unnoticed revolutions?

time-keeping, book-keeping & control?

History of information
Thursday, Feb 28, 2013
Thor's-day  Originally cognate with or formed similarly to Old Frisian thunresdei, Middle Dutch donresdach, donderdach (Dutch donderdag), Old High German donarestag (Middle High German donerstac, donrestac, German Donnerstag) < the genitive of the Germanic base of thunder n. (used as the name of a god)

The Latin days of the week in imperial Rome were named after the planets, which in turn were named after gods (see discussion at week n.). In most cases the Germanic names have substituted for the Roman god's name that of a comparable one from the Germanic pantheon. The sky-god Tiw was originally also a god of war, like the Roman Mars.
purification  Anglo-Norman feverer, feverrer, feveryer, feverzere, feverell, februer, februare, februear, etc., Anglo-Norman and Old French fevrier, feverier, Old French (northern) fevriel (1119; Middle French fevrier, French février) and its etymon classical Latin Februarius, in post-classical Latin also Febrarius (frequent in inscriptions), use as noun (short for mensis Februarius month of February) of masculine of Februarius of February < februa (plural; also februm, februum, singular) means of purification, expiatory offerings, of uncertain origin.

28 February
février [9 ventôse]
feverio

Phalugra 9 [Indian]

Rabi`athani 18 [Islam]

Adar 5 [Jewish]

Esfand 9 [Persian]
where are we?

4711 - Chinese
New Year: February 10: guǐ-sì 禽巳 (water snake)

1391 - Persian
New Year: Wednesday March 20 (04:03:13 am)

5773 - Jewish
New Year: September 5-6

1434 - Islamic
New Year: November 24

??? - Mayan
"The clock, not the steam engine, is the key machine of the modern industrial age ... even today no other machine is ubiquitous."

Lewis Mumford, *Technics & Civilization*, 1934

```java
public class GregorianCalendar extends Calendar
```

Why does `GregorianCalendar.getInstance` contain a `calsys` and `cdate` of type `Julian Calendar`?
radical changes

"Then, between ... 1275 and 1325 ... Europe's first mechanical clock and canon ... marine charts, perspective painting ... and double-entry bookkeeping ... decades unmatched in their radical changes in perception until the era of Einstein ... In the past seven centuries bookkeeping has done more to change the perceptions of more bright minds than any single innovation in philosophy or science."

Alfred Crosby, The Measure of Reality, 1997
changing perceptions of bright minds

Advice to a young Tradesman, written by an old One.
To my Friend A. B.

As you have desired it of me, I write the following Hints, which have been of Service to me, and may, if observed, be so to you.

REMEMBER that TIME is Money. He that can earn Ten Shillings a Day by his Labour, and goes abroad, or sits idle one Half of that Day, tho' he spends but Six-pence during his Diversion or Idleness, ought not to reckon that the only Expense he has really spent, or rather thrown away Five Shillings besides.

The Poor Planters Physician,

With Instructions for Marking on Linen; how to Pickle and Preserve; to make divers Sorts of Wine; and many excellent Planters, and Medicines, necessary in all Families.

And also Prudent Advice to young Tradesmen and Dealers.
The whole better adapted to these American Colonies, than any other Book of the like Kind.

By GEORGE FISHER, Accomp'y.
The Ninth Edition Revised and Corrected.

PHILADELPHIA: Printed by B. Franklin and D. Hall, at the New-Printing-Office, in Market-Street, 1795.
Midterm exam or paper (25% of course grade)

The midterm will be an 80 minute, in-class exam and include three essay questions, two chosen from a list of questions provided in advance. There will also be short-answer sections asking you to identify quotations, people, dates, images, and other aspects of the course.

We will give out a study guide. Exam questions will be based on material covered in readings, slides, and class discussion. Class slides will normally be posted shortly before each class.

Students can ask to submit a paper instead of a midterm exam. This paper will be a 2000 word essay in response to one of a list of essay questions. We will provide a list of topics on March 1 and, if you wish to write an essay, you must let us know in writing which one you propose to write by March 7. We will let you know if you may proceed by March 10. The paper is due at 9 a.m. on the morning of the midterm (March 21). If you do not submit by that time, you should take the midterm exam, which starts at 9:30.

