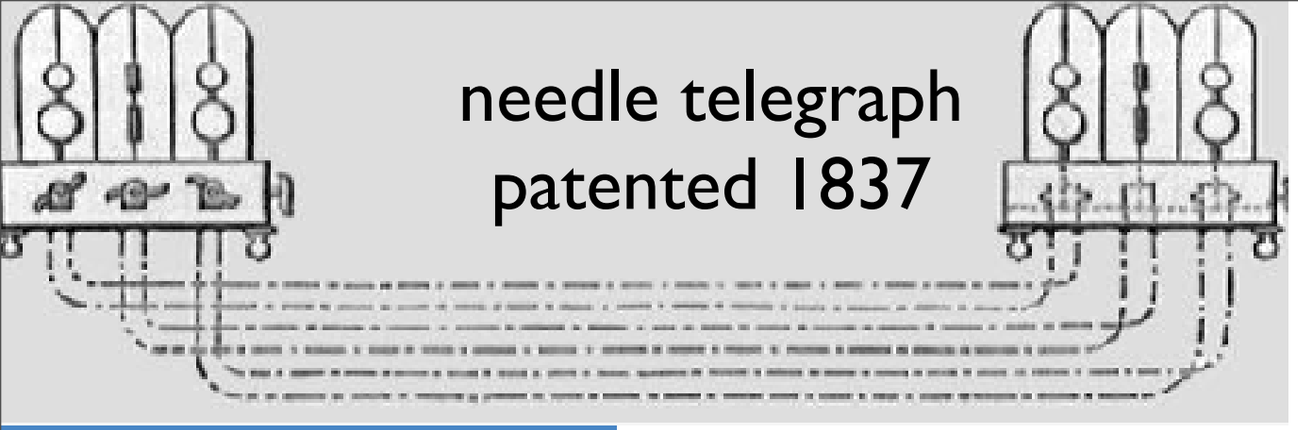
Abbé Nollet
1700-1770


RECHERCHES
SUR LES
CAUSES PARTICULIERES
DES
PHENOMENES ELECTRIQUES,
Et sur les effets nuisibles ou avantageux qu'on peut en attendre.
Par M. l'Abbé NOLLET, de l'Académie Royale des Sciences, de la Société Royale de Londres, de l'Institut de Bologne, & Maître de Physique de Mgr. LE DAUPHIN.
TROISIEME EDITION.
A PARIS,
Chez les Freres GUERIN, rue S. Jacques, à Saint Thomas d'Aquin.
M. DCC. LIII.
Avec Approbation & Privilège du Roi.

line of shock

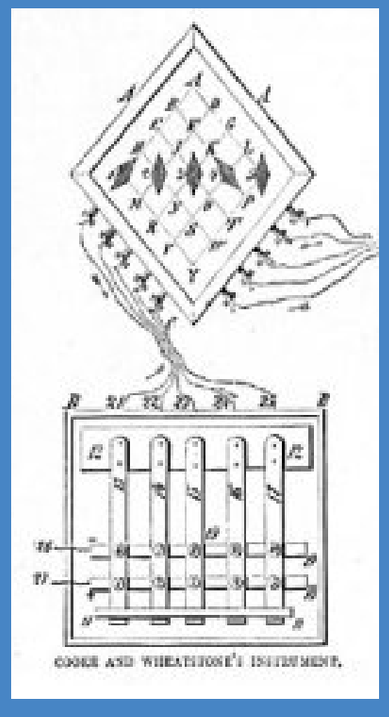
galvanism:
Abbé Nollet's electrical signals
180 Royal Guards
1 km Carthusian monks
"when a Leyden jar was discharged, the white-robed monks reportedly leapt simultaneously into the air"





transatlantic race

Pavel Schilling
1780-1836



Carl Frederich Gauss (1777-1855)

Gottingen observatory telegraph, 1833

Pavel Lvovitch Schilling (1780-1836)

