



# technological determinism

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tools to change the world

Paul Duguid

history of information

January 28, 2014



admin

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**waitlist**

wait & hope

**Bancroft tour**

Monday, Tuesday, Wednesday

—be on time; leave bags in lockers

**slides**



bcourses “Files”



aob

## State Of The Union 2014: John Boehner Invites Obama To Give Address On January 28

Posted: 12/13/2013 1:08 pm EST

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# 2014 in politics

"He shall from time to time give to the Congress Information of the State of the Union"

Art 2 Sect 3

*The President shall have Power to fill up all Vacancies that may happen during the Recession which shall expire at the End of their next Session.*  
*Section. 3. He shall from time to time give to the Congress Information of the State of the Union, and Measures as he shall judge necessary and expedient; he may, on extraordinary Occasions, convene both Houses, or either of them, on extraordinary Occasions, he may adjourn them to such Time as he shall think proper; in Case of Disagreement between them, with Respect to the Time of Adjournment, he may adjourn them to such Time as he shall think proper; he shall take Care that the Laws be faithfully executed, and shall Commission all the Ambassadors and other public Ministers; he shall take Care that the Laws be faithfully executed, and shall Commission all the Ambassadors and other public Ministers; he shall take Care that the Laws be faithfully executed, and shall Commission all the Ambassadors and other public Ministers.*  
*Section. 4. The President, Vice President and all civil Officers of the United States, shall be removed from Office on Impeachment for, and Conviction in, Treason, Bribery, or other high Crimes and Misdemeanors.*

# overview

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## **taking sides**

Kiyana Salkeld

Nirajana Banerjee

David Cline

Riki Tate

Jennifer Luong

**McLuhan v. Williams**

**taking sides**

**easy history/easy futurism?**

**space and time**

**wishing on technology**

**determined mistakes**





## McLuhan - 1964

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"very large structural changes in human outlook ...

"totally new environment ... "the new electric Age of Information

"Each new technology creates an environment ...

"abolishing both space and time ...

"final phase of the extensions of man...

a single consciousness ...

"Global Village

"By Plato's time the written word had created a new environment that had begun to detribalize man. Previously the greeks ... had memorized the poets."



# without resistance

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## **determinism at its clearest**

"The railway ... created totally new kinds of city ..... This happened whether the railway functioned in a tropical or a northern environment, and is quite independent of freight or content.

"The spiritual and cultural reservations that the oriental peoples may have toward our technology will avail them not at all. The effects of technology do not occur at the level of opinions or concepts, but alter sense ratios or patterns of perception steadily and without any resistance."

# antecedent?

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"Science explores,  
Technology executes,  
Man conforms"

— *Chicago World's Fair, 1933*



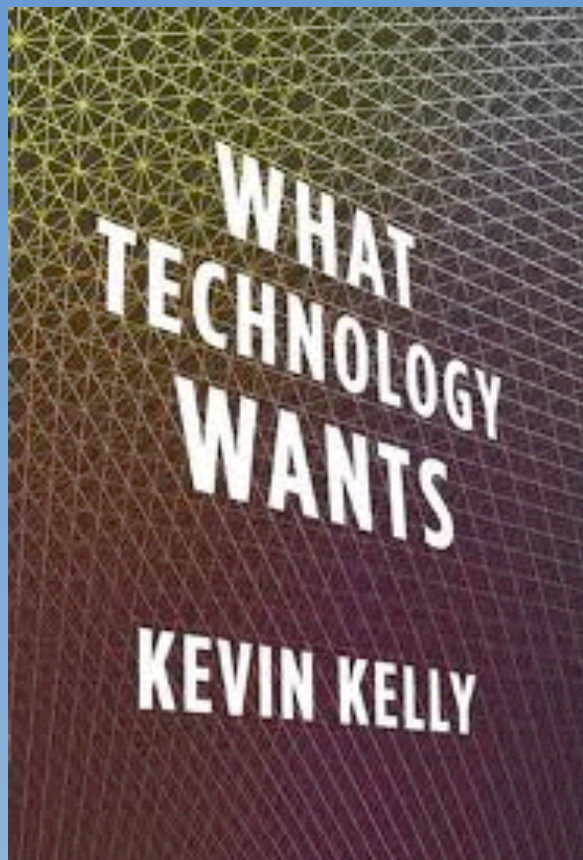


# modern versions

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"When technology shifts,  
it bends the culture"

-- Kevin Kelly,  
"Becoming Screen Literate,"  
*New York Times* 2008





# Williams - 1974

Raymond Williams  
1921-1988

## the invention of television

"The invention of television was no single event ... electricity ... telegraphy ... photography... moving images ... radio ... broadcast ...

"centralisation of political power

"mobile, diffused society ...

"military, commerce, the press ...

"periods of crisis ..."



# Williams

## what's wrong with determinism?

cp "whig history"

"ratifies the society and culture we have now .... all other causes, all that men ordinarily see as history, are at once reduced to effects ....

"what are elsewhere seen as effects ... excluded as irrelevant

"welcomed by the 'media-men' ...

"gives the gloss of avant-garde theory to ... existing interests."



