narrowcast

telephone & telegraph

History of Information
March 8, 2011
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.

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.
News Corp. Offers to Spin Off Sky News

BY MICHAEL J. DE LA MERCE 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
"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

determinism & revolution

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

--Congressman F. (Fog) Smith, 1838

"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

determinism & revolution

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--Congressman F. (Fog) Smith, 1838

"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

long-distance trade  
(not entirely new)

new markets

shifting population

John Gast  
American Progress  
1872
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
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,
infrastructure

roads

canals

railways
infrastructure

Manchester-Liverpool

1830

Erie Canal

1825

Tuesday, March 8, 2011
Eerie Canal
1825

infrastructure
speeding up

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
"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
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

England-France: 1851

New York-Newfoundland: 1856

Britain-North America: 1858-1866
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

unveiling of Morse's statue
June 10, 1871
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
Henry Ellsworth
1791-1858

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 180,000 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

troubling testimony
troubling testimony

"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.]
"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."

Samuel Morse
(1791-1872)
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
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...
prior art

Chappe sémaphore
La Ligne Paris-Lille
16 stations
prior art

Chappe sémaphore
La Ligne Paris-Lille
16 stations

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
5,000 km/3,125 m
534 stations
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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
Narrow 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
military connections

**on land**

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*Monthly Review*
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Monthly Review
Hofl 11 - Narrow 30
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
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

**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.'

"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

--R. John
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"?
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"?
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 electromagnet which none of the savans of Europe ... ever thought of applying ... My telegraph is essentially based on this latter discovery." (1842)
"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
CHAPTER XCVII.

AN ACT

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

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

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-
speculative worries

Rothschilds & Napoleonic Wars

Admiral Cochrane

"Napoleon is dead"

Stendhal

The Telegraph

Thomas Cochrane
1775–1860

Tuesday, March 8, 2011
"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
"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
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
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.
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<thead>
<tr>
<th>yes</th>
<th>no</th>
<th>perhaps</th>
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<tbody>
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<td>Tricia</td>
<td>Linsey</td>
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<td>My</td>
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<td>Jonathan</td>
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</table>
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"
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

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

Tuesday, March 8, 2011
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

"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"
Sabin's Express System
San Francisco, 1894

switching
10 Mar: Advertising
Required reading:

- Bickerstaff, Isaac [i.e. Joseph Addison]. 1710. [On Advertising], The Tatler, 224
  Tuesday September 12, pp 502-503
  University Press.

Additional material:

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