Russian Admiralty telegraph, 1835

William Cooke (1806-1879)

Charles Wheatstone (1802-1875)

GWR telegraph, 1837

meanwhile

Harrison Dyar

Long Island telegraph, 1827

"abandoned when threatened with prosecution for circulating information 'in advance of the mail'"

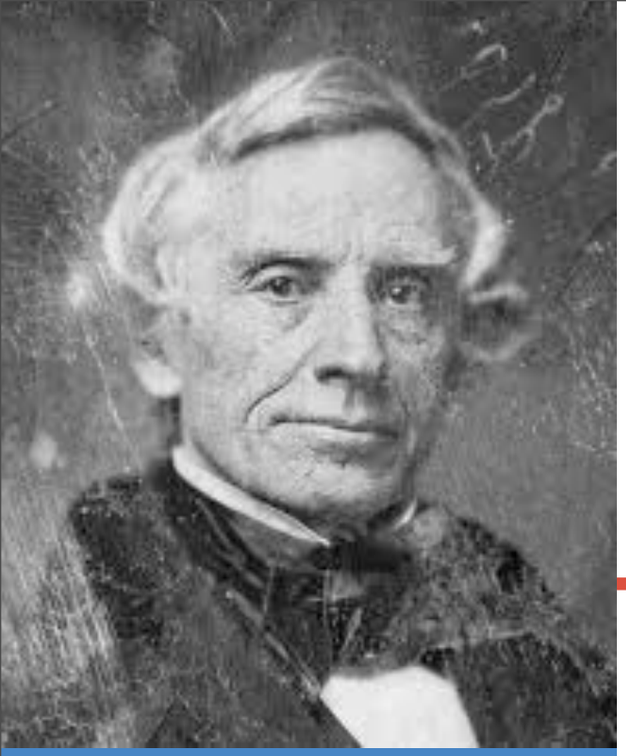
--R. John, *Network Nation*, 2010

Joseph Henry, 1830

cast your mind back

"[Theodore]De Vinne, in his book [*The Invention of Printing*, 1789] writes, 'The inventor of printing did not invent paper .. did not originate engraving on wood. He was not the first to print upon paper, he was not the first to make printed books, it is not certain that he made the first press, it is not probable that he was the first to think of or make movable type. What he did was to invent the type mold... it was the *type mold* that the Koreans developed."

--Carter, *The Invention of Printing in China*, 1955.



so to Morse

"electromagnetism ... discovered in 1820 by a Danish scientist .. the steady reliable current ... by the British chemist J. Frederick Daniell. .. Wheatstone and Cooke had installed an electrically powered signaling system ... several years before Morse ... the American chemist Harrison Gray Dyar ... workable electrical telegraph on Long Island .. 1827"

--R. John

Alfred Vail
1807–1859

what did Morse do?

(a) reintroduced electronic signaling

1837, 18 responses to Woodbury's request
17 were line of sight

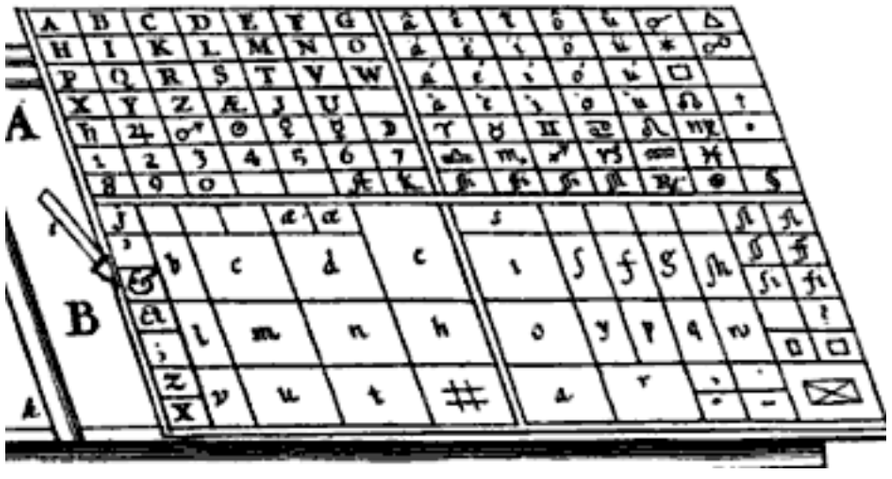
The following is the alphabet for Morse's electro-magnetic telegraph:

