point to point

telephone & telegraph

History of Information

October 22
overview

point to point
differing interests
techno-enthusiasms
unintended consequences
~graph to ~phone
distinguish by use

point to point vs broadcast
  post office
  telegraph
  telephone
  radio

use vs intention

national variation
which way around?

"Science Explores, Technology Executes, Man Conforms". New York World's Fair, 1933

"It was the demand for rapid communications that created the telecommunications systems, not the other way around"

Daniel Headrick
long-distance interests

Newman & Co, 1660ff
Dartmouth
Bournemouth
London
Vianna
Porto
Bilbao
Newfoundland
Concepcion
Zanzibar
Madagascar

politics & business

common interests

conflicting interests
common dilemma

too much time, too little news

communication needs
speed
frequency

messages by sea
irregular: merchant ships
regular: packet boats

Packet boats from
England, 1720
France, 3
Spain, 2
Flanders, 2
Holland, 2
Ireland, 2
message methods

**carry**
- foot
- horse
- carriage
- sail
- train

**send**
- smoke
- flag
- light
- pigeon
- telegraph
- telephone
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
mail coach speed, 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 and Railroad Time"
telegraphic history

Claude Chappe (1763-1805)

La Ligne Paris-Lille 1794
1793: "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
military aspiration

on land

the Admiralty "six-shutter" telegraph
Portsmouth, Deal, 1796

Great Yarmouth, Plymouth, 1806

from three days to fifteen minutes from Portsmouth to London

abandoned, 1814

rebuilt as a Chappe "semaphor" telegraph, 1815

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

Monthly Review
military aspiration

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

Monthly Review
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. ... Nelson had at his disposal the means to direct his ships wherever he wanted them to go". William Keegan

Home Popham (1762-1820)
Abbé Nollet, 1700-1770

180 Royal Guards

1 km Carthusian monks

"when a Leyden jar was discharged, the white-robed monks reportedly leapt simultaneously into the air"

Benjamin Franklin
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."
transatlantic race

Pavel Lvovitch Schilling (1780-1836)
William Cooke (1806-1879)
Charles Wheatstone (1802-1875)

Faraday
Roget
Thomson

GWR telegraph, 1837
Alfred Vail (1807-1859)

"a patient waiter is no loser" [1838]

"Morse" code patented 1840

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"International Morse Code, 1851"
interconnections

Prussia-Austria: 1849

England-France: 1851

New York-Newfoundland: 1856

Britain-North America: 1858-1866
AP is older than was thought, papers show

A collection of 19th-century documents newly acquired by The Associated Press shows that the world's largest newsgathering organization traces its origins to 1846, two years earlier than traditionally accepted by journalism historians and the AP itself.

The documents were provided to the AP's corporate archives by Brewster Yale Beach, a great-great-grandson of Moses Yale Beach, the second owner-publisher of the original New York Sun and the driving force in creating the alliance of newspapers sharing news dispatches that became known as The Associated Press.

In the memorandum, Moses Sperry Beach describes an 1846 arrangement whereby Mexican war reports arriving at Mobile, Ala., by boat were rushed by special pony express to Montgomery, then 700 miles by U.S. mail stagecoach to the southern terminus of the telegraph near Richmond, Va. That express gave the Sun an edge of 24 hours or more on papers using the regular mail.

But Moses Yale Beach relinquished that advantage by inviting other New York publishers to join the Sun in a cooperative arrangement in the agreement: the Sun, the Journal of Commerce, Express.

The occasion for the death of James Gordon Bennett, the founder of the New York Herald, was his death. In an interview in 1884, Moses Sperry Beach said the Mexican War Press. It all grew out of this.

Associated Press, 1846
James Gordon Bennet, New York Herald
James Webb, Courier & Enquirer
Gerald Hallock, Journal of Commerce
Horace Greeley, Tribune
Moses Beach, New York Sun
Eustace Brooks, New York Express

Reuters
Paul Reuter
1849: pigeons & "the last mile"
1851: moves to London
"follow the cable"

HofP P2P - 20
"The progress of human knowledge has accomplished within a century **revolutions in the character and condition of the human race** so beautiful and sublime as to excite in every observing mind feelings mingled with the deepest admiration and astonishment. No age has illustrated so strongly as the present the empire of mind over matter and the ability of man to rise ... above obstacles with which nature has surrounded him. ... It is a happy privilege we enjoy of living in an age, which for its inventions and discoveries, its improvement in intelligence and virtue, stands without a rival in the history of the world ... Look at our splendid steamboats."

--Scientific American, 1841
"Ye Gods, annihilate but space and time,
And make two lovers happy."

