

the "age of information"

& the information revolution

history of information

January 24, 2013

administrative matters

wait list

sign up
check with departments
wait

class website

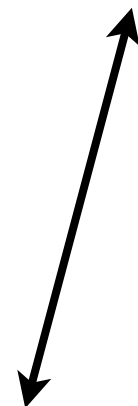
<http://blogs.ischool.berkeley.edu/i103s13/>

class slides

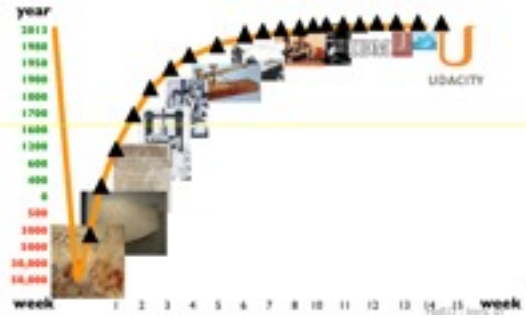
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class reader

Copy Central, 2560 Bancroft Way



overview



- why history matters

- intergenerational
revolution

- revolution

- how do we get from
one to another?

- what's in an age?

- age of
information

age of
information

but first: talking about information *technology*

Pick one of the following and write a (very) brief story or anecdote in which it serves as an "information technology," perhaps in conjunction with other things. Try to make your stories ingenious without being completely implausible. Bring your answer to class for discussion (but no need to hand them in).

a necktie

a blanket

a rubber duckie

a can of beans

a lemon

age of information



IBM Reports

Fortune July 1977

when was that?

Information: there's growing agreement that it's the name of the age we live in.

Human history has long been described in terms of Ages whose names reflect the stages of development through which mankind has passed: the Stone Age, the Bronze Age, the Iron Age and so on — down to the Industrial Age, which established the foundations of our modern society.

Today, there is growing agreement that we have entered a new era, a post-industrial stage of development in which the ability to put information to use has become critical, not only to the essential production of goods, but to efforts to provide a better life for the individual, as well.

This new era is being referred to with increasing frequency as the Information Age.

Information in the Information Age

Changes in our perception of information itself—its nature as well as its scope—have accompanied this profound shift of emphasis in our society.

Much has been written about the so-called "information explosion." It has been pointed out, for example, that the number of technical journals published throughout the world today exceeds 100,000, and that the total body of technical information is now doubling every ten years.

At the same time as the volume of information has been increasing dramatically, our understanding of the meaning of the term information itself has also broadened—to encompass a wide variety of timely data relating to "how things really are" across the whole spectrum of human activity.

Heartbeat, for example, can be extremely meaningful information deduced and analyzed on sophisticated electrocardiogram equipment. Critical impulses reflecting the load level in a power network, or digits representing the availability of a seat for you on an airplane processed by a modern computer.

These and a wide range of similar types of data are clearly recognized as information, the kind of information on which we increasingly de-

pend for the growth and health of our economy, the smooth functioning of our institutions — and, even more important, for the quality of our individual lives.

Information — an inexhaustible resource

Information is one of the few resources not in danger of exhaustion on this shrinking planet. It is unique because the supply is limitless, because it actually becomes more valuable with use and because—when properly managed and applied—it can greatly enhance our use of all our other resources, natural, human and economic.

One reason, of course, that information has proved to be such a dynamic resource is the fact that there exists today a remarkable technological capacity for dealing with it rapidly and effectively.

Through a vast array of electronic tools and techniques, mankind is able to accumulate, organize, store, interpret, retrieve and transmit information on a worldwide scale, in a volume, at a speed, and with an accuracy that would have been impossible barely two decades ago.

It is also a technology that continues to grow and that has proved to be amazingly efficient in economic terms. As advance has followed advance, the cost of processing information has steadily declined. Since the 1950s, the cost of performing 100,000 calculations on an IBM computer has fallen from \$1.26 to less than one cent—and the downward trend continues.

Putting information to work for people

IBM makes many different products—from computers to copiers—but clearly, the essence of our business is information.

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IBM





earlier yet

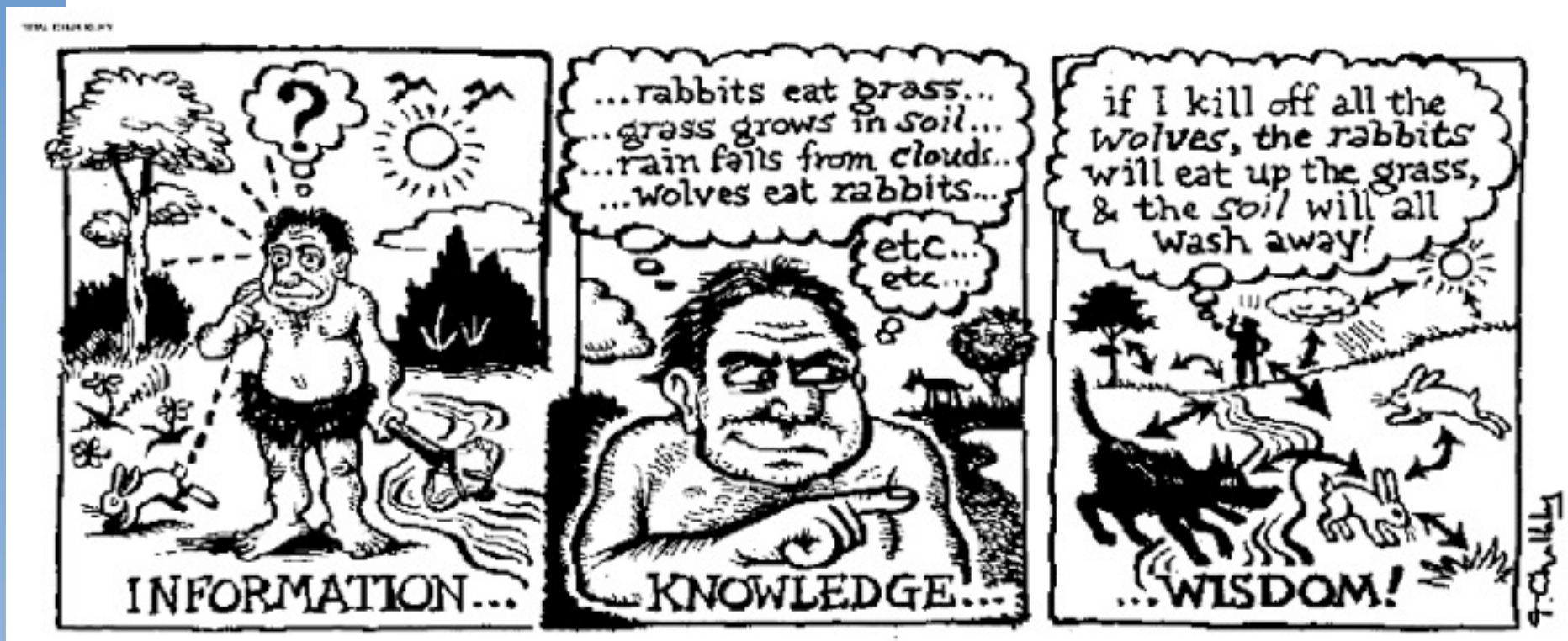
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... our current translation of our entire lives into the spiritual form of information ... make the entire globe ... a single consciousness

1964



or is information never a changing



there's growing agreement that ...

self-conscious age of information

"In the long run, history is the story of
information becoming aware of itself."

-- James Gleick,
The Information, 2011

**When did society become "aware"
of living in an "age of information"?**

growing agreement?



2-Hofl | 3-Age-of-Info | 1



Vicesimus Knox
1752–1821

another opinion

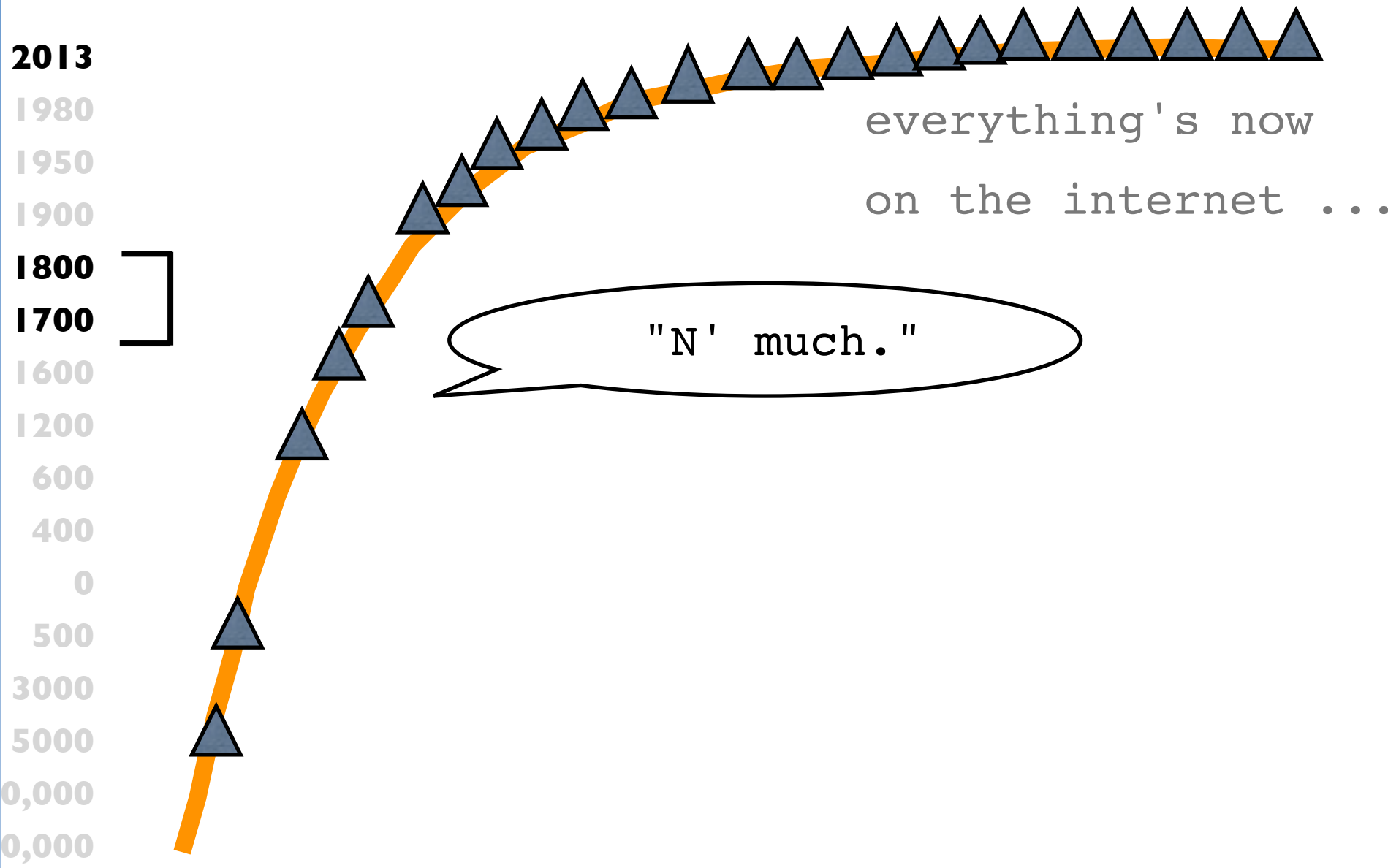
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Essays Moral and Literary, 1778