ALPHABET.		NUMERALS.	
A	· —	1	· — — — ·
B	— · · ·	2	· · — — ·
C	· · · ·	3	· · · — ·
D	— · ·	4	· · · · —
E	·	5	· · · · ·
F	· · — ·	6	— · · · ·
GJ	— — ·	7	— — · · ·
H	· · · ·	8	— — — · ·
IY	· ·	9	— — — — ·
K	— · —	0	— — — — —
L	— · — ·		
M	— —		
N	— ·		
O	— —		
P	· — — ·		
Q	— — · —		
R	· — ·		
S%	· · ·		
T	—		
U	· · —		
V	· · · —		
W	· — —		
X	— · · —		

1842

(b) introduced a "binary" code

Morse Code or"Vail Code"?



Hofl 11 - Narrow 37

Alfred Vail
1807–1859

Wednesday, December 31, 1997 Published at 15:59 GMT

World

The end of the line for Morse Code

what did Morse do?

(a) reintroduced electronic signaling

1837, 18 responses to Woodbury's request
17 were line of sight

(b) introduced a "binary" code

Morse Code or"Vail Code"?

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GJ	— — ·	7	— — · · ·
H	· · · ·	8	— — — · ·
IY	· ·	9	— — — — ·
K	— · —	0	— — — — —
L	— · · —		
M	— —		
N	— ·		
O	— — —		
P	· — — ·		
Q	— — · —		
R	· — ·		
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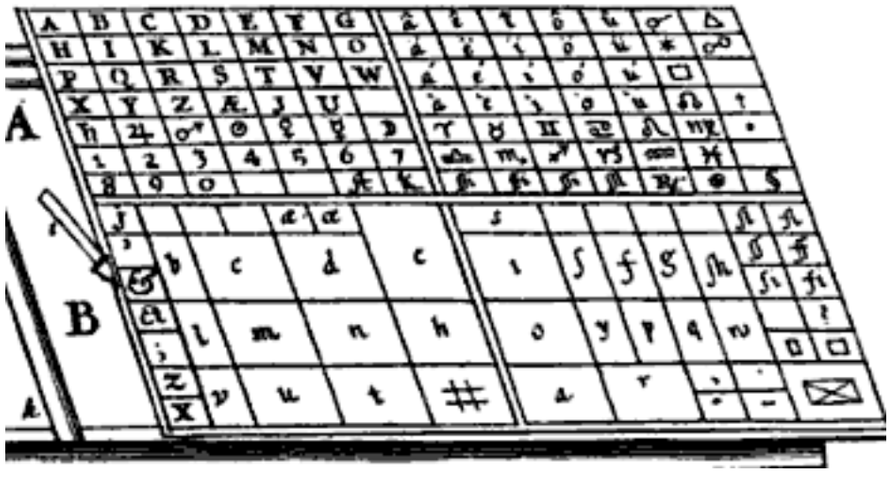
T	—		
U	· · —		
V	· · · —		
W	· — —		
X	— · · —		

1842



Hofl 11 - Narrow 37

what did Morse do?