# determinist or symptomatic

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## **Television was invented ...**

- (i) ... altered all preceding media
- (ii)... altered ... institutions and ... social relations
- (iii)... altered our basic perceptions of reality
- (iv)... with other factors ... altered our societies

## **Discovered as a possibility, television ...**

- (v)... had unforeseen consequences
- (vi)... selected for investment to meet the needs of ... society
- (vii)... selected ... new and profitable phase of consumer society

## **Television became available ...**

- (viii)... exploited cultural and psychological inadequacy
- (ix)... served and exploited new needs



## what not

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coming up:

literacy

"technology is **not** marginal but central ...

"while we have to **reject** technological determinism ... we must be careful **not** to substitute .. .the notion of a determined technology ...

"Literacy has shown similar complications ... There was no way to teach a man to read the Bible which did not also enable him to read the radical press. A controlled intention became an uncontrolled effect."



# necessary or sufficient?

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

—Karl Marx, *Poverty of Philosophy*, 1847





# necessary or sufficient?

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“... it is impossible to proceed to the age of the steam-mill until one has passed through the age of the hand-mill.

—Robert Heilbroner,  
“Do Machines Make History,” 1994

[or] once you have the steam-mill, industrial capitalism is inevitable

# overview

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McLuhan v. Williams

**taking sides**

*easy history/easy futurism?*

**space and time**

**wishing on technology**

**determined mistakes**

**due via bspace 5 pm Sunday Jan 27**

- answer the questions
- provide citations
- proofread your answer

## assignment

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McLuhan v. Williams

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easy history/easy futurism?

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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?



above all, be good to Stuart

# assignment

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## answer the prompt

Williams suggests that ... such **lists** would be "superficial" or even "ludicrous".

"a child would agree with McLuhan"

missing "list"

## cite

quotations

page numbers

references

## deadline

McLuhan v. Williams

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determined mistakes

McLuhan v. Williams  
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smartphone	19
tablet	7
car (inc electric, self-driving car)	4
internet	4
television	4
facebook	2
<hr/>	
microwave	
book	
debugging software	
dishwasher	
email	
evernote	
google	
online forums	
rocket ship	
social media platforms	
telephone	
texting	
twitter	
videogame	
wearable technologies	

"The invention of  
television was no  
single event"

list

# taking sides

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McLuhan v. Williams

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**McLuhan** -- it's the medium that does it — **38%**

**Williams** -- no it's not — **51%**



**maybe; maybe not: --** — **11%**

# big Mac

---

**Smartphones** have revolutionized the manner by which we communicate with another, as evidenced by a generation that prefers text messaging to phone calls because the former is perceived as being less uncomfortable; this is to say that medium has allowed us to be in constant communication without every actually engaging with one another. The instantaneous nature of text has encouraged individuals to place a high value on ease and speed of communication, as opposed to quality of communication. Nevertheless, text offers the user a level of control that speech does not because it allows time to perfectly craft a message. This appealing form of communication is changing the social aspects of our environment drastically; text offers individuals a level of detachment that could be problematic as far as development of interpersonal skills is concerned. As McLuhan would argue, the perceived benefits of text messaging are “irresistible and unavoidable,” and it is unlikely that individuals will gravitate away from something that makes daily life easier. Here, the social is facilitated by the technological; the two have become so highly intertwined, making it increasingly difficult to agree with Williams’ argument that the social has dominance over the technological.

*Kiyana Salkeld*



# big Mac

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[T]he **tablet** causes us to directly interact with information, in the most literal sense; by touching the screen, we are no longer passive—our bodies are integrated into technology. As this touch interface spreads more and more, it changes how we understand technology, as something to be handled and not just watched. We expect when we go to the bank or school or the grocery store that a piece of technology will be able to “feel” what we want or need. This is not a superficial change, as Williams might say; never before have we experienced technology that so directly engages our physical bodies and senses. The tablet is not merely substituting another type of interaction, but fundamentally changing how we perceive our own relationship with technology. The tablet proves McLuhan correct, that a new technology alters the foundations of our environment.

— *Nirajana Banerjee*

# wiles of Willy

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The **telephone**, insofar as it is speech and not writing communication technology, allows for the communication of some of the intangibles of human interaction present in the tone and rhythm of the voice. The speed, convenience, and expressiveness of the telephone perhaps created "a totally new human environment," as McLuhan would argue. ... But this is an oversimplified picture. Stating that a technology creates a totally new human environment implicitly suggests that it does so regardless of all historical forces. Such an assumption disregards that a technology's development and its current application are historically contingent. The social and cultural state of humanity call for certain technologies and not for others. Technologies are thus predisposed to be developed and used to satisfy particular needs of a society. Williams is correct to argue against the simplicity of McLuhan's technological determinism, as technology is developed and made available to the public, not randomly, but intentionally to address human desires.

*David Cline*

# wiles of Willy

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Every kid wants an **iPad** because it is cool and it “involves all of one’s faculties” (McLuhan, v-vi). The iPad gives limitless access to the world’s information. Negatively, the effects of this include information overload (McLuhan, vii) and a detachment from the traditional model of education (McLuhan, ix). It homogenizes society and compresses time and space factors in human relations, numbs the senses (McLuhan, 6), and changes our perception (McLuhan, 18). New technology like the iPad, like Cubism, conditions our preference for instant awareness of the whole (McLuhan, 13). Furthermore, we develop a dependency on new information technologies for economic operations (McLuhan, 21). Williams describes a larger, more complete story by describing how the creation of a new environment is the accumulation of the simultaneous nature of cause and effect from a myriad of accidental and human factors including political, social, cultural, and economic. Information technology like the iPad is a result of a series of events (Williams, 14), technological and symptomatic determinism (Williams, 13), and a “continuing complex of [social] need, inventions, and applications [for progress] (Williams, 15). So, it is ludicrous to think society will be changed merely by new technological devices.