"Wassup, Bro?"

quiet times?





what was going on?

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newspapers, public opinion [coming up, Feb 19]

organization of knowledge

Chambers, Diderot, Smellie [coming up, Feb 21]

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[coming up, today]

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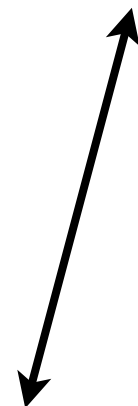
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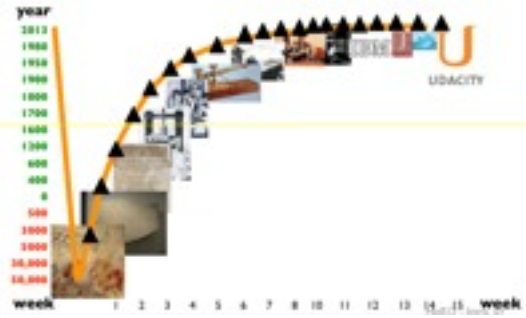
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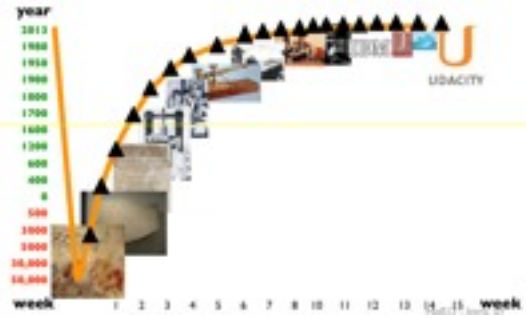
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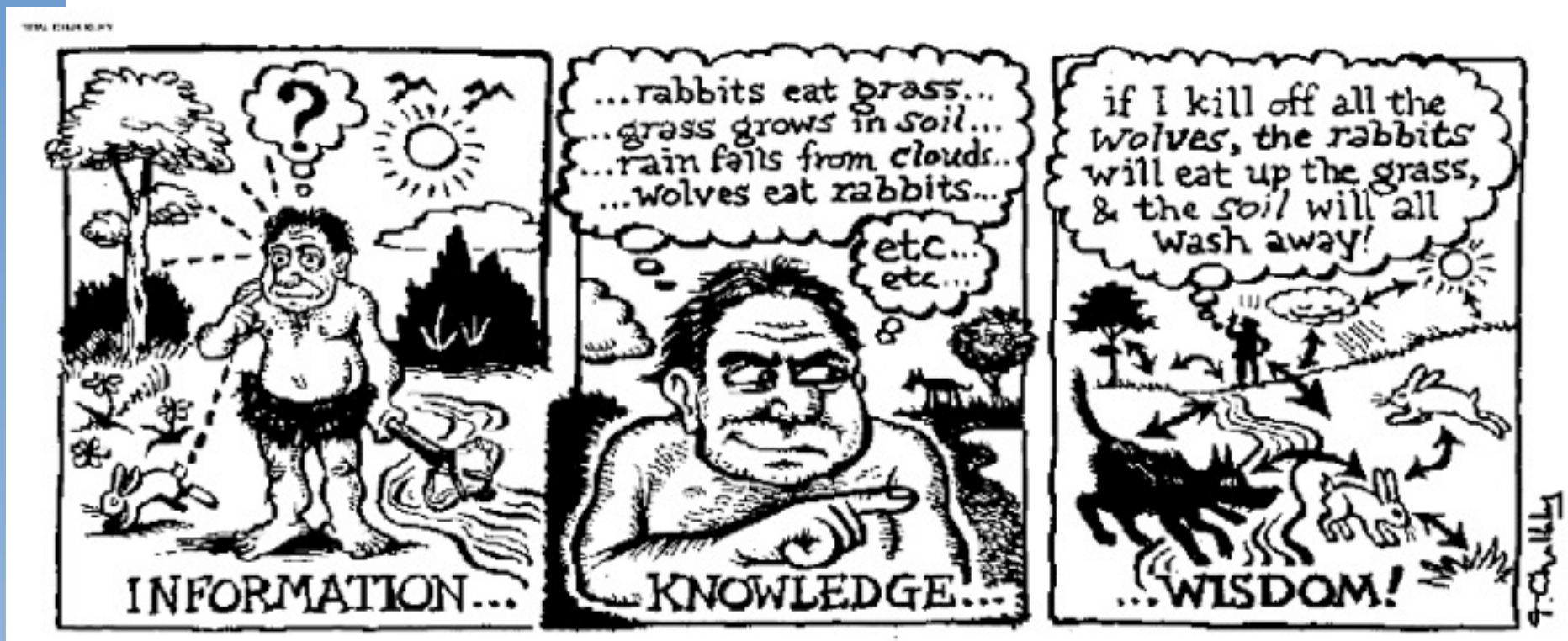
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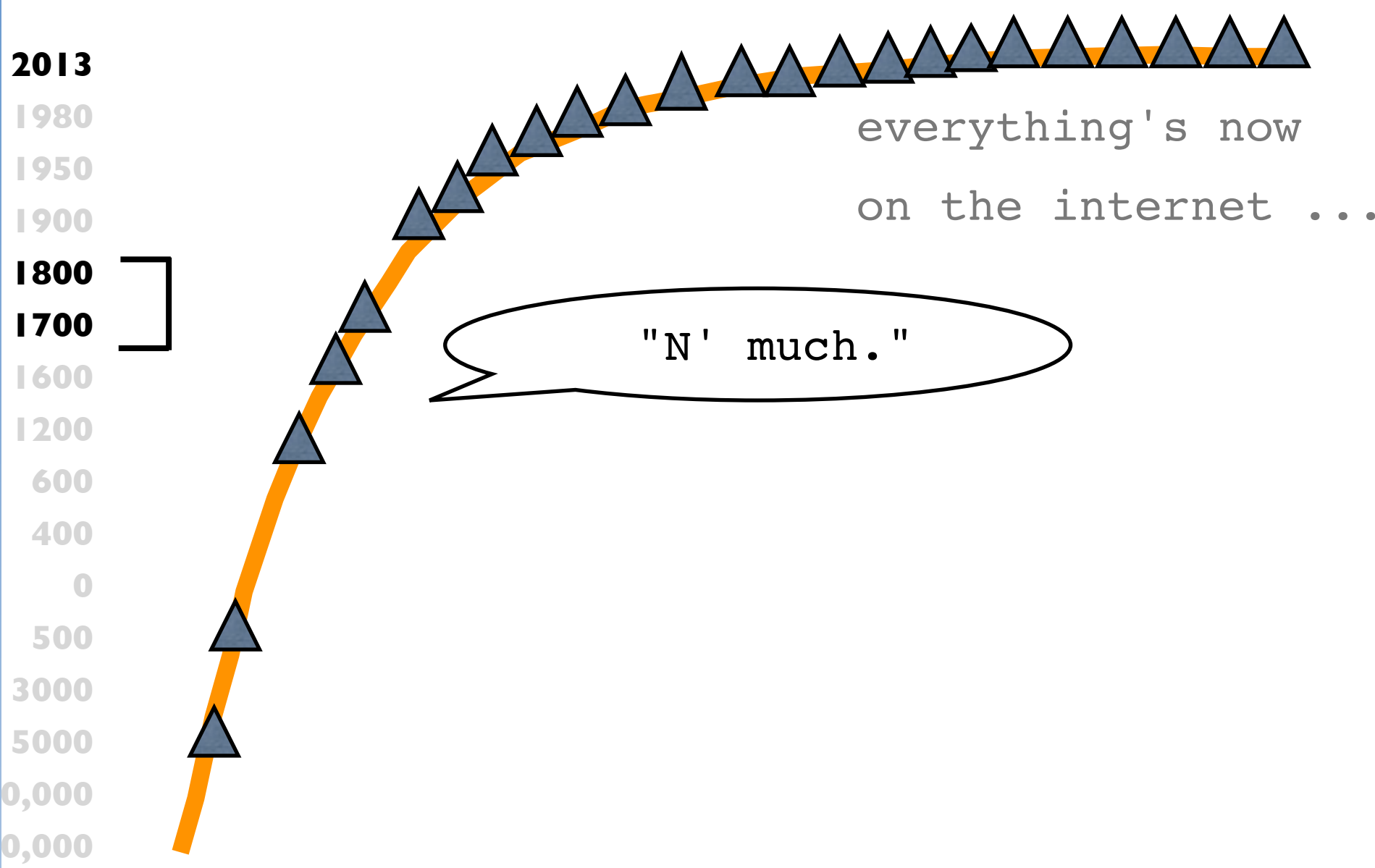
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what's in an age?

ages past

stone

bronze

iron

steel

plastic

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"Not an Heroical,
Devotional,
Philosophical, or
Moral Age, but
above all others
the Mechanical Age.
It is the Age of
Machinery."