The annihilation of space,' says a late number of the North American Review, 'occasioned by the introduction of steam into navigation, is in nothing more wonderfully exemplified than in the time within which it is possible to travel from New York to Jerusalem. The fact may be startling to our readers, but it is nevertheless true, that a person favored by circumstances, may reach Mount Calvary within thirty-three days after leaving Broadway. Thirteen days may take him to Bristol, two to Paris, three to Marseilles, ten to Syria, four to Jaffa, and one from there to Jerusalem.—And the French steamboats, plying upon the Mediterranean, to Syria, to Alexandria, to Greece, to Smyrna, and to Constantinople, are safe and pleasant vessels, and well found in all respects.
"A line of telegraph ... from London to Kurrachee, and from thence to every part of India, ... intelligence and commands be daily and hourly communicated with the speed of lightening ... in this virtual annihilation of time and space in the communications between England and her distant possessions will be more than realised"

--Blackwood's Edinburgh Magazine, 1857
THE FIRST MESSAGE.

ENGLAND GREETS AMERICA

QUEEN VICTORIA

to

PRESIDENT BUCHANAN.

wishing on technology

May the Atlantic telegraph, under the blessing of heaven, prove to be a bond of perpetual peace and friendship between the kindred nations, and an instrument destined by Divine Providence to diffuse religion, liberty, and law throughout the world.

President Buchanan, 1858

Tomorrow the hearts of the civilized world will beat in a single pulse, and from that time forth forevermore the continental divisions of the earth will, in a measure, lose those conditions of time and distance which now mark their relations. ...

"The Atlantic has dried up and we become in reality as well as wish, one country."

Times

Hofl P2P - 24
"It is impossible that old prejudices and hostilities should longer exist, while such an instrument has been created for the exchange of thought between all the nations of the earth".

Charles Briggs & Augustus Maverick, *The Story of the Telegraph*, 1858

"Steam was the first olive branch offered to us by science. Then came the still more effective olive branch--this wonderful electric telegraph, which enables any man who happens to be within reach of a wire to communicate instantaneously with his fellow men all over the world."

-- Ambassador Thornton, 1858
"facilitating Human Intercourse and producing Harmony among Men and Nations ... [I]t may be regarded as an important element in Moral Progress"

*Daily Chronicle [Cincinnati]* 1847

"the great chain that will bring all civilized nations into instantaneous communication ... the most potent of all the means of civilization, and the most effective in breaking down the barriers of evil prejudice and custom"

*Hunt’s Merchants’ Magazine*, 1868

"the hand of progress beckons .... a rivet is loosened from the chains of the oppressed"

*Commercial and Financial Chronicle*, 1865.

"Making a better machine cannot make men better."

*Emile Zola*

*La Bête Humaine*, 1890
decentralization

"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)
innocent expectations

... and unintended consequences

the press & public debate
diplomacy & peace
commerce
love
public sphere
public sphere

raising the level of debate
public sphere

raising the level of debate

THE SUSPECTED MURDER AT SALT-HILL.

SLOUGH, FRIDAY EVENING.

This extraordinary affair, which is wrapt in the greatest mystery, still continues to excite the most intense interest throughout this extensive neighbourhood. A great number of persons, anxious to have a view of the interior of the house, and especially the room in which the supposed murder took place, and now containing the body of the deceased (upon which an inquest was held yesterday), visited the house during to-day; but the constable, with whom is deposited the key of the house, has received strict injunctions from the coroner, before whom the adjourned proceedings will be resumed to-morrow morning, not to suffer any one to enter the premises, and these orders have been strictly attended to.

The deceased had two children living with her at the time of her death; Frederick, the eldest, aged five years, and Sarah, an interesting little girl, one year younger. They had been put to bed in the room in which the body was discovered, and were heard by them. It is stated that the deceased was吵吵闹闹, and a noise was heard, and then a scream, and the body of the deceased was found in the room.
public sphere

raising the level of debate

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The deceased was of the society of friends.

It may be observed, that had it not been for the efficient aid of the electric telegraph, both at Slough and Paddington, the greatest difficulty as well as delay would have occurred in the apprehension of the party now in custody.

[We were enabled to give the following in a large part of our yesterday's impression:—]

The Times-office, Half-past 8 a.m.

We have the happiness to announce that the Queen has been safely delivered of a Prince.

We are happy to state that Her Majesty is doing well.

We are indebted to the extraordinary power of the Electro-Magnetic Telegraph for the rapid communication of this important announcement.

[The following appeared in a second edition of The Times of yesterday:—]

Express from Windsor.

In addition to the intelligence of the auspicious event which we published at half-past 8 o'clock, we have just received the following official despatch.

The Suspected Murder at Salt-hill.

Slough, Friday Evening.