If you want to write a paper, send a proposal to Paul & Geoff (with a copy to Bryan) by 5 pm on March 7.
If you want to write a paper, send a proposal to Paul & Geoff (with a copy to Bryan) by 5 pm on March 7.

http://blogs.ischool.berkeley.edu/i103s13/midterm/midterm-essay-topics/

(a) We have discussed several cases of information ‘revolution’ and methods for assessing them.

**EITHER** choose an instance of technological or informational change that has been proclaimed revolutionary and show whether the claim is justified or not

**OR** choose an instance that has not been claimed revolutionary and argue for its importance in contrast to the standard claims, and suggest why it has been overlooked.

In either case, use the examples that we have discussed to support your argument

(b) "Many, if not most, of the cultural phenomena of the modern world derive from [the 18th century] — the periodical, the newspaper, the novel, the journalist, the critic, the public library, the concert, the public museum. Perhaps most important of all, it was then that ‘public opinion’ came to be recognized as the ultimate arbiter in matters of taste and politics.” – Tim Blanning, *The Culture of Power.*

Choose **ONE** example, either from Blanning’s list or from other seventeenth- or eighteenth-century developments mentioned in the class, and argue how the cultural phenomena came about. Consider key technologies, people, places and social institutions that might have been critical to the cultural phenomena. Finally, argue about the significance of the cultural phenomena you have chosen to the history of information: Does the story that you have outlined support a technologically deterministic history of information?

(c) Assume that Phaedrus came to Socrates not with a scroll but a printed book. Write the ensuing dialog as Socrates contemplates the effect of the printing press on society.
It is commonplace that the years between 1300 and 1650 saw within the intellectual culture of Western Europe important changes in the apprehension of time.

E.P. Thompson
debts to God

1309: An indulgence to pardon a year's worth of sin costs one penny
real determinism?

Max Weber (1864-1920)
'Protestant ethic'
rational capitalist accounting
'desacralization' (cp Darnton)

Werner Sombart (1863-1941)
"abstraction of profit [leads to] economic calculation ... systemic organization ... depersonalization."
"The Palace of the Bourse [stock exchange] ... The architecture of a building should be adapted to its function. As for the function ... it fills that to perfection: it is a stock exchange in France just as it would have been a temple in Greece ... on days of high religious solemnity, the theory of stockbrokers and jobbers can be majestically expounded"

Victor Hugo, *Notre Dame de Paris*, 1831
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8th century BCE</td>
<td>10 month calendar</td>
</tr>
<tr>
<td>713 BCE</td>
<td>2 months added</td>
</tr>
<tr>
<td>153 BCE</td>
<td>Beginning of the year moved from March to January</td>
</tr>
</tbody>
</table>

**Roman rules**

**Julius Caesar** (100 - 44 BCE)

Julian Calendar

**Troublesome equinox**

- **46 BCE**: 445 days
- **45 BCE**: 365 days

**Augustus** (63 BCE - 14 CE)

Augustan Calendar

- **8 BCE**: a further course correction
further uncertainties

the year dot:
Dionysius Exiguus (c 470-544 ce)

day one
January 1 (Julian Calendar)
March 25 (Council of Tours, 567)

the equal hour
14th century

the struggle for Easter
1582: Gregorian Calendar (leap years, centurial years)

the big leap
Thursday October 4 to Friday October 15
Orthodox & Protestant resistance
"latent Popish interest"

--John Wallis, FRS,
Savilian Professor of Geometry, Oxford

popular superstition

The Landlord calls for Rent before 'tis due,
King's Tax, and Windows, Poor, and Parson too;
With Numbers more, our Grandsires never knew.
Domestick Servants all will have their Pay,
And force their Masters e're the Quarter Day.
anglo-american resistance

1752

Wednesday September 2
Thursday September 14

complaints from Montaigne to Pynchon

"give us back our eleven days"
residuals

residual effects ....
tax day: April 6 / April 15

... and confusions

History of copyright law
From Wikipedia, the free encyclopedia

The history of copyright law starts with early privileges and monopolies granted to printers of books. The British Statute of Anne 1709, full title "An Act for the Encouragement of Learning, by vesting the Copies of Printed Books in the Authors or purchasers of such Copies, during the Times therein mentioned", was the first copyright statute. Initially copyright law only applied to the copying of books. Over time other uses such as translations and derivative works were made subject to copyright and copyright now covers a wide range of works, including maps, performances, paintings, photographs, sound recordings, motion pictures and computer programs.