-- Thomas Carlyle,
"Sign of the Times"
1829



Thomas Carlyle
1795–1881

what's in an age?

ages past

hunter-gatherer

husbandry

manufacturing

commerce

(A. Smith, 1776)

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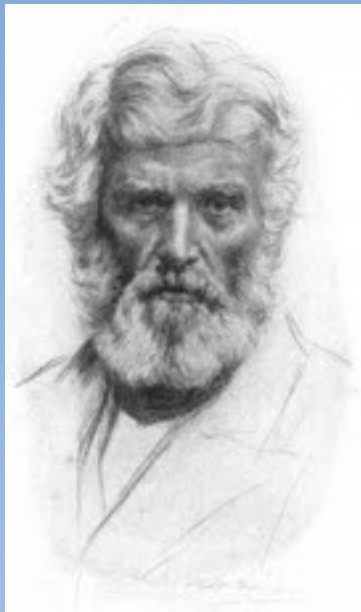
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post-industrial

D. Bell, 1973

what's in an age?

ages past

classical

dark

middle

modern

postmodern

what's in an age?

ages past

classical

renaissance

dark

reformation

middle

enlightenment

modern

postmodern

"accelerating pace of change"?

first wave

second wave

third wave

Alvin Toffler,
The Third Wave, 1980

"accelerating pace of change"?

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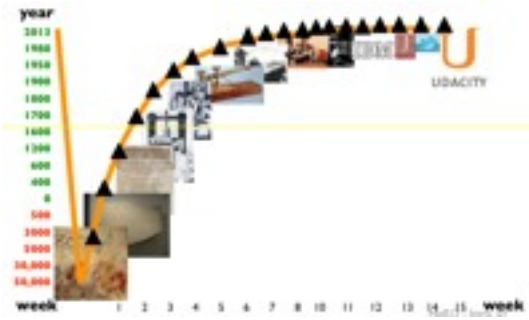
real acceleration?

Table 1.1. Modern societal transformations identified since 1950

Year	Transformation	Sources			
1950	Lonely crowd	Riesman 1950			
	Posthistoric man	Seidenberg 1950			
1953	Organizational revolution	Boulding 1953			
1956	Organization man	Whyte 1956			
1957	New social class	Djilas 1957; Gouldner 1979			
1958	Meritocracy	Young 1958			
1959	Educational revolution	Drucker 1959			
	Postcapitalist society	Dahrendorf 1959			
1960	End of ideology	Bell 1960			
	Postmaturity economy	Rostow 1960			
1961	Industrial society	Aron 1961; 1966			
1962	Computer revolution	Berkeley 1962; Tomeski 1970; Hawkes 1971			
	Knowledge economy	Machlup 1962; 1980; Drucker 1969			
1963	New working class	Mallet 1963; Gintis 1970; Gallie 1978			
	Postbourgeois society	Lichtheim 1963			
1964	Global village	McLuhan 1964			
	Managerial capitalism	Marris 1964			
	One-dimensional man	Marcuse 1964			
	Postcivilized era	Boulding 1964			
	Service class society	Dahrendorf 1964			
	Technological society	Ellul 1964			
			1967	New industrial state	Galbraith 1967
				Scientific-technological revolution	Richta 1967; Daglish 1972; Prague Academy 1973
			1968	Dual economy	Averitt 1968
				Neocapitalism	Gorz 1968
				Postmodern society	Etzioni 1968; Breed 1971
				Technocracy	Meynaud 1968
				Unprepared society	Michael 1968
			1969	Age of discontinuity	Drucker 1969
				Postcollectivist society	Beer 1969
				Postideological society	Feuer 1969
			1970	Computerized society	Martin and Norman 1970
				Personal society	Halmos 1970
				Posteconomic society	Kahn 1970
				Postliberal age	Vickers 1970
				Prefigurative culture	Mead 1970
				Technetronic era	Brzezinski 1970
			1971	Age of information	Helvey 1971
				Communications	Oettinger 1971

J. Beniger, *Control Revolution*, 1986

overview



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new needs?

"[I]n order to satisfy the **new needs for information** and education, more books, ...and soon newspapers were required."

Lucien Febvre & Henri-Jean Martin
The Coming of the Book, 1984





evolutionary needs?

"The **need** for readily available information, which had been steadily rising, was accelerated by the advent of Christianity ..."

"The **need to find information** more rapidly than is possible in a papyrus-roll-form book initiated the development of the Greco-Roman codex in the second century ..."

-- Frederick Kilgour,
*The **Evolution** of the Book*, 1998

evolutionary response?

"Printed books **evolved** into
better-designed packages of information."

-- Paul Grendel,
*Cambridge History of
Renaissance Philosophy* 1988





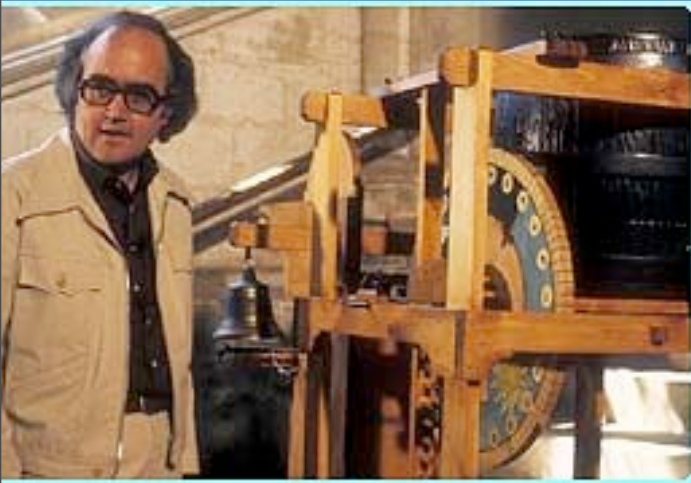
cause or effect?

"glittering proof that a **new** information age was dawning in Europe, fuelled by the power of the printed word."

--Stephen Fry,
The Machine That Made Us.
BBC 2008
[veoh.com]
[youtube]

[coming up "Print revolution"- 12 Feb]

dawn to revolution



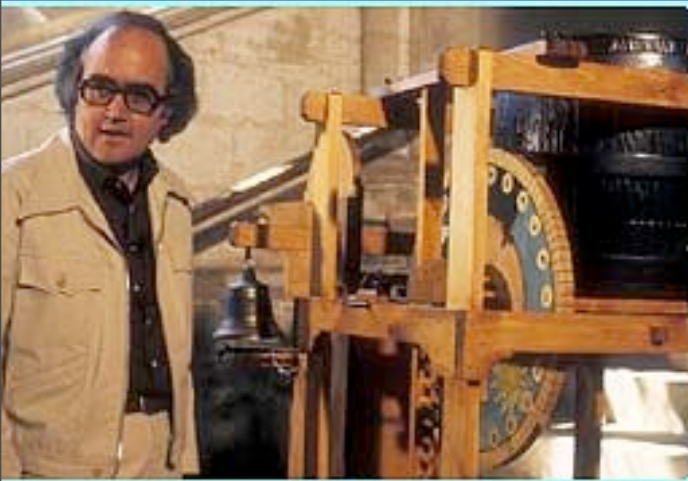
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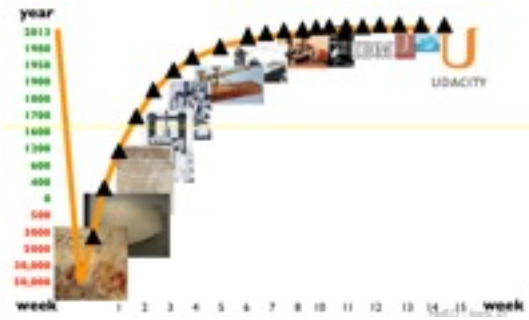
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BBC 1986 [UC Media Center]

"The original revolution in information technology came not with the microchip, but with the printing press. Johannes Gutenberg's invention in 1440 ... was a spark for the Industrial Revolution in 1755.

Nate Silver, *The Signal & the Noise: Why So Many Predictions Fail ... but Some Don't*, 2012.