— *Riki Tate*

# in between?

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McLuhan appreciates medium, whereas Williams reliably values content. McLuhan says that "any technology gradually creates a totally new environment" (vi). New technologies have effects on humans. There are new technologies which are "unavoidable" – like **television**. It "eliminate[s] time and space factors in human association... creating involvement in depth" (9). A child could [claim] TV is making everything seem closer, learning/knowing more about everything, and dreaming about new things. It's impossible to avoid these effects because the medium exists and it is what gives the message "that shapes and controls the scale and form of human association and action" (9). So even if you don't watch TV, it will have an effect on you because society is affected. Williams thinks differently – he finds the list of effects "superficial" because content is what matters, not the medium. "If the effect of medium is the same... then we can forget ordinary political and cultural argument and let the technology run itself" (128). Williams makes an extremely valid argument by pointing out the lack of intention. Society doesn't become homogenous – people have different interpretations. Also, wouldn't you will turn out differently if you watched Barney versus Miley Cyrus? Still, there's a mix– technology is created and humans react; then, more advances. Medium and content.

—Jennifer Luong

# overview

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McLuhan v. Williams

taking sides

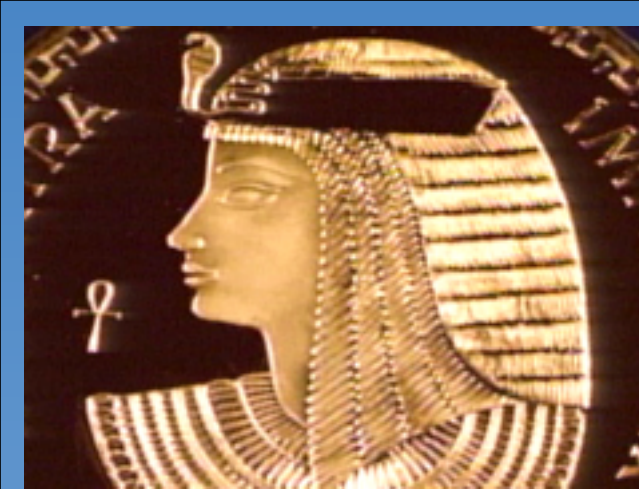
**easy history/easy futurism?**

space and time

wishing on technology

determined mistakes





# easy work

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McLuhan v. Williams

taking sides

easy history/easy  
futurism?

space and time

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## looking back

just look at Cleopatra's nose

## looking forward

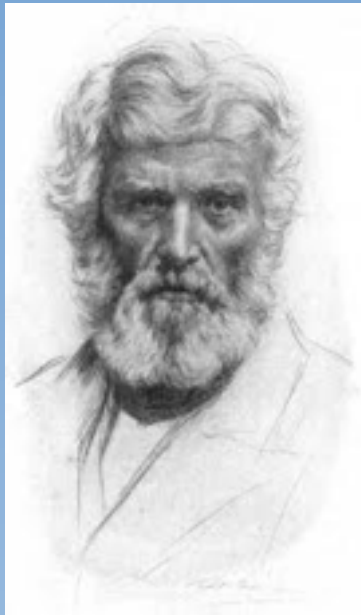
"These technologies are inevitable.

Inevitability is not a flaw. ... makes  
predictions easier."

—Kevin Kelly, *What Technology Wants*, 2010



Francis Bacon  
1561–1626



Thomas Carlyle  
1795–1881

## easy history?

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"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

# looking at ourselves

## **the inevitable product of progress**

"Westward the course of empire takes its way"



John Gast  
"American Progress"  
1872





# looking ahead

---

**Le Monde**

## supersession

"ceci [the book] tuera cela [the church]."

-- Victor Hugo, *Notre-Dame de Paris*, 1831

"le journal [newspaper] tue le livre, comme le livre a tué l'architecture."

-- Théophile Gautier, *Mademoiselle Maupin*, 1834

"Ceci tuera cela, le fer [les Halles] tuera la pierre [St. Eustache]."

-- Emile Zola, *Le Ventre de Paris*, 1874



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# shrinking search

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McLuhan v. Williams

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determined mistakes

"While others cashed in by floating prematurely on the stock market, they kept a low profile and built something profound: a complex, accurate, essentially democratic search engine which helped shrink the world as dramatically as had the compass, the telegraph and the aeroplane."

*Guardian, August 13, 2012*



"communication might be considered instantaneous."

## electrical sublime

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McLuhan v. Williams

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"Electric circuitry has overthrown the regime of 'time' and 'space' and pours upon us instantly and continuously concerns of all other men ... 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



# it makes a village

---

McLuhan v. Williams

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"abolishing both space and time ... eliminate  
time and space factors in human association ..  
creating involvement in depth.