The Statute of Anne, 1710 (1/6)
(transcription below image)

This is the first copyright act in the world, the British Statute of Anne, from 1710. This facsimile is taken from British Library, 8 Anne c. 19. Several monographs on copyright date this text to 1709. However, 1710 is the correct date, see John Feather, The Book Trade in Politics: The Making of the Copyright Act of 1710, "Publishing History", 19(8), 1980, p. 39 (note 3). Transcription from fraktur is available below the image. Words in roman type in the original are formatted here as italics.
Decimalization

French revolution

Year 1 again (1793)
10 days a week
10 months a year
New Year September

An urban revolution?

Vendémiaire, Brumiare, Frimaire, Nivôse, Pluviôse, Ventose, Germinal, Floréal, Prairial, Messidor, Thermidor, Fructidor
overview

time & money

balancing

accounting

technology of time

fighting time

time control

Wednesday, February 27, 2013
"Most of what has been written about Stonehenge is nonsense"
R.J.C. Atkinson

Whan that April with his shoures soote
The droghte of March hath Perced to the roote,
And bathed every veyne in swich licour
Of which vertu engendred is the flour;
Whan Zephirus eek with his sweete breeth
Inspired hath in every holt and heeth
The tendre croppes, and the yonge sonne
Hath in the ram his halve cours yronne,
And smale foweles maken melodye,
That slepen al the nyght with open ye
(so priketh hem nature in hir corages);
Thanne longen folk to goon on pilgrimages…

antikythera c 200 bce
clock time

3500 bce: sundials

1400 bce: Egyptian water clocks

700 ce: hourglasses

1086: Su Sung's water tower
"Wel sikerer was his crowyng in his logge
Than is a clokke, or an abbey orlogge"

higher tech

**1300**: mechanical clocks
Richard of Wallingford

**1656**: Huygens pendulum clock

**1660**: Hooke & the spring watch
looking ahead

---

automata

computus

feedback mechanisms

"feedback control dates at least from the waterclock of Ktesibios of Alexandria [3dC BC] no new feedback system .... [until the] thermostatic furnace."

--Beniger, Control through Communication
Mechanick Dyalling: Teaching
Any Man, though of an Ordinary Capacity and unlearned in the Mathematicks, to draw a True
SUN-DYAL
On any Given Plane,
However situated: Only with the help of a straight RULER and a pair of COMPASSES: And without any Arithmetical Calculation.

By Joseph Moxon, Hydrographer to the Kings most Excellent Majesty.

London.
Printed for Joseph Moxon on Ludgate-hill, at the Sign of Atlas. MDC LXVIII.

244 The Young Man’s Best Companion.
But to proceed to Dialling, the following Figure represents an Horizontal Dial, described for the Latitude of New-York, at 41 deg. 44 m. North.

First, Draw the Meridian or 12 o’Clock Line B A C and cross the same with the Line D E, at right Angles in the Point A, which must be the Center of your Dial, and the Line D E, is the 6 o’Clock Line; then take with your Compasses 60 Degrees from a Line of Chords, and with that Extent, setting one Foot in the Center at A, with the other describe the Circle D O E, which done, take from the same Line of Chords, all the Hour Arches in the following Table; and placing one Foot of your Compasses in O, (where the Circle crosses the Meridian) with the other set off the Hour Arches both Ways upon the Circle D O E.