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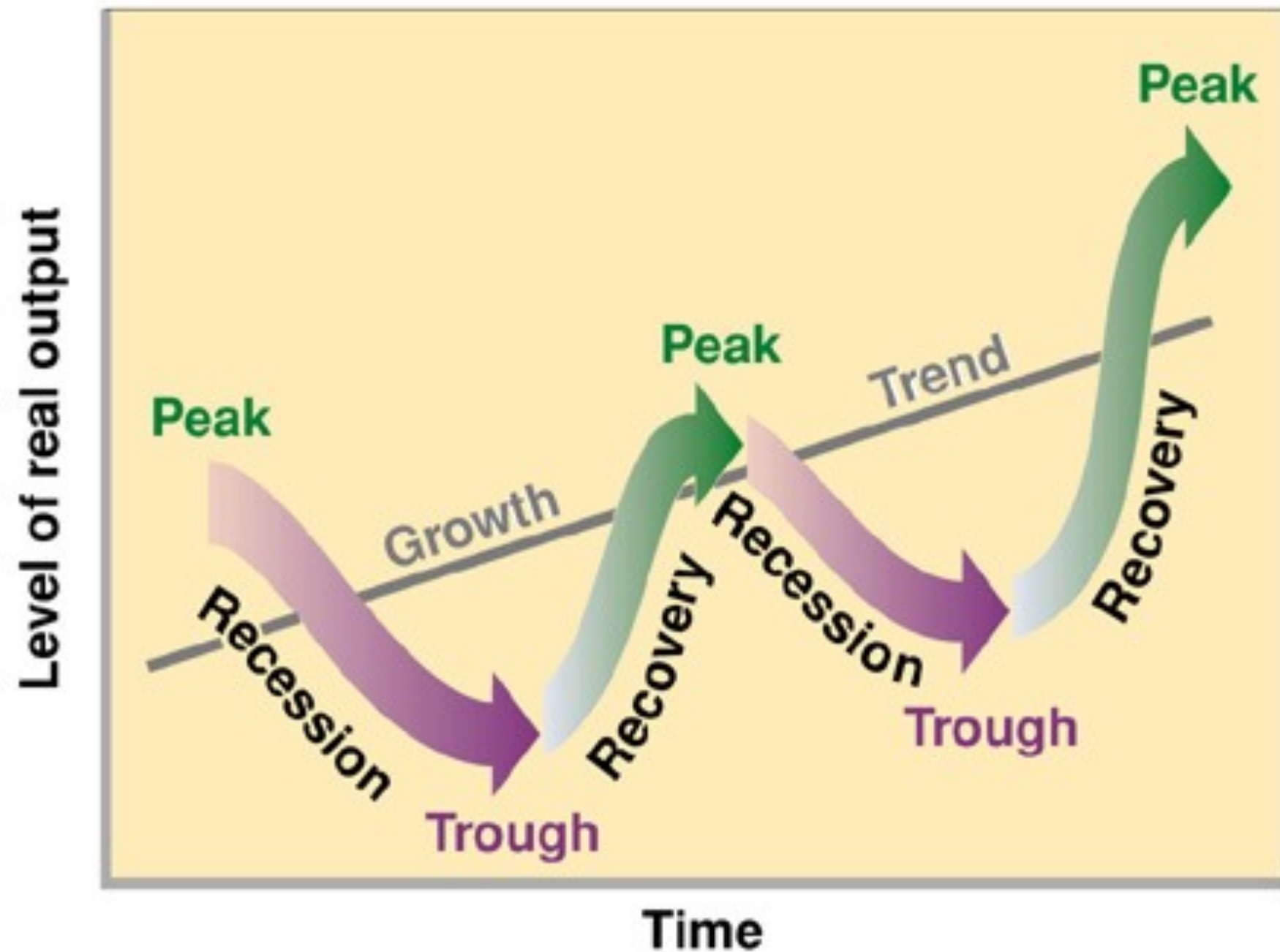
age of
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**what does it
look like?**



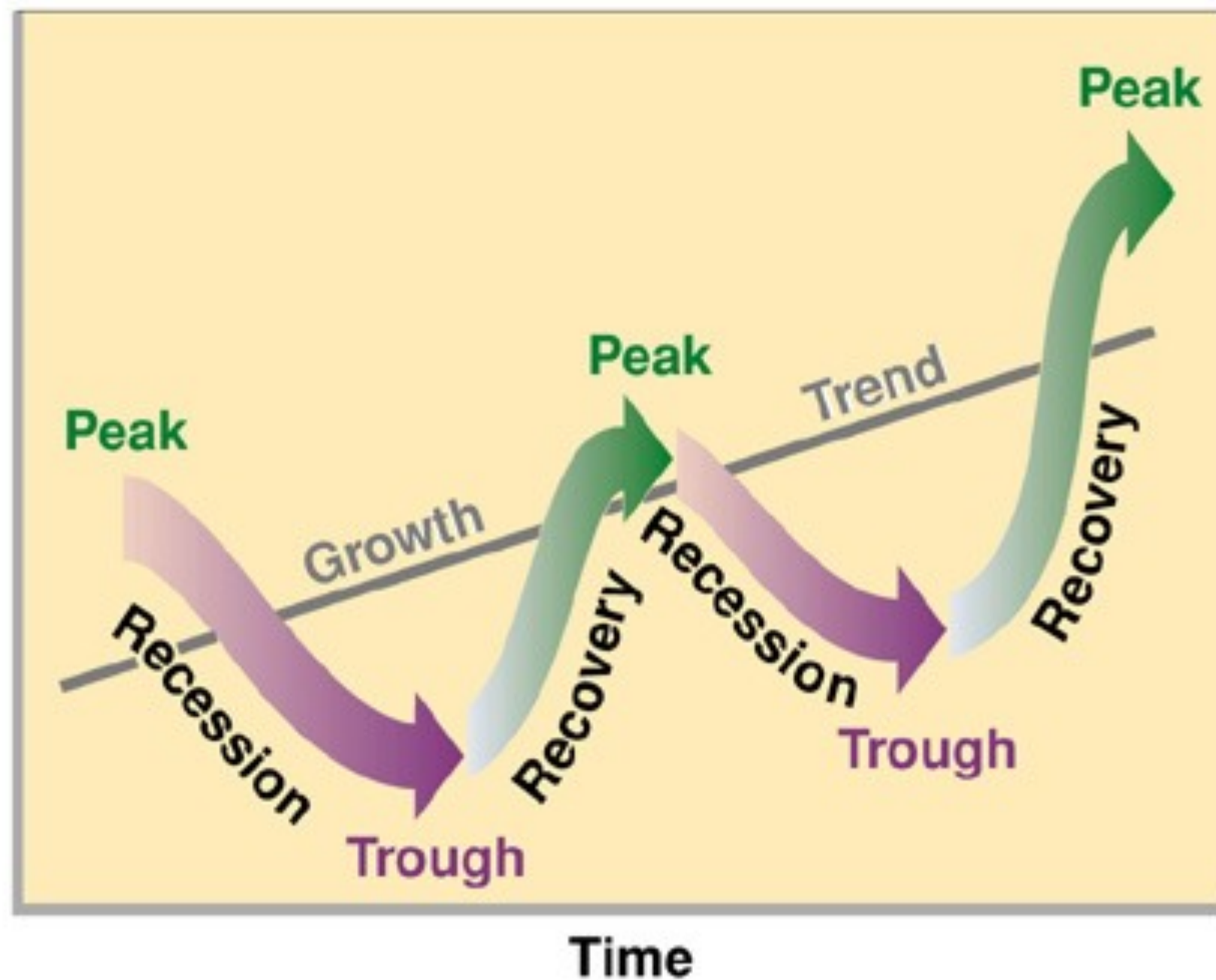
still around?



still around?

THE
MASTER
SWITCH
THE RISE AND FALL OF INFORMATION EMPIRES
TIM WU

Level of real output





John Evelyn
1620–1706



William Wordsworth
1770–1850

what does it looke like?

an English perspective:

- going round in circles: 1640-1660

gaining direction? "Glorious Revolution" (1688)

"The Popists in offices lay down their
Commissions and flie: *it lookes like a*
Revolution." -- John Evelyn, *Diary*, 1688

an Anglo-French perspective:

"a Pope/is summoned in, to crown an emperor ...
the dog/Returning to his vomit ..."

--William Wordsworth, *Prelude*, 1805

what does it look like?

all much the same?

English

American

French

Haitian

Russian

Iranian

Tunisian/Egyptian/Syrian ...

--Jacques Ellul,
Autopsie de la Revolution, 1969

PRÉFACE

permanent revolution?

*R*évoltes, révolutions, émeutes, rébellions, émotions, guerres civiles, coups d'État, l'histoire entière en est tissée¹. La vie de l'homme en est faite. Non point accident mais constante, non

1. L'histoire en est tissée... Prenons quelques exemples : le XVII^e siècle : 1601 à 1610, « le temps des troubles » série de révoltes en Russie; 1610, révolte des Sikhs; 1620-1630, révolte chinoise contre les Mings; 1631, soulèvement de Dijon et d'Aix-en-Provence; 1635, soulèvement de Bordeaux; 1636, révolte des Croquants; 1637, révolte d'Awa Kousa au Japon; 1639, révolte des Nu-pieds; 1640 à 1644, révoltes contre les Mings, aboutissant à la chute de la dynastie; 1640, révolte de la Catalogne contre l'Espagne qui ne s'achève qu'en 1652; et la même année, 1640, débute aussi la révolution du Portugal, qui restera, latente ou explosive, permanente jusqu'en 1668; 1641, année de troubles très généralisés, révoltes paysannes en Irlande, Suisse, Allemagne, Russie; 1643, révolte du Rouergue; 1645, révolte de Montpellier; 1647, révolte de Masaniello à Naples, contre le vice-roi espagnol, pendant un an; 1648 est également une année forte pour les révolutions : révolution d'Angleterre commencée en 1640 mais qui se développe de 1648 à 1653 tout particulièrement, et dont on a dit qu'elle était peut-être « la première grande révolution bourgeoise des temps modernes »; la Fronde en France, de 1648 à 1652; l'insurrection d'Ukraine, de 1648 à 1654; les émeutes populaires en Russie, dans cette même année, à Moscou, Koslov, Tomsk, etc.; la révolte hindouiste des Mahrattes contre les envahisseurs mongols, toujours en 1648; en 1649, la révolte de Moscou qui reprend; 1650, émeute de Novgorod et coup d'État de Guillaume de Hollande; 1653, guerre paysanne de Suisse; 1662, révolte du Boulonnais, révolte de Moscou pour un problème monétaire; 1664-1670, la grande rébellion d'Audijos; 1670-1671, la grande révolte de Stenka Razin et le soulèvement paysan de Bohême;

point trouble mais mouvement apporté dans le cours paresseux de l'histoire.

Il n'y a pas un exceptionnel de la révolution opposé à un normal ou à une règle de la vie des peuples, des pouvoirs, des civilisations. Ne nous contentons pas des schémas historiques qui nous parlent de 1649, de 1785, de 1917 : alors, scrutant les événements d'un peu plus près, voici que nous constatons dans les faits cette permanence de la révolution parmi les hommes. Il est vain de chercher une division entre des périodes calmes et des périodes troublées. La révolution est moins la locomotive que l'un des éléments de la chaîne invisible du tissu des civilisations.