... compels commitment and participation ...  
wholeness, empathy and depth of awareness

[in contrast to] partial and specialized ..  
viewpoint"

*McLuhan*



# moving on

---

## 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."

-- R.M. Langer, 1940.

McLuhan v. Williams  
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# sea to shining sea

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## and tech to shining tech

"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"

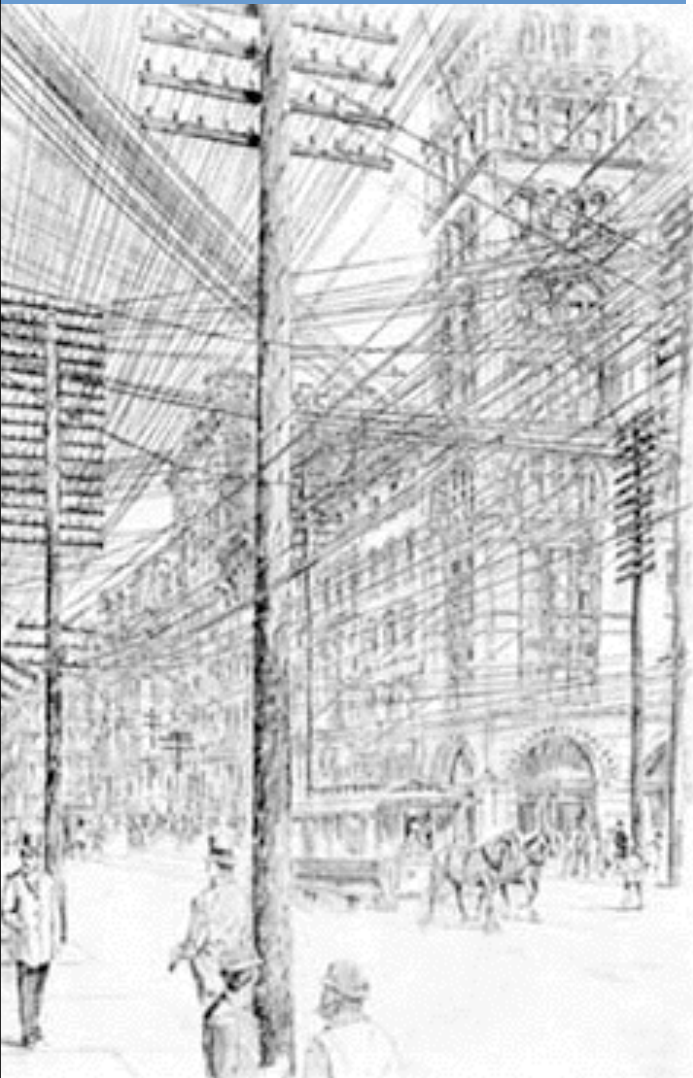
-- John Wesley Clampitt,  
*Echoes from the Rocky Mountains*, 1888





# 60 years on

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"A line of telegraph ... from London to Kurrachee, and from thence to every part of India, ... intelligence and commands [can] 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



Ministère de l'Intérieur  
1<sup>re</sup> Division  
Industrie agricole, manufacturière et commerciale  
Bureau des Manufactures et de la Statistique industrielle  
N° 5025

*Duperron* *Dérivats.*

*Brevets d'Invention,*  
*de perfectionnement et d'importation,*  
établis par les Lois des 7 janvier et 25 mai 1791.

Certificat de demande d'un Brevet d'Invention  
de cinq ans, délivré à M. Duperron (français) *Seine*  
à Paris département de la Seine

Qu la Requête de M. Duperron (français) *Seine* adressée à la Cour Royale, intervenant au *Seine*, Rue du Parc N° 100, dans laquelle il expose que, devant jouir des droits de propriété temporaire accordés et garantis aux auteurs et importateurs des découvertes et perfectionnements en tout genre d'industrie, il demande un Brevet d'Invention de cinq ans, pour l'art de conduire dans l'air les aérostats;

Chapitre 1<sup>er</sup>  
Exposition.

Parvenu à la suite de travaux longs et pénibles, à trouver, enfin, un art nouveau regardé comme impossible par beaucoup de Savans, une route nouvelle qui fournirait devant les efforts de l'homme, les distances voisines des extrémités du Monde se rapprocher.