(c) introduced a simpler system

"to construct a system of signs ...
and an apparatus to carry it" (1838)

[Wheatstone, earlier but]: "a system more complicated and less efficient than the American telegraph ... the deflection of the needle became the principle upon which the savans of Europe based all their attempts ... another discovery ... by Ampère and Arago, immediately consequent on that of Oersted, namely: the electro-magnet which none of the savans of Europe ..ever thought of applying ... My telegraph is essentially based on this latter discovery." (1842)

rights and responsibilities

"in the hands of a company of speculators ... enriching the corporation at the expense of the bankruptcy of thousands. ... even in the hands of Government .. a means of working vast mischief .. Let the sole right ... belong, in the first place, to the Government ... grant .. to any individual or company .. who might apply .. The Govt would have a telegraph of its own."

--Morse, 1838

rights of way

CHAPTER XCVII.

AN ACT

To provide for the construction of Telegraph Lines within the the State of California.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

To whom granted

SEC. 1. The right and privilege is hereby granted to Oliver E. Allen and Clark Burnham, or their assigns, to construct and put in operation an Electro-Magnetic Telegraph Line, from the city of San Francisco to the city of Marysville, by the way of the cities of San Jose, Stockton and Sacramento, with right of way over any lands belonging to this State, and on or along any streets, roads or highways, or across any stream or streams; *Provided*, they do not obstruct the same, and no person or persons shall be allowed to locate, or construct, or run any Telegraph Line, or any portion thereof, within half a mile of the Line or route selected by the said Allen and Burnham or their assigns, except that when within half a mile of any incorporated city, the proprietors of any similar Line of Telegraph, may enter said city and depart therefrom, making their Station therein, within twenty yards of the Station of said Allen and Burnham, or their successors, for the term of fifteen years; *Provided*, that the said above named parties or their assigns shall, within eighteen months from the passage of this Act, construct and put in operation a Tele-

Rights and privileges.

Duty of grantees.

speculative worries

Rothschilds & Napoleonic Wars

Thomas Cochrane
1775-1860

Admiral Cochrane

"Napoleon is dead"

LONDON,
TUESDAY, FEBRUARY 22, 1814.

Never, perhaps, was greater agitation produced in the Metropolis by any foreign news, than was yesterday occasioned by a fraud of the most impudent and nefarious description. An express arrived from Dover,

Stendhal

The Telegraph

Hofl 11 - Narrow 41

open to all

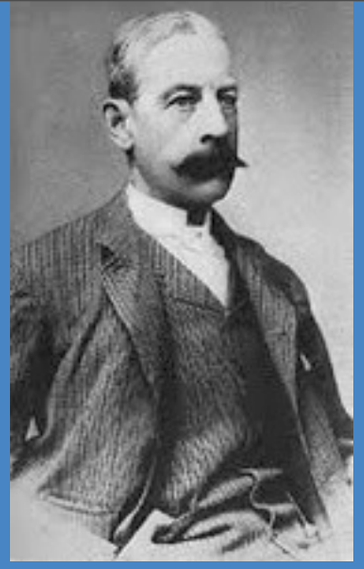
"The telegraph being alike open to *all* puts the whole community upon a par, and will thus '*head off*' the most adroit speculators, because they will not have the power to *monopolize* intelligence

Public Ledger and Daily Transcript (Philadelphia), 1846

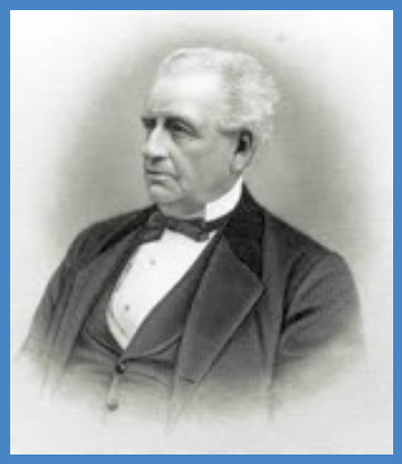
monopoly advantage

"judicial employment of commercial news ... not only pay all expenses ... large dividend on the stock ... It is evident that the system of Telegraphing news is destined to supersede, in a great degree, the publication of commercial newspapers in this and other Northern cities ... The Offing Telegraph Association, having exclusively all the Foreign news brought to this port ... Every Commercial House in ..... must, in self-defence, receive from the Association their latest news"

