History of Information
January 27, 1009

on determinism
agenda

aob

administrative issues

confronting determinism
- assignment
- what is technological determinism?
- what's attractive about it?
- how to deal with it

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reading for Thursday
taking sides

Heilbroner won

Bijker won

neither one
taking sides

Heilbroner won

Bijker won

neither one

last year
taking sides

Heilbroner won

Bijker won

neither one

last year

Heilbroner -- 55%
taking sides

Heilbroner won

Bijker won

neither one

last year

Heilbroner -- 55%

Bijker -- 40%
taking sides

Heilbroner won

Bijker won

neither one

last year

Heilbroner -- 55%

Bijker -- 40%

neither one -- 5%
of bicycles, bicycles, and bicycles

What isn’t IT?
of bicycles, bicycles, and bicycles

What isn't IT?
of bicycles, bicycles, and bicycles

What isn't IT?
of bicycles, bicycles, and bicycles

What isn't IT?
of bicycles, bicycles, and bicycles

What isn't IT?
confronting determinism for all time?

"The day the universe changed"

James Burke, *Printing Transforms Knowledge*
BBC 1986
it's the claim that

"new technologies are discovered, by an essentially internal process of research and development, which then sets the conditions for social change and progress. Progress, in particular, is the history of these inventions, which 'created the modern world'.

The effects of the technologies, whether direct or indirect, foreseen or unforeseen, are as it were the rest of history."

Raymond Williams, Television, Technology, and Cultural Form
Heilbroner's example

"The hand-mill gives you society with the feudal lord; the steam-mill society with the industrial capitalist."

—Karl Marx
"[M]en make cloth, linen, or silk materials in definite relations of production. ... these definite social relations are just as much produced by men as linen, flax, etc. Social relations are closely bound up with productive forces. In acquiring new productive forces men change their mode of production; and in changing their mode of production, in changing the way of earning their living, they change all their social relations. The hand-mill gives you society with the feudal lord; the steam-mill society with the industrial capitalist."

Karl Marx, *The Poverty of Philosophy*
"Printing, gunpowder and the compass ... whence have followed innumerable changes, in so much that no empire, no sect, no star seems to have exerted greater power and influence in human affairs than these mechanical discoveries."

Francis Bacon, *Novum Organum*, 1620

"He who first shortened the labor of copyists by device of movable types was disbanding hired armies, and cashiering most kings and senates, and creating a whole new democratic world: he had invented the art of printing."

Thomas Carlyle, *Sartor Resartus*, 1833
run of the mill predictions

YouTube may be changing the political process in more profound ways, for good ...

In statements to the press, the company has been quick to take credit for radically altering the political ecosystem.

Some political analysts say that YouTube could force candidates to stop being so artificial ...

others see a future where politicians are more vapid and risk averse than ever.
bending your mind

"When technology shifts, it bends the culture"

Kevin Kelly, "Becoming Screen Literate,"

New York Times 2008

John Battelle, The Search: How Google and Its Rivals Rewrote the Rules ... and Transformed our Culture, 2005

Andrew Keen, The Cult of the Amateur: How Today's Internet is Killing our Culture, 2006
who knows?

Nobel Winner: Internet Might have stopped Hitler

"Who knows, if the Internet had existed at the time, perhaps Hitler's criminal plot would not have succeeded."

Jean-Marie Gustave Le Clezio, 2008
Chicago World's Fair, 1933:

"Science Explores, Technology Executes, Man Conforms"
Chicago World's Fair, 1933:

"Science Explores, Technology Executes, Man Conforms"

"Guns don't kill people. People kill people."

NRA slogan
Chicago World's Fair, 1933:

"Science Explores, Technology Executes, Man Conforms"

"Guns don't kill people. People kill people."

NRA slogan
what's attractive about determinism?

**clear causality**

contrast

RLH: 20 pp vs WEB 80 pp

"socio-technical systems, relevant social groups, interpretive flexibility ..."

"every technology sits in a technological custard ..."

**clean history**

"whiggishness ..."

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"The ratification if not the glorification of the present."