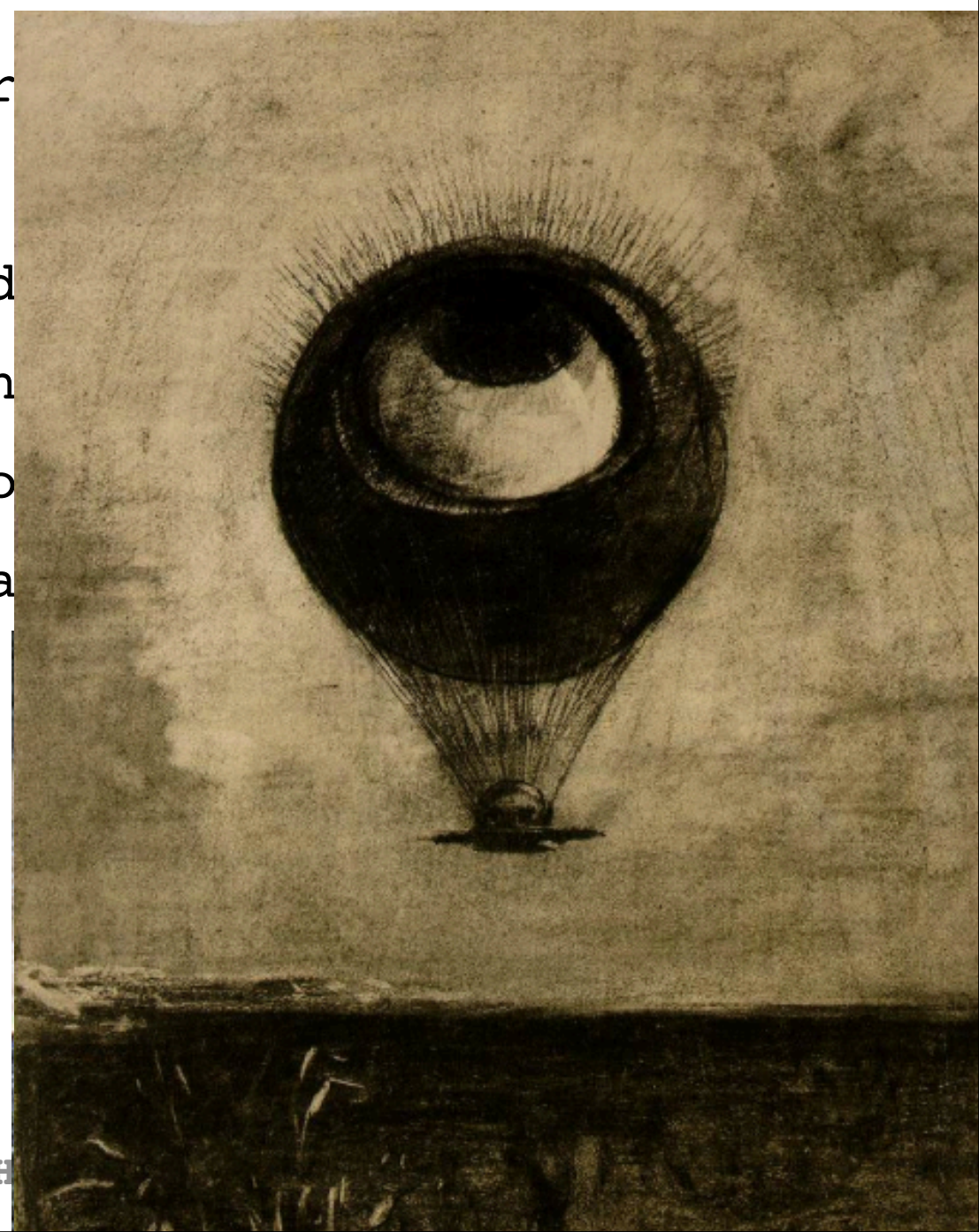
Je crois devoir ~~communiquer~~ <sup>consigner</sup> le résultat de mes travaux dans les archives, où l'industrie française, enregistrée par efforts et ses découvertes, et publiées par mes vœux et moyens en prenant un brevet d'invention pour authentifier mes travaux et mes découvertes, résultats.

Conduire les Ballons dans l'air a été proclamé impossible; (car on ne peut <sup>enlever</sup> considérer l'action d'air dans l'air comme un moyen de progression suffisant); En effet, l'usage des Ballons sphériques était impossible, et les efforts des Savans n'avaient pas encore tenté d'autres formes. Presque toutes les autres pouvaient conduire à un résultat. les formes du Cylindre, du Cône et de l'ellipsoïde même, et <sup>l'usage</sup> ~~les~~ formes composées à double courbure; Mais elles offrent des avantages plus ou moins grands et sont préférées l'une à l'autre.

Je n'ai considéré, ici, les deux formes Coniques et Annulaires.

# getting together

"Parvenu à la suite de tr  
à trouver, enfin, un art  
impossible par beaucoup d  
nouvelle va fournir devan  
l'homme, les distances vo  
extrémités du Monde se ra  
Brevet d'Invention, 1791