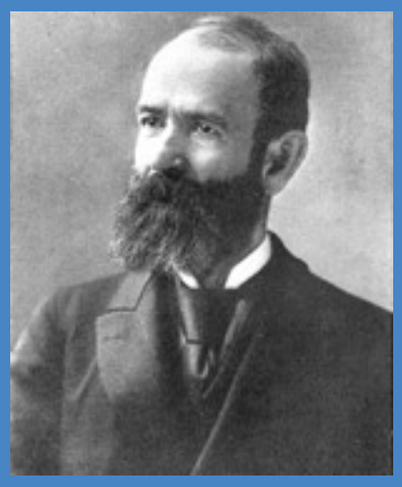
-- Colt & Robinson



James Gordon Bennett
1795-1872



Hiram Sibley
1807-1888



Jay Gould
1836-1892

in response

alliances: New York Associated Press

James Gordon Bennett
New York Herald

Moses Beach
New York Sun

consolidation:
Sibley's Western Union, 1855

Gould's Western Union, 1881

telegraph neutrality?

"it is true, give a convincing proof of your power over the press; but surely this is not needed. The newspapers of California, which hardly dare notice the incorporation of a rival company, and dare not endorse a public measure of which you disapprove, are subservient enough already ... you could destroy a private business ... more completely than earthquake or conflagration could do the work the Telegraph, which has become a necessity of individual and social life, is not merely private property ... it is a great public trust to be administered for the benefit of the whole community"

Henry George, 1869

"natural monoply"

Assignment 7 – Narrowcast

The telegraph raised a long battle over government control of communication systems. Using the telegraph as your example, argue whether the government is or is not justified in intervening in the operation of communication systems. Provide evidence from Morse himself and one other document.

yes	no	perhaps
Josh	Tricia	Linsey
My	Lisa	Ashly
Jeffery	Pauline	Kimberly
Leyla	Megan	Olivia
Lauren	Anna Chu	Elizabeth
Aaron Bloch	Jennifer	Linsey
TJ	Erin	Ha Jun
Mia	Lisa	Omead
Cody	Clara	Ashlyn
Grace	Trisha	Joshua
Ha Cao	Ramez	Zarrin
Anne Chen	Diana	Aaron Powell
Annie Chin	Andrew	Hannah
Corbin		Nikolas
Bailey	yes	Steven
Tiffany	Ariane	
Allison	Yong	yes
Benjamin	Jhernae	
Jeffrey	Monica	Austen
David	Tracy	Kelly
Leyla	Amy	
Andy	Edgardo	
Alexander	Gavin	
Katherine	Annie Tung	
Jonathan	Sayed	
	Si	

~graph to ~phone

working for western union

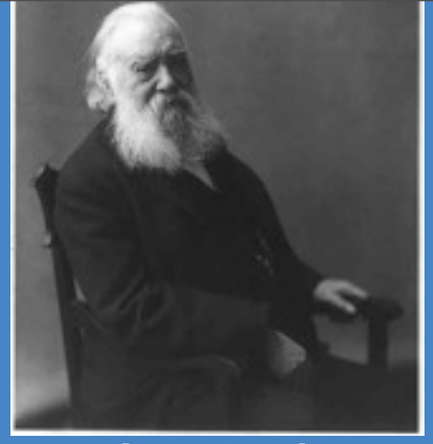
```
12 signs ... a minute ... 12,960 signs per day

eg: Buy 25 bales c., at 9, and 300 port, at 8.
```

1868: duplex (Joseph Stearns)