Mais nous nous trouvons immédiatement arrêté par un souci formel de définition. Que disons-nous au travers de ce mot révolution? Qu'entendra l'autre dans ces quatre syllabes? « Le devoir de tout chrétien est d'être révolutionnaire », proclama Camilo

1673 à 1681, le soulèvement considérable du nord-est de la Chine; 1675, nouvelle année d'abondance : révoltes dites du papier timbré en Bretagne et à Bordeaux, accroissement des rébellions sikhs et mahrattes, et aussitôt après la révolte religieuse des Camisards; 1679, la révolution d'Irlande.

Prenons une autre période : de 1770 à 1850. Là encore nous constatons émeutes, rébellions, révoltes, révolutions dans le monde entier. 1768, révolution démocratique de Genève; 1770 à 1783, la révolution américaine, à la suite de sa guerre contre la Grande-Bretagne; 1772, révolution royale en Suède; 1780 à 1783, révoltes multiples en Angleterre et en Irlande, grande révolte des Indiens du Pérou; 1781, insurrection de Nouvelle-Grenade, révolution à Fribourg, et de nouveau à Genève en 1782; 1783 à 1787, révolution aux Provinces-Unies avec diverses orientations; 1787-1790, révolution des Pays-Bas autrichiens; 1788-1794, révolte de Guyane, révolution polonaise; 1789, début de la révolution française, démocratisation du régime en Suède; 1791, révolution polonaise; 1792, reprise de la révolution belge et révolution rhénane, révolte généralisée dans les Antilles; 1794, émeutes en Irlande; 1795, révolution en Hollande et à Genève, émeutes à Londres, Birmingham, etc., à Constantinople, à Smyrne; 1796, révolution dans les États italiens; 1797, mutinerie des flottes anglaises; 1798, révolution en Suisse et en Irlande; 1799, révolte des îles Ioniennes et de Malte; 1810, révolution des colonies espagnoles qui s'achèvera par la reconnaissance de leur indépendance en 1825; et de 1810 également à 1829, guerre pour l'indépendance des peuples balkaniques; 1820, révolution d'Italie, et d'Espagne; 1821, révolution grecque, et 1830, grande flambée révolutionnaire en France, en Belgique, en Pologne... en attendant 1848.

--Jacques Ellul,
Autopsie de la Revolution, 1969

PRÉFACE

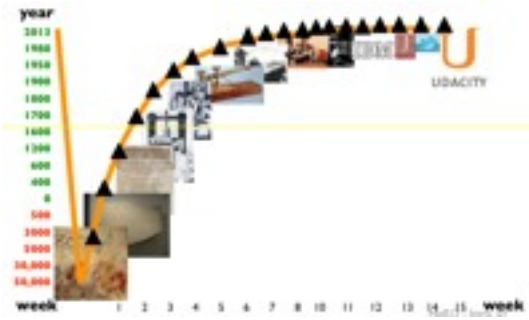
permanent revolution?

*R*évoltes, révolutions, émeutes, rébellions, émotions, guerres civiles, coups d'État, l'histoire entière en est tissée¹. La vie de l'homme en est faite. Non point accident mais constante, non

1. L'histoire en est tissée... Prenons quelques exemples : le XVII^e siècle : 1601 à 1610, « le temps des troubles » série de révoltes en Russie; 1610, révolte des Sikhs; 1620-1630, révolte chinoise contre les Mings; 1631, soulèvement de Dijon et d'Aix-en-Provence; 1635, soulèvement de Bordeaux; 1636, révolte des Croquants; 1637, révolte d'Awa Kousa au Japon; 1639, révolte des Nu-pieds; 1640 à 1644, révoltes contre les Mings, aboutissant à la chute de la dynastie; 1640, révolte de la Catalogne contre l'Espagne qui ne s'achève qu'en 1652; et la même année, 1640, débute aussi la révolution du Portugal, qui restera, latente ou explosive, permanente jusqu'en 1668; 1641, année de troubles très généralisés, révoltes paysannes en Irlande, Suisse, Allemagne, Russie; 1643, révolte du Rouergue; 1645, révolte de Montpellier; 1647, révolte de Masaniello à Naples, contre le vice-roi espagnol, pendant un an; 1648 est également une année forte pour les révolutions : révolution d'Angleterre commencée en 1640 mais qui se développe de 1648 à 1653 tout particulièrement, et dont on a dit qu'elle était peut-être « la première grande révolution bourgeoise des temps modernes »; la Fronde en France, de 1648 à 1652; l'insurrection d'Ukraine, de 1648 à 1654; les émeutes populaires en Russie, dans cette même année, à Moscou, Koslov, Tomsk, etc.; la révolte hindouiste des Mahrattes contre les envahisseurs mongols, toujours en 1648; en 1649, la révolte de Moscou qui reprend; 1650, émeute de Novgorod et coup d'État de Guillaume de Hollande; 1653, guerre paysanne de Suisse; 1662, révolte du Boulonnais, révolte de Moscou pour un problème monétaire; 1664-1670, la grande rébellion d'Audijos; 1670-1671, la grande révolte de Stenka Razin et le soulèvement paysan de Bohême;

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1637	Japan: Awa Kousa
1639	France: Nu-pieds
1640-44	China: against the Ming
1640	Spain: Catalonia
1640-88	Portugal (against Spain)
1641	Ireland, Switzerland, Germany, Russia
1643	France: Rouergue
1645	France: Montpellier
1647	Italy: Naples (against Spain)
1648-54	England
1648	France: Fronde
1648-54	Ukraine, Moscow, Koslov, Tomsk; Maharatta (Hindus against Mongols)
1649	Russia: Moscow
1650	Russia: Novgorod; Holland
1653	Switzerland
1653	Russia: Moscow
1664-70	France: Audijos
1670-71	Russia/Azerbaijan: Stenka Razin; Bohemia
1673-81	China
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overview



- why history matters

- intergenerational
revolution

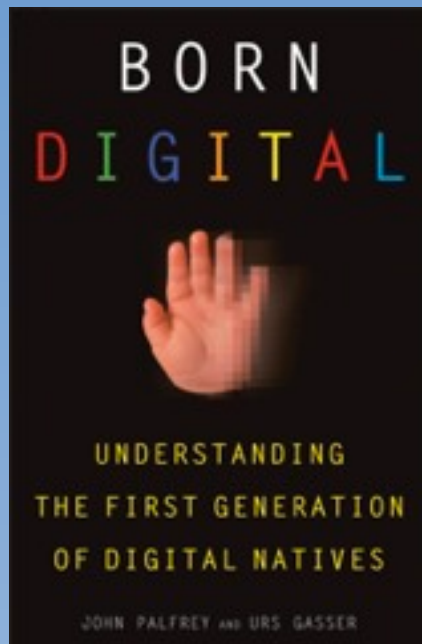
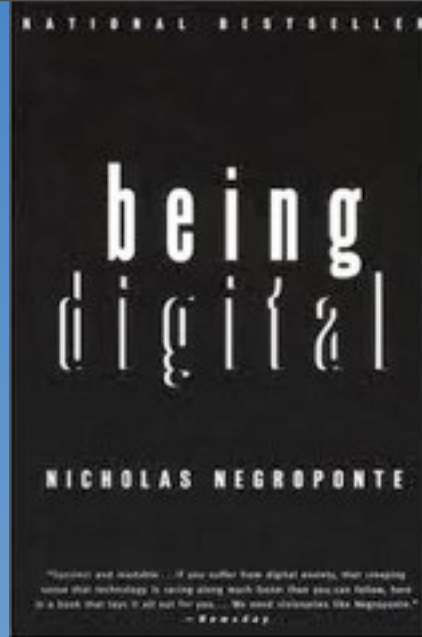
- revolution

- how do we get from
one to another?

- what's in an age?

- age of
information

age of
information



short duree?

The Keyboard Becomes a Hangout For a Computer-Savvy Generation

By JOHN MARKOFF

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Encountering
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digital natives

"Today's students think and process information fundamentally differently, and these differences...run much deeper than most educators would like to have it."

--Edith Ackermann,

"Anthropology of Digital Natives" 2008

2-Hof113-Age-of-Info 33

The Children of Cyberspace: Old Fogies by Their 20s

By BRAD STONE

Published: January 9, 2010

The New York Times

newly new

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move over M¹

Generation M²:

Media in the Lives of 8 to 18-year olds.

"Five years ago, we reported that young people spent an average of nearly 6-1/2 hours (6:21) a day with media—and managed to pack more than 8-1/2 hours (8:33) worth of media content into that time by multitasking. At that point it seemed that young people's lives were filled to the bursting point with media. Today, however, those levels of use have been shattered.