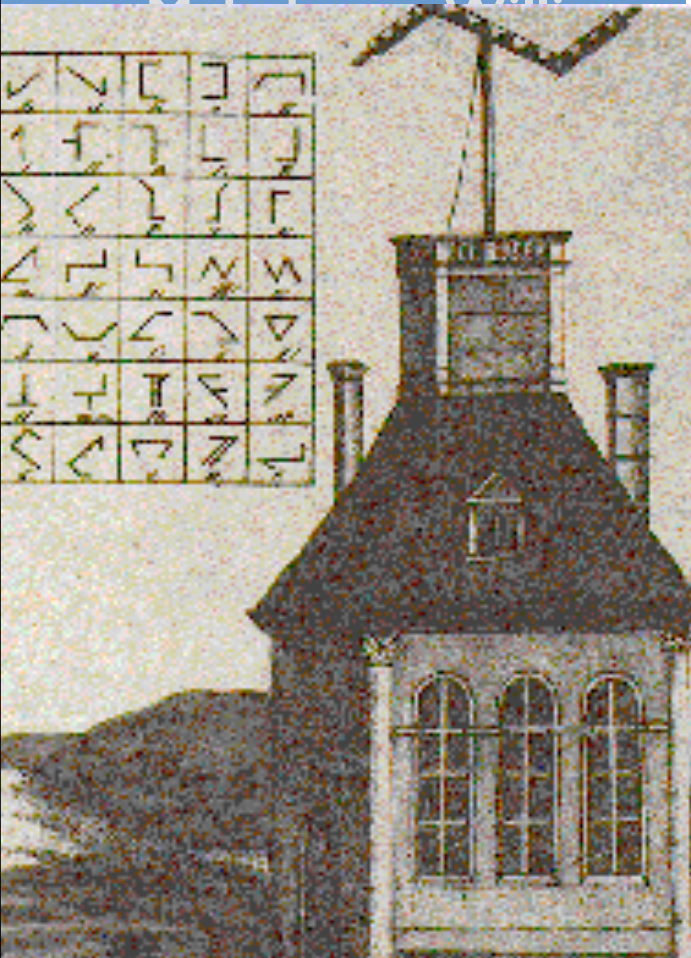
# wishing up a grand future

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## what and when?

"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





Samuel Johnson  
1709–1784

McLuhan v. Williams

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“They cure wounds and diseases with which we languish and perish. We suffer inclemencies of weather which they can obviate. They have engines for the dispatch of many laborious works, which we must perform by manual industry. There is such communications between distant places that one friend can hardly be said to be absent from another.”

Samuel Johnson,  
*The History of Rasselas, Prince of Abissinia*, 1759



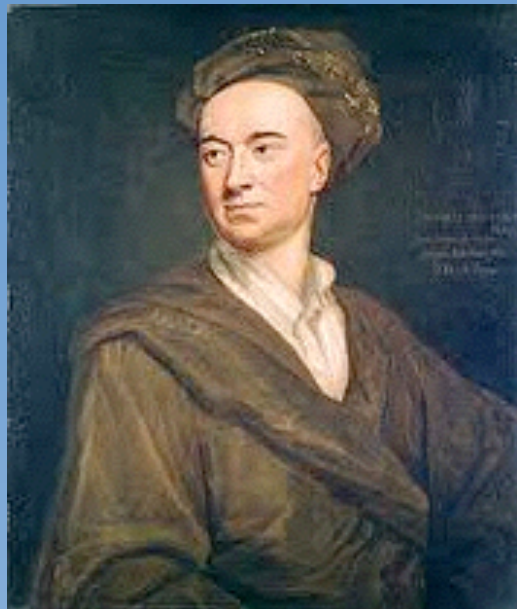
# wishful thinking?

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

*Swift, Pope, Arbuthnot, 1728*

"... no stock phrase in the entire lexicon of  
progress appears more often."

*—Leo Marx,  
The Machine in the Garden, 1964*







James W. Carey  
1934–2006

# democratic contradictions?

---

"From the outset a key discourse of American life has entertained different and contradictory notions of the practice of communication—one that derives from modern advances of the printing press and transportation and one that is situated within the ancient theory and practice of the voice ... symbolized ... by the uneasy juxtaposition of assembly, speech, and press in the First Amendment."



"Freedom of Speech  
Norman Rockwell

James W. Carey,  
*Communication as Culture: Essays in Media and Society*, 1989



# overview

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**determined mistakes**

# you should be so lucky

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"Children in the public schools will be taught practically everything by moving pictures. Certainly they will never be obliged to read history again."

– D.W. Griffith, 1915

# educational promises

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McLuhan v. Williams

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"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."

--Patrick Suppes,  
*Scientific American*, 1966

not Aristotle, but Plato  
(Programmed Language for  
Automated Teaching  
Operations).



# IBM's promise

## coming up: social implications

McLuhan v. Williams  
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**Grandfather:**  
Well, I finally finished my  
doctoral thesis.

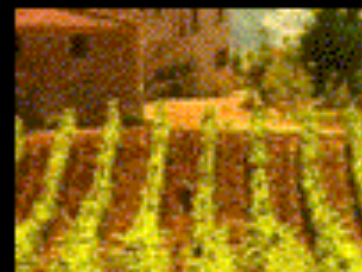


**Woman:**  
Way to go, Gramps.



**Grandfather:**  
Did my research at  
Indiana University.

**Woman:**  
Indiana?



**Grandfather:**  
Yup. IBM took the  
school's library...and  
digitized it. So I could  
access it over the Internet.

*She cocks her ear to take*



**Grandfather:**  
You know... It's a great time  
to be alive.



**Tag:**  
IBM. Solutions for  
a small planet.



Vicesimus Knox  
1752–1821

## heard it before

---

"[A]s books are now multiplied, and men able to afford instruction dispersed all over the kingdom, it is evident that the principal cause of establishing universities in an age when both books and instructors were scarce, no longer subsists. Let them therefore be reformed, and rendered really useful to the community, or let them be deserted."