Latitude 41 Degrees 44 m. North.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Hour. Arches</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.M.</td>
<td>D. M.</td>
</tr>
<tr>
<td>11</td>
<td>9 46</td>
</tr>
<tr>
<td>10</td>
<td>20 22</td>
</tr>
<tr>
<td>9</td>
<td>32 44</td>
</tr>
<tr>
<td>8</td>
<td>43 44</td>
</tr>
<tr>
<td>7</td>
<td>67 22</td>
</tr>
</tbody>
</table>
from logs to longitude

time, space, and naval supremacy

the limits of the log

starvation, piracy, wrecks

1707: Sir Cloudesley Shovell's fleet

1,315 sailors; one survivor

1714: Longitude Act

£20,000 - to fix longitude to half a degree
various contenders

time, space, and whelping dogs
Galileo, Newton, Huygens, Halley and the heavens
Wren's observatory

vs

nutters galore
RS plays defense

**Harrison** vs Men of Science

**H1** - Lisbon Trial, 1736

awarded prize, 1773
going global

- **c1850**: telegraph time
- **1852**: Greenwich mean time
- **1883**: US standard time
- **1884**: Meridian Conference, DC
- **1911**: France: Cassini Meridian
- **1966**: Uniform Time Act
deep time

groundological time

Lyell: "time, time, time"

Darwin: "I really think my books come half out of Lyell's brain."
time control

**bell tolling**

1335: Amiens start of work, lunch, end of the day controlled by bell rung by the city

--decree of Phillip VI

1664: "that as many as might live within the sound might be thereby induced to a timely going to rest in the evening, and early arising in the morning to the labours and duties of their several callings"
"The work pattern was one of alternate bouts of intense labour and idleness, wherever men were in control of their working lives. (The pattern persists among some self-employed, and perhaps also among students.)

"the industrial revolution demanded a greater synchronization of labour"

--Thompson
factory discipline

Wedgwood's Etruria
"clocking in"; tell-tale clocks
invasive clocks

Pray dear, quoth my mother, have you not forgot to wind up the clock? Good G--! cried my father...Did ever woman, since the creation of the world, interrupt a man with such a silly question?

--Laurence Sterne, *Tristram Shandy*, 1759

"No modest lady dares to mention a word about winding up a clock ...Nay, the common expression of street-walkers is, "Sir, will you have your clock wound up"

--*The Clockmaker's Outcry against the Author*, 1760
"Machines were the Pemberton force .. Machines for opening letters and sealing them, automatic typewriters, dictation phonographs, pneumatic chutes. But none of the other machines was so tyrannical as the time-clock ... She knew that the machines were supposed to save work. But she was aware that the girls worked just as hard and long and hopelessly after their introduction as before."

Sinclair Lewis, *The Job*, 1917
"a vigorous and licensed popular culture had evolved, which the propagandists of discipline regarded with dismay"

"fight, not against time, but about it"
overview

1. time & money
2. balancing
3. accounting
4. time control
5. technology of time
6. fighting time
7. time & money

Wednesday, February 27, 2013
Sumerian tablets
record keeping

the code of Hammurabi
"if a man has given on deposit without
elders or contract ...[if] they contest it,
there shall be no claim"

--Hammurabi, Babylon c 1700 bce

Rome
adversaria, codex accepti et dispensi, liber rationum
the Italian method

"The inventor of Accounting ..."

1494: Luca Pacioli Summa de Arithmetica
[cp Gutenberg et al ...]

more reliable history

1211: proto double entry, Florence
"Arabic" numerals, via al-Khwarizmi

c 1340: double entry in Genoa

1366: The Merchant of Prato
(Francesco di Marco Datini)
a popular literacy?

from princes and courts
Prince Maurice of Nassau
Colbert, "Information master" for Louis XIV