"<http://www.kff.org/entmedia/upload/8010.pdf>

2-Hof113-Age-of-Info 35



permanent revolution?

children of the depression

baby boomers

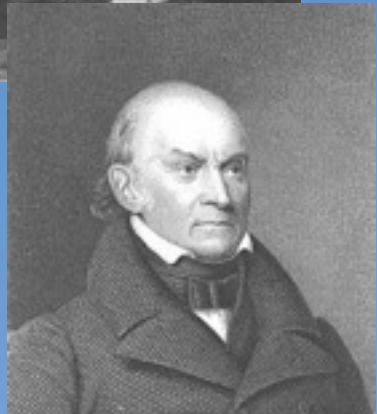
generation x

generation y

generation m^1

generation m^2

... generation m^n



Henry Adams
1838–1918

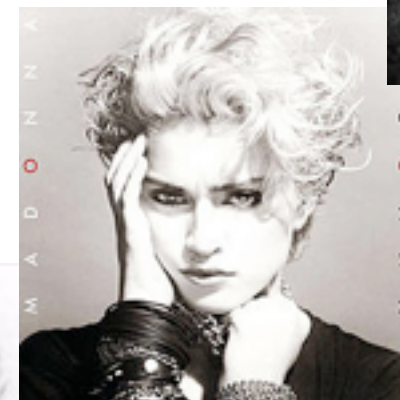
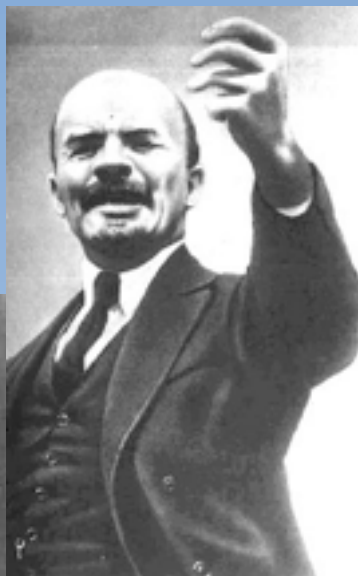
looking back

"Only on looking back ... 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."

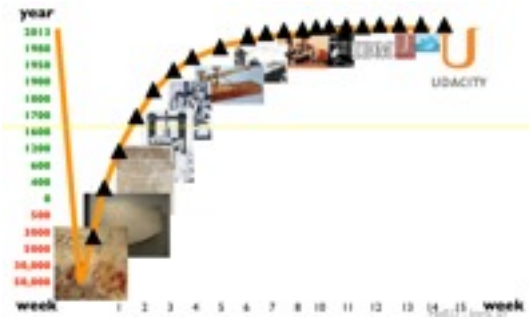
--Henry Adams,
The Education of Henry Adams [1905]

2-Hof113-Age-of-Info 37

generational paradox?



overview



- why history matters

- intergenerational
revolution

- revolution

- how do we get from
one to another?

- what's in an age?

- age of
information

age of
information



what's going on?

everything's now on the internet ...

we are dumbing down for technology ...

my desktop is made to sedate me ...

the age of information is hell ...

information has hurt the race ...

the human race has not progressed as much as we
should be ...

How come the human race isn't progressing as fast
as technology?

Yea we're going to be staying on the moon

But there's still going to be racists

...are we really winning

what's going on?

2-Hof113-Age-of-Info 40



looking back to find ourselves

the same? different? better? worse?

how would we know?



Rudyard Kipling
1865–1936

looking back to find ourselves

the same? different? better? worse?

how would we know?

"What should they know of England
Who only England know?"

-- Rudyard Kipling

"The English Flag," 1899



Rudyard Kipling
1865-1936

looking back to find ourselves



Rudyard Kipling
1865–1936

the same? different? better? worse?

how would we know?

"What should they know of England
Who only England know?"

-- Rudyard Kipling

"The English Flag," 1899

what should we know of our "age"

who . . .?



dangerous pastime?

"Mao urged the emulation of ... an emperor [Qin Shi Huang] who had advocated eliminating anyone who used history to criticise the present. [Huang] 'buried 460 scholars but we buried 46,000.'"

James C. Scott, "Tyranny of the Ladle", 2012

hence

talk of *revolution, transformation, rupture, coupure,*

2.0

and a challenging pastime?

like learning cricket?

"The past is a foreign country.
They do things differently there."

--L.P. Hartley,
The Go-Between, 1953



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

Plato

Trithemius

Sprat

Addison

Steele

Knox

Johnson

Harrison

Morse

Babbage

Henry

Bell

Marshall

Bush

central themes

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Victorian England:

Portrait of an Age, 1960

gauging what people felt

even 2005?

To coincide with this year's Reith Lectures, entitled the **Triumph of Technology**, You and Yours asked what has been the most significant technological innovation since 1800.

From the hundreds of listeners' nominations and together with our five experts, voting was opened on a final 10. Here are the results...

[http://www.bbc.co.uk/radio4/youandyours/technology_launch.shtml]

what about 2013?

the *Wired* view

10 gadgets that changed the world



most significant



59.4% - Bicycle

7.8% - Transistor

7.8% - Electro-magnetic induction ring

6.3% - Computer

4.6% - Germ theory of infection

4.5% - Radio

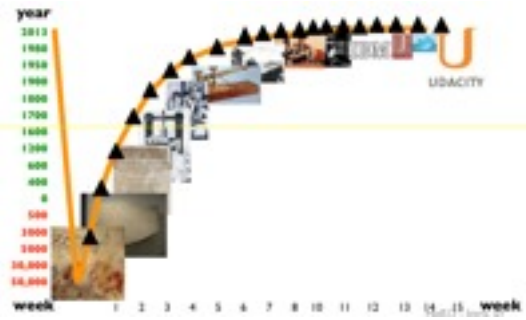
4.0% - Internet

3.4% - Internal Combustion Engine

1.1% - Nuclear Power

1.1% - Communications satellite

overview



- why history matters

- intergenerational
revolution

- revolution

- how do we get from
one to another?

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information

where
we've
been

and where we're going:

age of
information



coming up

reading

29 Jan: Technological Determinism

Required Reading

- McLuhan, Marshall. 1964. *Understanding Media*. New York: McGraw-Hill.
read pp. v-x ["Preface to third printing,"] & pp. 3-21 ["Introduction," & "The Medium is the Message"].
- Williams, Raymond. 1974. *Television and Cultural Form*. New York: Schocken Books.
read pp. 9-19 [chapter 1, introduction and sections a & b] & pp. 126-128 [chapter 5, section c].

Note: the Williams chapters are in reverse order in the reader (ch 5 comes before ch 1).

due via bspace 5 pm Sunday Jan 27

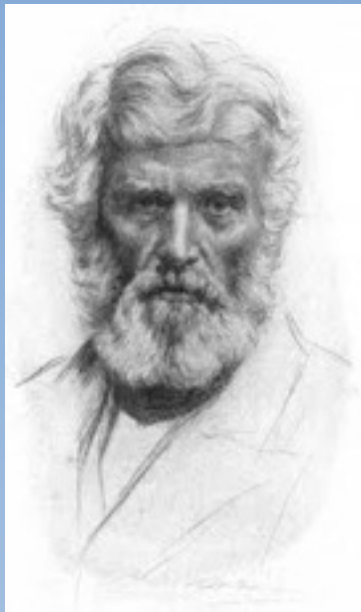
- answer the questions
- provide citations
- proofread your answer

assignment

McLuhan writes that "any technology gradually creates a totally new human environment" [vi] and "any child can list the effects" [vii] of new technologies. "Effects" of the medium are irresistible and unavoidable. Williams suggests that ideas of "effects" mask "unresolved historical and philosophical questions" [9] and such lists would be "superficial" [9] or even "ludicrous"[128] (He also predicted McLuhan would be "unlikely to last long" [128].) Who do you think is right? Why?

"Not an Heroical,
Devotional,
Philosophical, or
Moral Age, but
above all others
the Mechanical Age.
It is the Age of
Machinery."

-- Thomas Carlyle,
"Sign of the Times"
1829



Thomas Carlyle
1795–1881

what's in an age?

ages past

hunter-gatherer

husbandry

manufacturing

commerce

(A. Smith, 1776)

mechanical

T. Carlyle, 1829

post-industrial

D. Bell, 1973

what's in an age?

ages past

classical

renaissance

dark

reformation

middle

enlightenment

modern

postmodern

"accelerating pace of change"?

first wave

agrarian revolution

second wave

industrial revolution

third wave

information revolution

Alvin Toffler,
The Third Wave, 1980

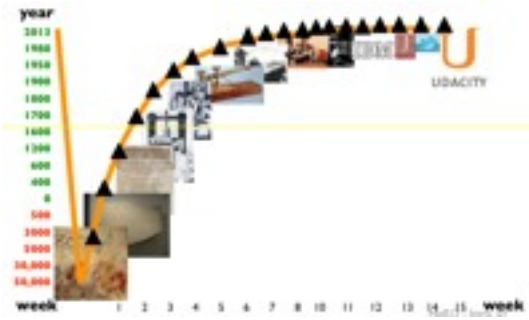
real acceleration?

Table 1.1. Modern societal transformations identified since 1950

Year	Transformation	Sources			
1950	Lonely crowd	Riesman 1950			
	Posthistoric man	Seidenberg 1950	1967	New industrial state	Galbraith 1967
1953	Organizational revolution	Boulding 1953		Scientific-technological revolution	Richta 1967; Daglish 1972; Prague Academy 1973
1956	Organization man	Whyte 1956	1968	Dual economy	Averitt 1968
1957	New social class	Djilas 1957; Gouldner 1979		Neocapitalism	Gorz 1968
1958	Meritocracy	Young 1958		Postmodern society	Etzioni 1968; Breed 1971
1959	Educational revolution	Drucker 1959		Technocracy	Meynaud 1968
	Postcapitalist society	Dahrendorf 1959		Unprepared society	Michael 1968
1960	End of ideology	Bell 1960	1969	Age of discontinuity	Drucker 1969
	Postmaturity economy	Rostow 1960		Postcollectivist society	Beer 1969
1961	Industrial society	Aron 1961; 1966		Postideological society	Feuer 1969
1962	Computer revolution	Berkeley 1962; Tomeski 1970; Hawkes 1971	1970	Computerized society	Martin and Norman 1970
	Knowledge economy	Machlup 1962; 1980; Drucker 1969		Personal society	Halmos 1970
1963	New working class	Mallet 1963; Gintis 1970; Gallie 1978		Posteconomic society	Kahn 1970
	Postbourgeois society	Lichtheim 1963		Postliberal age	Vickers 1970
1964	Global village	McLuhan 1964		Prefigurative culture	Mead 1970
	Managerial capitalism	Marris 1964		Technetronic era	Brzezinski 1970
	One-dimensional man	Marcuse 1964	1971	Age of information	Helvey 1971
	Postcivilized era	Boulding 1964		Communications	Oettinger 1971
	Service class society	Dahrendorf 1964			
	Technological society	Ellul 1964			

J. Beniger, *Control Revolution*, 1986

overview



- why history matters

- intergenerational
revolution

- revolution

- how do we get from
one to another?