This extraordinary affair, which is wrapped in the greatest mystery, still continues to excite the most intense interest throughout this extensive neighbourhood. A great number of persons, anxious to have a view of the interior of the house, and especially the room in which the supposed murder took place, and now containing the body of the deceased (upon which an inquest was held yesterday), visited the house during to-day; but the constable, with whom is deposited the key of the house, has received strict injunctions from the coroner, before whom the adjourned proceedings will be resumed to-morrow morning, not to suffer any one to enter the premises, and these orders have been strictly attended to.

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openness

or secrecy?

Crimean War, 1855

"The press and the telegraph are enemies we had not taken into account"

Earl of Clarendon,
British Foreign Secretary
"If information is power, whoever rules the world's telecommunications system commands the world"
--Peter Hugill
Clapping his glass to his sightless eye, "You know, Foley," he added, turning to his captain, "I've a right to be blind sometimes. I really do not see the signal. D–n the signal! keep mine for closer action flying."

Beninger, *The Control Revolution*, 1986
Yates, *Control through Communication*, 1989
decentralization?

commercial
the "second industrial revolution"
Alfred Chandler, *Scale & Scope*
from family to managerial capitalism

Harold Innis, *The Bias of Communication*

*a prime example: Western Union*
"the first industrial monopoly, swallowed up its last
two rivals in 1866. .... [O]nly in the Unites States
and Canada did the telegraph remain under private
control after 1868"
Du Boff, "The Telegraph...Technology & Monopoly", 1984
Bismarck & the Ems telegram

His Majesty [having told Cont Benedetti that he was awaiting news from the Prince,] has decided [with reference to the above demand] not to receive Count Benedetti again, but only to let him be informed through an ide-de-camp that his Majesty [had now received from the Prince confirmation of the news which Benedetti had already received from Paris and] had nothing further to say to the ambassador.

"à Berlin, à Berlin"

code controversies

Zimmerman cable
franco-prussian war

started by telegram
resisted by pigeons

the siege of Paris
the government in Tours

OPEN LETTERS for PARIS.
Transmission of by Carrier Pigeons.

THE Director-General of the French Post Office has informed this Department that a special Despatch, by means of Carrier Pigeons, of correspondence addressed to Paris has been established at Tours and that such Despatch may be made use of for brief letters, or notes, originating in the United Kingdom, and forwarded by post to Tours.

Persons desiring of availing themselves of the mode of transmission must observe the following conditions:

Every letter must be posted open, that is, without any cover or envelope, and without any seal, and must be addressed:

To Pigeons—entirely in the name of the sender, and the despatch must be not exceeding four lines in length.

No figure must be sent; the number of the house, the street, or post-office, must be given in words.

Combined words joined together by hyphens or apostrophes will be counted according to the number of words making up the combined word.

The letters must be written entirely in French, in clear and legible language. They must relate solely to private affairs and no political or confidential reference to the war will be permitted.

The charge for these letters is five pence for every word and thirty

La Poste par Voyageurs souvenirs du siege de Paris

Tours Bordeaux 1870-1871

Pigeons

HofI P2P -
HofP2P - war again

Zimmerman telegram

coded communications

ZIMMERMANN EXPLAINS.

Herr Zimmermann paints what all his admirers here and in Germany will consider a damming picture of the contrast between American and German methods. “Our behavior contrasts considerably with the behavior of the Washington Government,” he truly says. And he explains. When he instructed the German Minister to Mexico to propose an attack on the United States by Mexico and Japan, it was done with the kindest regard for our feelings: it was done with the utmost secrecy. Washington, with a coarseness which revolted him, obtained and published these confidential instructions—“in a way that was not unobjectionable,” as he puts it with much self-restraint.
Rothschilds & Napoleonic Wars

Admiral Cochrane
"Napoleon is dead"

Omnium from 26-1/2 to 33

Stendhal
The Telegraph
Hofl P2P - 37
love on the wires

marriage over the wires
1848: Anecdotes of the Telegraph

prevention & Gretna Green
"what an enemy science is to romance and love"
love and class

Henry James (1828-1911)
"In the cage" (1898)

the medium

"as if I had no more feelings than a letterbox"
It's bound to be so unintimate--unless she does not consider the postmistress, and I do think surely she ought to because it is our postmistress...

I should write at once ... I'm not sure I shouldn't even telegraph, if it were not for the postmistress
MUSIC BY TELEGRAPH.

About two months ago Mr. Elisha Gray, of Chicago, a gentleman well known in the electric telegraph world as a maker and inventor of some of the most valuable instruments now in use, conceived an idea which would be an extraordinary development of telegraphic science if he could only succeed in practically demonstrating it. Short as has been the lapse of time since he first began his experiments, he has succeeded, almost beyond his own anticipations, in perfecting an instrument which will convey sound by electricity over an unbroken current of extraordinary length—that is, without the aid of automatic repeaters. In the ordinary transmission of messages over the telegraph wires to points at long distances, a message is generally repeated by automatic-working instruments about every 500 miles, in order to renew the current of electricity. Mr. Gray has already transmitted sounds, which are distinctly audible at the receiving point over an unbroken circuit of 2,400 miles. This is, more properly speaking, a discovery—not an invention. The

New York Times, July 10, 1874

THE TELEPHONE.