Herbert Butterfield, *The Whig Interpretation of History*, 1931
clean and simple

Wired blog:
10 gadgets that changed the world

59.4% - Bicycle
7.8% - Transistor
7.8% - Electro-magne
6.3% - Computer
4.6% - Germ theory o
4.5% - Radio
4.0% - Internet
3.4% - Internal Comb
1.1% - Nuclear Power
1.1% - Communicatio
... and something to build a future on

thinking (wishing?) with technology

"We are in the midst of a technological, economic, and organizational transformation that allows us to renegotiate the terms of freedom, justice, and productivity."


the power of prediction

Herman Kahn, *The Year 2000: A Framework for Speculation on the Next 33 Years*, 1967
"It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us, we were all going direct to Heaven, we were all going direct the other way."

At this point, you may suspect that I have swung from one American genre, the jeremiad, to another, utopian enthusiasm.

"Universal access to the world's written knowledge [whereby] any digital work could be made available for experiencing to anyone, anytime, anywhere in the world .. the dream of universal access to quality digital works dangles just beyond reach."

Mark Stefik, "Letting Loose the Light," 1995
all going direct the other way

"We have locked up most of twentieth-century culture and done it in a particularly inefficient and senseless way."

diagnosing determinism

how well did they hold up?

EAGLE

21 APRIL 1950 No. 2

DAN DARE

PILOT OF THE FUTURE

Dan Dare and Digby, his
batman, are driving to
Space Fleet HQ in answer
to an urgent call from
the Controller.

I wonder
if anything
has
happened
to
the
Kingfisher, Sir?
Guy Kawasaki... one of those originally responsible for marketing the Macintosh.

"The first time I saw the Mac, it was a religious experience. The angels started singing and the scales were removed from my eyes," he said.

"This was a machine that worked the way you expected it to work. We believed we would make people more creative and more productive and believed we were preventing world domination in the 1984 Orwellian sense by IBM." [http://news.bbc.co.uk/2/hi/technology/7841208.stm]
"Making just that enormous body of knowledge and wisdom accessible to young minds could close the generation gap with a few keystrokes."

Nicholas Negroponte, *Being Digital*, 1995

"One can predict that in a few more years, millions of schoolchildren will have the personal services of a tutor as well-informed as Aristotle."

"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."
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Alexandre Vandermond, 1795
"Ye Gods, annihilate but space and time, And make two lovers happy."

1728

The Death of Distance
--Frances Cairncross, 2000
"Ye Gods, annihilate but space and time, And make two lovers happy."

1728

The Death of Distance
--Frances Cairncross, 2000
looking forward/
looking back

"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
technological sublime

"the rhetoric of the technological sublime"
Leo Marx, *The Machine in the Garden*, 1964

"Westward the course of empire takes its way."
"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..."
"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

Hofl 09 -- determinism 27
"And the Iron Horse, the earth-shaker, the fire-breather, which tramples down the hills, which outruns the laggard winds, which leaps over the rivers, which grinds rocks to powder and breaks down the gates of the mountains, he too shall build an empire and an epic. Shall not solitudes and waste places cry for gladness at his coming?"

—Scientific American, 1849
"the almost complete annihilation of time and space between the distant antipodal points of the American continent ... produced by the construction of the Pacific Railroad"

John Wesley Clampitt, *Echoes from the Rocky Mountains*, 1888
"Objects of exalted power and grandeur elevate the mind that seriously dwells on them, and impart to it greater compass and strength. Alpine scenery and an embattled ocean deepen contemplation, and give their own sublimity to the conceptions of beholders. The same will be true of our system of Rail-roads. Its vastness and magnificence will prove communicable and add to the standard of the intellect of our country."

New England Magazine 1832
too cheap to meter?

nuclear domestic power packs leading to a social revolution in our own time, a society without class, privilege, cities, nations or geographical boundaries ... a single, uniformly spread community, sharing as neighbors the whole surface of the earth."
... this age of ours ... when the pulsations of electricity vibrate and throb around this earth, uniting nations as one family by those powerful yet sensitive bonds wrought by science and riveted by man's quenchless thirst for still higher and better achievements.

Morris S. Wise, *Trade-marks and Trade-mark Law*, 1898

"Electric circuitry has overthrown the regime of 'time' and 'space' and pours upon us instantly and continuously concerns of all other men. It has reconstituted dialogue on a global scale. Its message is Total Change, ending psychic, social, economic, and political parochialism. . . . Ours is a brand-new world of allatonceness. 'Time' has ceased, 'space' has vanished. We now live in a *global village* . . . a simultaneous happening."