*Vicesimus Knox, Liberal Education, 1781*

# overview

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# trivializing the past

**coming up:**  
manuscript culture

McLuhan v. Williams

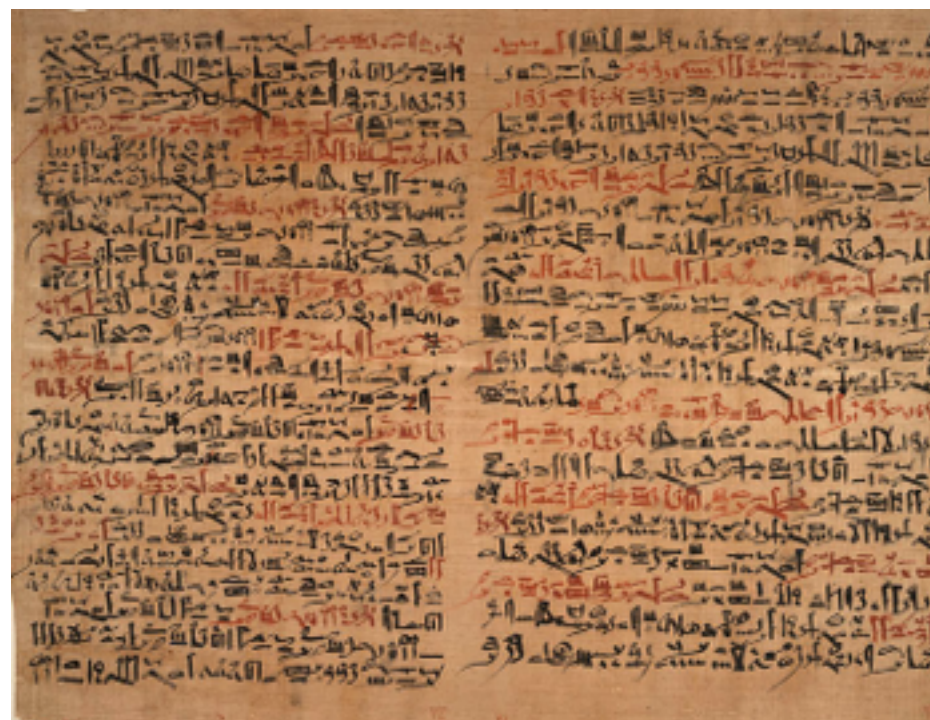
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"Ceci tuera ..."

# bad predictions

**searching for  
the last ... ?**

There are persons who can write not illegibly in pencil, but are as enigmatical 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



# constraint vs resource

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**coming up: newspaper, telegraph**



McLuhan v. Williams

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# necessary or sufficient?

**TG DAILY**

HOME

TECHNOLOGY

## Arab Spring really revolution

Posted on September 13, 2011 - 06:00

After analyzing more than three million tweets, a new study has concluded that the Arab Spring was not a revolution.



Howard, an associate professor in economics, said in Cairo on Saturday, supporters of the military-backed government waved flags as they



# backing the wrong horse

McLuhan v. Williams

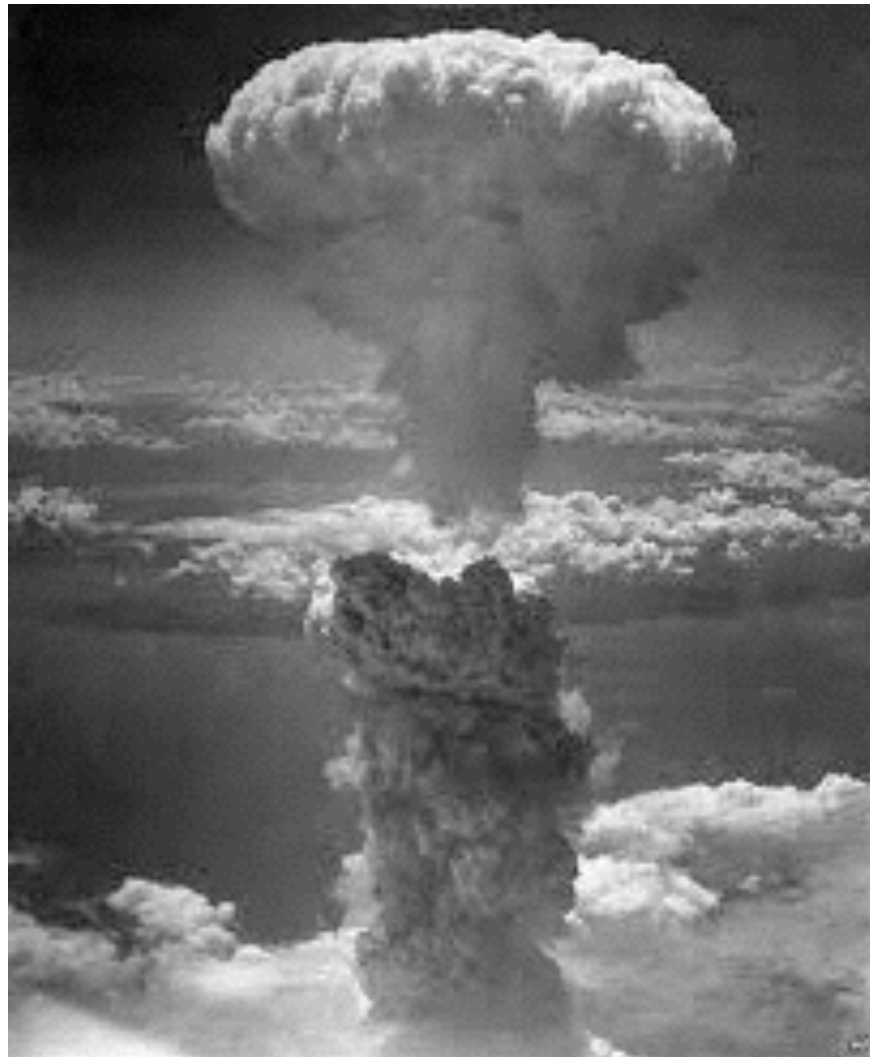
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Kalashnikov, Creator of AK-47, Dies at 94