- what's in an age?

- age of
information

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information

new needs?

"[I]n order to satisfy the **new needs for information** and education, more books, ...and soon newspapers were required."

Lucien Febvre & Henri-Jean Martin
The Coming of the Book, 1984





evolutionary needs?

"The **need** for readily available information, which had been steadily rising, was accelerated by the advent of Christianity ..."

"The **need to find information** more rapidly than is possible in a papyrus-roll-form book initiated the development of the Greco-Roman codex in the second century ..."

-- Frederick Kilgour,
*The **Evolution** of the Book*, 1998

evolutionary response?

"Printed books **evolved** into
better-designed packages of information."

-- Paul Grendel,
*Cambridge History of
Renaissance Philosophy* 1988





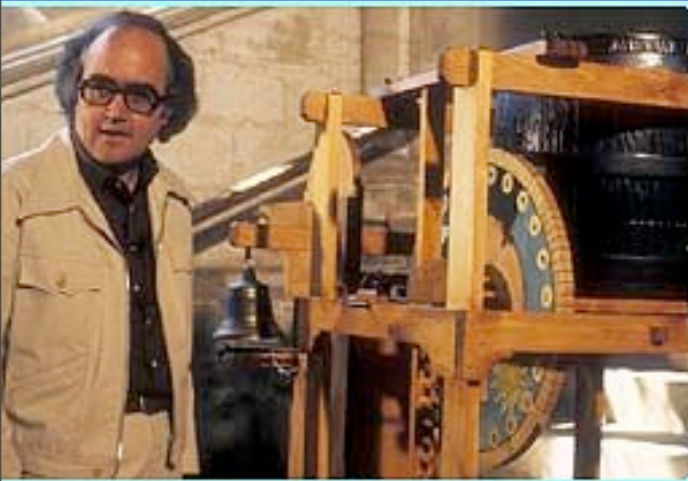
cause or effect?

"glittering proof that a **new** information age was dawning in Europe, fuelled by the power of the printed word."

--Stephen Fry,
The Machine That Made Us.
BBC 2008
[veoh.com]
[youtube]

[coming up "Print revolution"- 12 Feb]

dawn to revolution



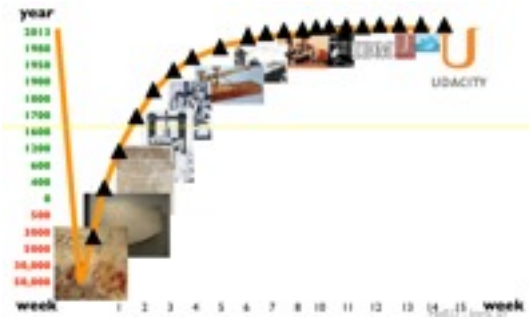
"The day the universe **changed**"

James Burke, *Printing **Transforms** Knowledge*
BBC 1986 [UC Media Center]

"The original revolution in information technology came not with the microchip, but with the printing press. Johannes Gutenberg's invention in 1440 ... was a spark for the Industrial Revolution in 1755.

Nate Silver, *The Signal & the Noise: Why So Many Predictions Fail ... but Some Don't*, 2012.

overview



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revolution

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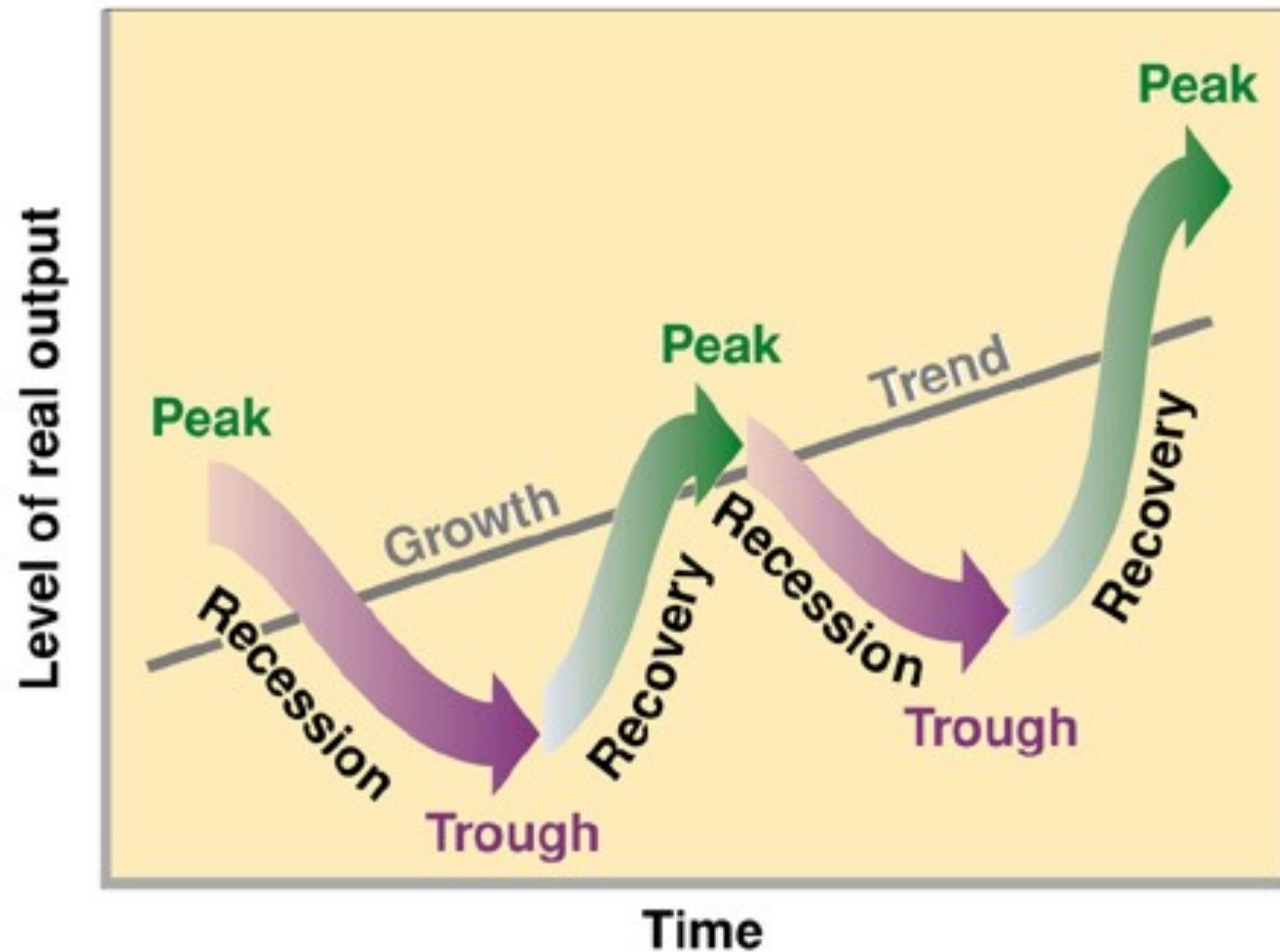
age of
information

revolution?

**what does it
look like?**



still around?





John Evelyn
1620-1706



William Wordsworth
1770-1850

what does it looke like?

an English perspective:

- going round in circles: 1640-1660

gaining direction? "Glorious Revolution" (1688)

"The Popists in offices lay down their
Commissions and flie: *it lookes like a*
Revolution." -- John Evelyn, *Diary*, 1688

an Anglo-French perspective:

"a Pope/is summoned in, to crown an emperor ...
the dog/Returning to his vomit ..."

--William Wordsworth, *Prelude*, 1805

what does it look like?

all much the same?

English

American

French

Haitian

Russian

Iranian

Tunisian/Egyptian/Syrian ...

--Jacques Ellul,
Autopsie de la Revolution, 1969

PRÉFACE

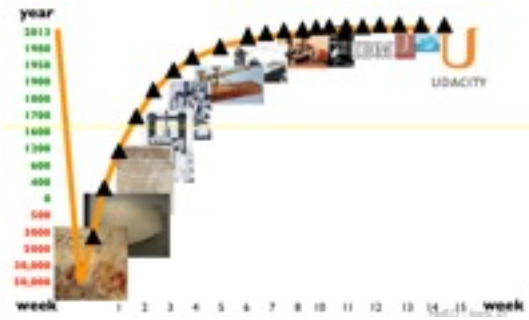
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1650	Russia: Novgorod; Holland
1653	Switzerland
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overview



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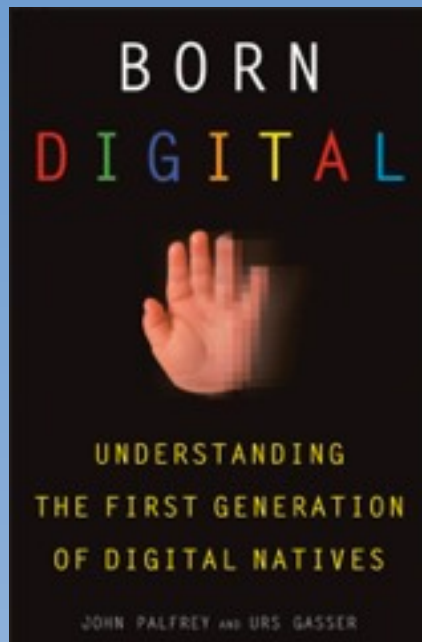
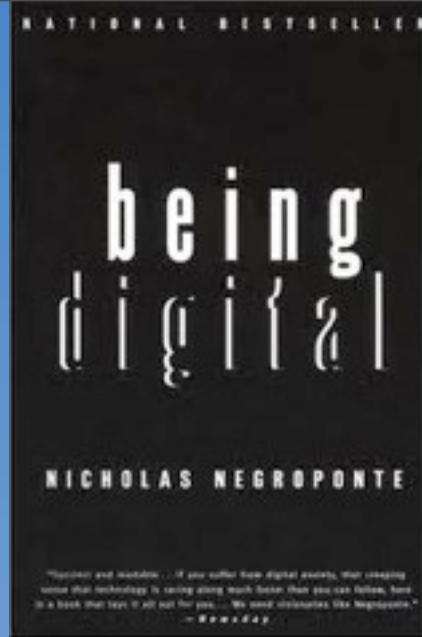
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2-Hof113-Age-of-Info 33