Marshall McLuhan et al., *Medium is the Massage*, 1967
"After three thousand years of explosion, by means of fragmentary and mechanical technologies, the Western World is imploding, .... after more than a century of electric technology, we have extended our central nervous system itself in a global embrace, abolishing both space and time ... we approach the final phase of the extensions of man—the technological simulation of consciousness."

"[Broadcast] serves only to remind us how bound and gagged we are—how tied to the limits of time and space that angels travel in an instant ..."

"anyone can transmit any amount of information, any experience, any opportunity to anyone or everyone, anywhere, at any time, instantaneously, without barriers of convenience or cost, the resulting transformation becomes a transfiguration. The powers it offers us bring us back to the paradigms of paradise."

— George Gilder, Telecosm 2002
"The singularity is technological change so rapid and so profound that it represents a rupture in the fabric of human history. Some would say that we cannot comprehend the singularity."

-Ray Kurzweil, http://www.kurzweilai.net/
"We are as Gods, and might as well get good at it."
Stewart Brand, *Whole Earth Catalogue*
"We cannot say whether the society of the computer will give us the latter-day capitalist or the commissar, but it will give us the technician and the bureaucrat.

... towards a much greater degree of organization and control."

—Heilbroner
looking back
determined mistakes

necessary vs sufficient
new vs old
technology vs institution
constraint vs resource

getting your history wrong
generalizing from a limited case
faulty causality

Nunberg fallacy
determined mistakes

necessary vs sufficient
"Is industrial technology the necessary and sufficient condition for capitalism?" — Heilbroner

going soft?

the handmill produces feudalism?

couldn't have feudalism without handmill?

once the handmill was superseded, feudalism was in trouble?
There are persons who can write not illegibly in pencil, but are as enigmatic as Rufus Choate or Horace Greeley when they take up the pen. There are persons too lazy to resort to ink and pen who can conquer their besetting sin enough to make a few dabs with a pencil. Living must have been more laborious before the pencil age. Blue pencil, red pencil, what should we do without them? Yet writing with one’s own hand seems to be disappearing, and the universal typewriter may swallow all. Librarians of a century or two hence may be searching for the last reference to pencils.

New York Times 1938
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New York Times 1938
Israeli Entrepreneur Plans a Free Global University That Will Be Online Only

we can make a free university for students all over the world, anyone who speaks English and has an Internet connection

January 26, 2009
It didn’t take much vision to figure out that unlimited perfect copyability, with global reach and at zero marginal cost, was slowly transforming the printing press into a latter-day steam engine. And once that became obvious, we said so, over and over again, all the time. We said it in public, we said it in private. We said it when newspapers hired us as designers, we said it when we were brought in as consultants, we said it for free. We were some tiresome motherfuckers with all our talk about the end of news on paper. And you know what? The people who made their living from printing the news listened, and then decided not to believe us.

Clay Shirky, boingboing, Dec 2008
determined mistakes

getting your history wrong
getting your history wrong

"All the technical elements ... have been available ... since da Vinci."

true?

3,500 bce wheel
1818 first French, German, & English patents
1839 pedals (Scotland)
1869 bearings,
1877, chain drive
1888 Dunlop tyres with Goodyear rubber
1891 removable tyre
1897 derailleur
"The bicycle drawing was discovered in 1974 on the back of a folded sheet of authentic drawings. Dr Lessing sought out an art historian who had examined the same pages in 1961. Alas, Carlo Pedretti remembered no bicycle. Only two circles with curved lines through them. Dr Lessing thinks the forger used the two Leonardo circles as the basis for a doodled bike, sometime after Italian monks began restoring the manuscript in the 1960s."

Because everything in her home is waterproof, the housewife of 2000 can do her daily cleaning with a hose.
looking forward
determined mistakes

unintended consequences
superbugs
ring tunes
reindeer

moral hazard
seatbelts
helmets
naked streets
looking forward
determined mistakes

unintended consequences
superbugs
ring tunes
reindeer

moral hazard
seatbelts
helmets
naked streets
looking forward
determined mistakes

unintended consequences
superbugs
ring tunes
reindeer

moral hazard
seatbelts
helmets
naked streets
determining

what happened?
what did (or didn't) come before?
what did (or didn't) follow?
what contributed?
next up

the technology that did change the world?

29 Jan: The First Technologies of Information: Writing Systems