# leaving it all to the horse

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McLuhan v. Williams

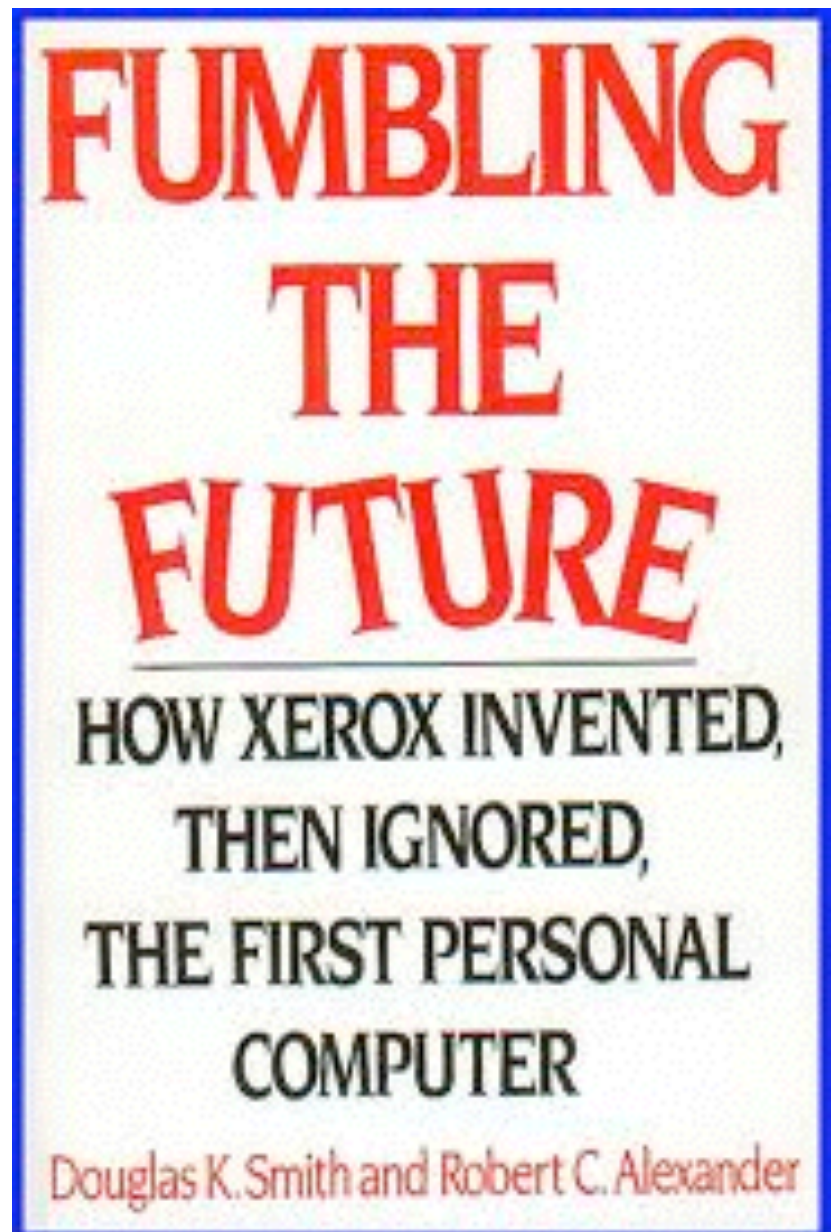
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"Westward the  
course of  
empire ..."

# techno-superiority

---



H.G. Wells  
1866–1946

"And for the rest, those swarms of black, and brown, and dirty-white, and yellow people, who do not come into the new needs of efficiency? Well, the world is not a charitable institution, and I take it they will have to go. The whole tenor and meaning of the world, as I see it, is that they have to go."

-- H.G. Wells, *Anticipations*, 1901

*Compare:* "The spiritual and cultural reservations that the oriental peoples may have toward our technology will avail them not at all."

# linear thinking

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**unintended consequences**

**moral hazard**



wishing on technology

**determined mistakes**



# in conclusion

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## **how to think about determinism**

what happened?

what was involved?

what did (or did not) come before?

what did (or did not) follow?

what did (or did not) contribute?

what happened elsewhere?

what's likely to be underestimated?

what was necessary, what sufficient?

McLuhan v. Williams

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# coming up

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## 1/30/2014: First Information Technologies – Writing

Marshack, Alexander. 1999. "The Art and Symbols of Ice-Age Man," in Crowley, David (ed.) *Communication in History: Technology, Culture, Society*. Boston: Allyn & Bacon. pp. 5-14.

Read: Entire article [pages x-x in reader]

Source: Course reader

Gnanadesikan, Amalia E. 2009. *The Writing Revolution : Cuneiform to the Internet*. Hoboken: Wiley-Blackwell.

Read: Chs 1, 2, 4, 14.

Source: ebrary [[hyperlink](#), library proxy]