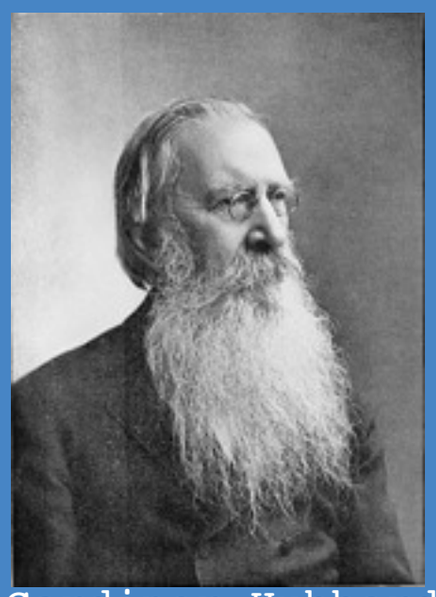
qadruplex (Thomas Edison)

visible speech:
harmonic telegraph (Bell)

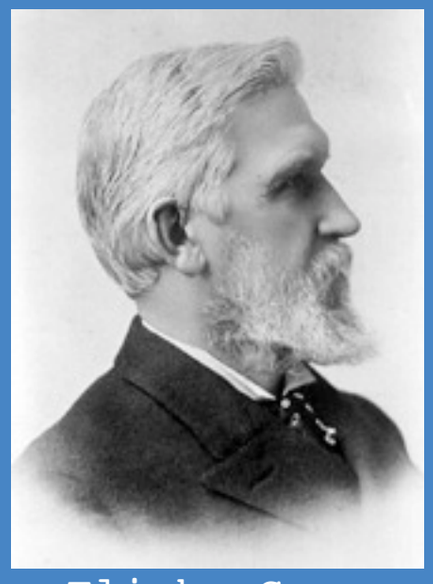
```
"Watson come here, I want (need) (to see) you"

                "I could hear your voice plainly.

              I could almost make out what you said"
```



Alexander Graham Bell
1847-1922



Gardiner Hubbard
1822-1997



Elisha Gray
1835-1901

disharmony

Bell, Hubbard, & Sanders

(Bell Patent Association, Bell Telephone, AT&T)

1875, telegraph filing multiple patents

1876, Valentine's Day filing

Elisha Gray:

(Western Electric)
late caveat

the English patent

"part of the instrument had been screwed down for Atlantic crossing...."

"an industry shaped by law"

Morse

1837 filing; patent settled, 1854

"I can't give [the figure] exactly now, but the aggregate ought to sum up something very close to $500,000" --Morse, *NYT*, 1879

Bell v Western Union, Gold & Stock
(Elisha Gray, Thomas Edison, E.A. Calahan)

18 years, 600 patent actions

by law and by national policy

nationalization

UK telegraph, then telephone

privatization

US *telegraph*: Western Union

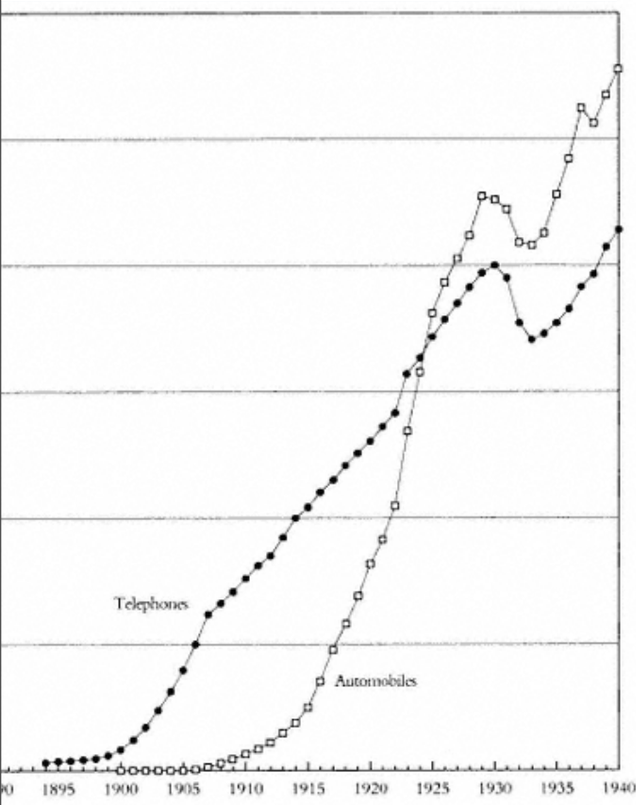
telephone: patent monopoly & licensing
(Bell, MacKay Shoe Co)

to private monopoly (AT&T)
subsidized by long-distance charges

(transcontinental phone line, 1914)