Prof. Reuss, a distinguished German performer on telegraphic instruments, has recently made an invention which cannot fail to prove of great interest to musicians, and, indeed, to the general public. The telephone—for that is the name of the new instrument—is intended to convey sounds from one place to another over the ordinary telegraph-wires, and it can be used to transmit either the uproar of a Wagnerian orchestra or the gentle cooing of a female lecturer.

New York Times, March 22, 1876

THE TELEPHONE.

HISTORY OF THE INSTRUMENT AND ITS INVENTOR—A CONVERSATION BY WIRE ON WEDNESDAY BETWEEN BOSTON AND A NEIGHBORING TOWN—THE “LAST ROSE OF SUMMER” SUNG BY TELEGRAPH.

From the Boston Transcript, Feb. 1.

At noon yesterday a distinguished party of gentlemen were assembled at the office of the Boston Rubber Shoe Company on Congress street in order to witness a series of experiments performed on the telephone between the inventor, Prof. A. Graham Bell, here, and his associate, Mr. Thomas A. Watson, at the residence of Mr. Converse at Malden, about six miles distant. Prof. Bell had
TELEGRAPHING TUNES.

Results of Mr. Elisha Gray's Electrical Investigations.

He is able to Telegraph Music from Paris to Chicago.

Experiments with His Newly-Invented Telephone.

Practical Bearings of His Researches.

Twenty Messages May Be Sent On One Wire at Once.

The Theory of Musical Telegraphy.

A telegraph operator at Evanston the other night was frightened almost out of his wits by hearing his "cut-out board" play "Ninety and Nine." When capable of thinking—for astonishment—there is no doubt that he would have turned it over to a musical instrument by Ear. The "cut-out board" is a board on which the operator writes messages, and when the operator's board is put over the "cut-out board" the latter sends the messages. The "cut-out board" is a board on which the operator writes messages, and when the operator's board is put over the "cut-out board" the latter sends the messages. The "cut-out board" is a board on which the operator writes messages, and when the operator's board is put over the "cut-out board" the latter sends the messages. The "cut-out board" is a board on which the operator writes messages, and when the operator's board is put over the "cut-out board" the latter sends the messages.

Chicago Trib July 12, 1874

Chicago Trib Feb 11, 1874

Chicago Trib Feb 16, 1874

Chicago Trib July 24, 1883
They adored Mr. Edison as the greatest man of all
time in every possible department of science, art,
and philosophy, and execrated Mr. Graham Bell, the
inventor of the rival telephone, as his Satanic
adversary; but each of them had, or pretended to
have) on the brink of completion, an improvement
on the telephone, usually a new transmitter. They
were free-souled creatures, excellent company:
sensitive, cheerful and profane; liars, braggarts,
and hustlers; with an air of making slow old
England hum which never left them even when, as
often happened, they were wrestling with
difficulties of their own making, or struggling in
no-thoroughfares from which they had to be
retrieved like strayed sheep by Englishmen without
imagination to go wrong.
1876: 
patent vs caveat

two hours difference
decades of litigation

Alexander Graham Bell (1847-1922)
Bell / AT&T

Elisha Gray (1835-1901)
Western Electric

the English patent
early uses envisaged for the telephone

- music
- transmitting sermons
- broadcasting news
- providing wake-up calls
- conferring degrees
- telephoning in airplanes
- political ads

"When offered the Bell patents for $100,000 in 1876, Western Union turned them down"

-Friedlander
business needs and sociability

"Businessmen relied on letters and telegrams, often with complex codes, to produce written records of their transactions ... voice transmission, scratchy and often indistinct, could be an adjunct at best"

Claude Fischer, America Calling 1992
shaping the phone

communication channels
national interest
private interest
public good

ownership of intellectual property
nationalization (UK telegraph)
public ownership (France, photography)
private monopoly (US, AT&T)
licensing (Xerox, ethernet)
competition
moving to monopoly

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

"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 corporatations consolidate and it was too good an opportunity to lose"

--Fischer

long distance control
denial of service
Kellogg conspiracy and other patent fights
"Someday we will build up a world telephone system, making necessary to all peoples the use of a common language or common understanding of languages, which will join all the people of the earth into one brotherhood. There will be heard throughout the earth a great voice coming out of the ether which will proclaim, 'Peace on earth, good will towards men'.

--John J. Carty, AT&T, 1891
mediation

exchanges (1878)

Strowger switch (1888-92)