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move over M¹

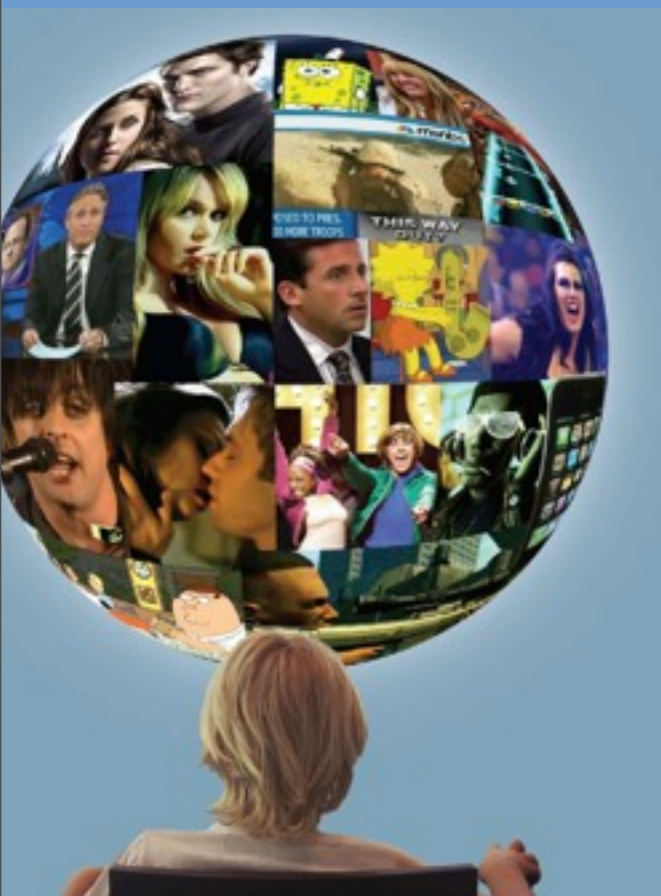
Generation M²:

Media in the Lives of 8 to 18-year olds.

"Five years ago, we reported that young people spent an average of nearly 6-1/2 hours (6:21) a day with media—and managed to pack more than 8-1/2 hours (8:33) worth of media content into that time by multitasking. At that point it seemed that young people's lives were filled to the bursting point with media. Today, however, those levels of use have been shattered.

"<http://www.kff.org/entmedia/upload/8010.pdf>

2-Hof113-Age-of-Info 35



permanent revolution?

children of the depression

baby boomers

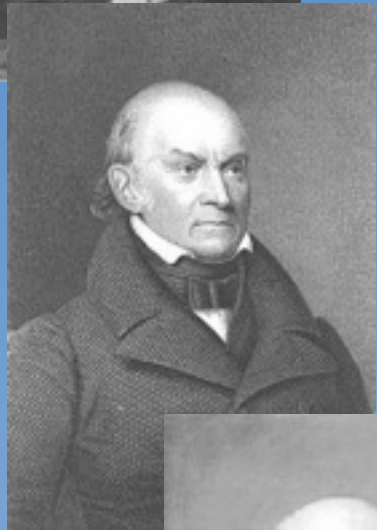
generation x

generation y

generation m^1

generation m^2

... generation m^n



Henry Adams
1838–1918

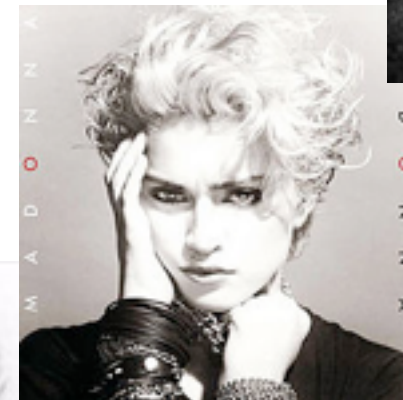
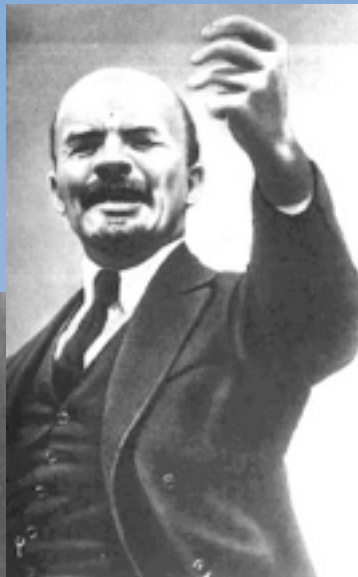
looking back

"Only on looking back ... 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."

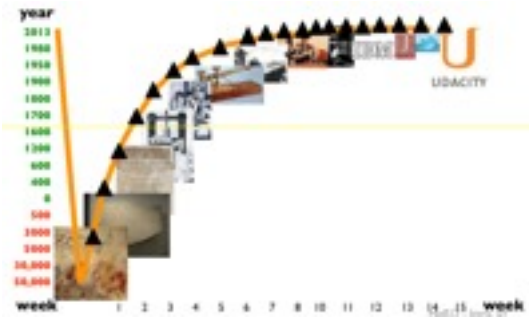
--Henry Adams,
The Education of Henry Adams [1905]

2-Hof113-Age-of-Info 37

generational paradox?



overview



- why history matters

- intergenerational
revolution

- revolution

- how do we get from
one to another?

- what's in an age?

- age of
information

age of
information



what's going on?

everything's now on the internet ...

we are dumbing down for technology ...

my desktop is made to sedate me ...

the age of information is hell ...

information has hurt the race ...

the human race has not progressed as much as we
should be ...

How come the human race isn't progressing as fast
as technology?

Yea we're going to be staying on the moon

But there's still going to be racists

...are we really winning

what's going on?

2-Hof113-Age-of-Info 40



looking back to find ourselves



Rudyard Kipling
1865–1936

the same? different? better? worse?

how would we know?

"What should they know of England
Who only England know?"

-- Rudyard Kipling

"The English Flag," 1899

what should we know of our "age"

who . . .?



dangerous pastime?

"Mao urged the emulation of ... an emperor [Qin Shi Huang] who had advocated eliminating anyone who used history to criticise the present. [Huang] 'buried 460 scholars but we buried 46,000.'"

James C. Scott, "Tyranny of the Ladle", 2012

hence

talk of *revolution, transformation, rupture, coupure,*

2.0

and a challenging pastime?

like learning cricket?

"The past is a foreign country.
They do things differently there."

--L.P. Hartley,
The Go-Between, 1953



Plato

Trithemius

Sprat

Addison

Steele

Knox

Johnson

Harrison

Morse

Babbage

Henry

Bell

Marshall

Bush

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

gauging what people felt

even 2005?

To coincide with this year's Reith Lectures, entitled the **Triumph of Technology**, You and Yours asked what has been the most significant technological innovation since 1800.

From the hundreds of listeners' nominations and together with our five experts, voting was opened on a final 10. Here are the results...

[http://www.bbc.co.uk/radio4/youandyours/technology_launch.shtml]

what about 2013?

the *Wired* view

10 gadgets that changed the world



most significant



59.4% - Bicycle

7.8% - Transistor

7.8% - Electro-magnetic induction ring

6.3% - Computer

4.6% - Germ theory of infection

4.5% - Radio

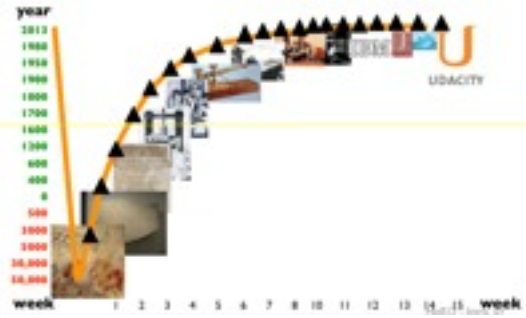
4.0% - Internet

3.4% - Internal Combustion Engine

1.1% - Nuclear Power

1.1% - Communications satellite

overview



- why history matters

- intergenerational
revolution

- revolution

- how do we get from
one to another?

- what's in an age?

- age of
information

where
we've
been

and where we're going:

age of
information



coming up

reading

29 Jan: Technological Determinism

Required Reading

- McLuhan, Marshall. 1964. *Understanding Media*. New York: McGraw-Hill.
read pp. v-x ["Preface to third printing,"] & pp. 3-21 ["Introduction," & "The Medium is the Message"].
- Williams, Raymond. 1974. *Television and Cultural Form*. New York: Schocken Books.
read pp. 9-19 [chapter 1, introduction and sections a & b] & pp. 126-128 [chapter 5, section c].

Note: the Williams chapters are in reverse order in the reader (ch 5 comes before ch 1).

due via bspace 5 pm Sunday Jan 27

- answer the questions
- provide citations
- proofread your answer

assignment

McLuhan writes that "any technology gradually creates a totally new human environment" [vi] and "any child can list the effects" [vii] of new technologies. "Effects" of the medium are irresistible and unavoidable. Williams suggests that ideas of "effects" mask "unresolved historical and philosophical questions" [9] and such lists would be "superficial" [9] or even "ludicrous"[128] (He also predicted McLuhan would be "unlikely to last long" [128].) Who do you think is right? Why?