The battle was fierce, with spying sabotage, secret purchases of competitors, bribery of city officials, financial subversion. -- Fischer

moving to monopoly



diffusion of telephones and cars. 1894-1940

early growth

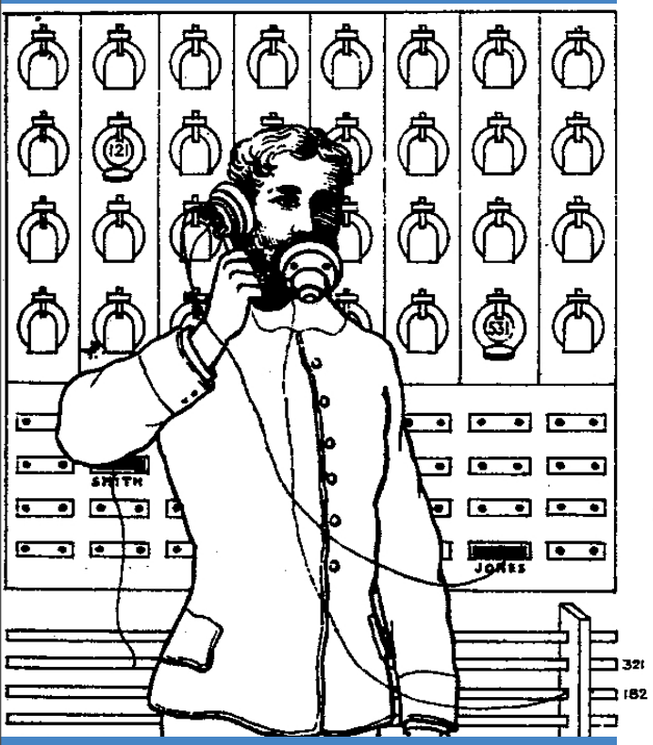
Between 1880 and 1893, growth from 60,000 to 260,000
from 1: 1,000 to 1:250 phones : people

in 1902, roughly 300 companies

but increasing monoply

"When the competing telephone exchange closed in San Francisco in 1880, the Bell local raised its charges from $40 to $60 a year. The local manager justified the move: ... 'The public always expects to be "cinched" when opposing corporations consolidate and it was too good an opportunity to lose"

--Fischer



"if the U.S. telephone service had to handle the current volume of calls solely through operator operator-assisted methods ... every female in the labor force ... would now be working for AT&T."

--Daniel Bell, "Social Framework of the Information Society"

missing link

exchanges (1878)
modelled on telegraph emergency services
multiple boards & written tickets

switchboard problems
diseconomies of scale
grounds for monopoly?
for international cooperation?

Strowger switch (1888-92)
traffic analyses
1903, Malcolm Rorty, traffic probability

switching

Sabin's Express System
San Francisco, 1894

coming up

10 Mar: Advertising
Required reading:

- Bickerstaff, Isaac [i.e. Joseph Addison]. 1710. [On Advertising], *The Tatler*, 224 Tuesday September 12, pp 502-503
- Johnson, Samuel. 1759. [On Advertising]. *The Idler*, 40 Saturday Jan 20,pp. 224-229.
- McKendrick, Neil. 1982. "Josiah Wedgwood and the Commercialization of the Potteries," pp. 100-145 in McKendrick et al. *Birth of a Consumer Society*. Bloomington, IN: Indiana University Press.

Additional material:

- Klein, Naomi. 2000. part 1 from *No Logo*