to plebians and the gallows
Peter Linbaugh, The London Hanged, 1993

Anna Karenina vs War & Peace
Old Tradesman
1706-1790

popular item

James, the American Barber's
INSTRUCTOR:
Or,
Young Man's Best Companion.
CONTAINING,
Spelling, Reading, Writing, and Arithmetick,
in an easier Way than any yet published; and how to qualify
any Person for Business, without the Help of a Master.
Instructions to write Variety of Hands, with Copies
both in Prose and Verse. How to write Letters on Busines or
Friendship. Forms of Indentures, Bonds, Bills
of
Receipts, Wills, Leases, Releaves, &c.
Also Merchants' Accounts, and a short and easy Method
of Shop and Book-keeping; with a Description of the several
American Colonies.
Together with the Carpenter's Plain and Exact Rule: Shewing
how to measure Carpenters, Joiners, Sawyer, Bricklayers, Plasterers,
Plumbers, Masons, Glassers, and Painters Work. How
undertake each Work; and at what Price; the Rates of each Commodity,
and the common Wages of Journeymen; with Gunter's Line,
and Coggeshal's Description of the Sliding-Rule.
Likewise the Practical Gauger made Easy; the Art
of Dialling, and how to erect and fix any Dial; with Instructions for
Dying, Colouring, and making Colours.
To which is added,
The Poor Planters Physician.
With Instructions for Marking on Linnen; how to Pickle
and Preserve; to make divers Sorts of Wine; and many excellent
Plasters, and Medicines, necessary in all Families.
And also
Prudent Advice to young Tradesmen and Dealers.
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By GEORGE FISHER, Accomplicant.
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PHILADELPHIA: Printed by B. Franklin and D. Hall, at the New-Printing-Office, in Market-Street. 1748.
successive adaptation

William Mather, *Young Man's Companion* (24 editions by 1775)

George Fisher, *The Instructor*, 7 editions to 1744 (or Mrs Slack?)

*The American Instructor*, 9th edition, 1748 (16 editions by 1800)
successive adaptation

William Mather, Young Man's Companion (24 editions by 1775)

George Fisher The Instructor, 7 editions to 1744 (or Mrs Slack?)

The American Instructor, 9th edition, 1748 (16 editions by 1800)

"Not only published by Franklin and Hall, but ... largely rewritten by Franklin."

--Linglebach, "Franklin's American Instructor" 1952
Advice to a young Tradesman, written by an old One.

To my Friend A. B.

As you have desired it of me, I write the following Hints, which have been of Service to me, and may, if observed, be so to you.

REMEMBER that Time is Money. He that can earn Ten Shillings a Day by his Labour, and goes abroad, or sits idle one Half of that Day, tho' he spends but Six-pence during his Diversion or Idleness, ought not to reckon that the only Expence; he has really spent, or rather thrown away Five Shillings besides.

Beware of thinking all your own that you possess, and of living accordingly. ’Tis a Mistake that many People who have Credit fall into. To prevent this, keep an exact Account for some Time of both your Expences and your Incomes. If you take the Pains at first to mention Particulars, it will have this good Effect: you will discover how wonderfully small trifling Expences mount up to large Sums, and will discern what might have been, and may for the future be saved, without occasioning any great Inconvenience.

enduring advice
still going

the books & the bottom line
"if they come out alike"

assets = liabilities + equity

Trial on Stockton, California's bankruptcy eligibility next month

Exclusive: Bankrupt San Bernardino picks twice bankrupt manager

Christopher Edmonds - TSC
Enron Files for Chapter 11 Bankruptcy Protection

By exhaust their other options, Enron (ENE), once the king of deregulated power markets, pulled the plug Sunday and sought bankruptcy protection, leaving creditors scrambling and investors wondering how its staggering debt will affect trading Monday morning.
U.S. trade deficit plunges

Other countries may not be buying as much of U.S. stuff, but our buying more of theirs is an indication of consumer strength.


News

Growth in US budget deficit slows in January

by Associated Press

WASHINGTON (AP) -- The federal government reported a rare surplus for January and is on track to run its smallest budget deficit since President Barack Obama took office.
Other countries may not be buying as much of U.S. stuff

Wall Street is extolling the virtues of our rising U.S. trade deficit as a sure sign the economy is well on the road to a full and viable recovery. It was reported last week that our level of trade imbalance jumped to a six-month high in December to $48.8 billion (up 3.7%), from $47.1 billion in the prior month. For all of 2011, the shortfall grew 12% to $558 billion, the most since 2008.
balancing acts

"apprehension of the wrong balance of trade, appears of such a nature, that it discovers itself wherever one is out of humour with the ministry, or is in low spirits."

David Hume,

"Of the Balance of Trade," 1752
the bottom line?
"They who have the art
To manage books, and things, and make them work
Gently on infant minds as does the sun
Upon the flower – the tutors of our youth,
The Guides, the Wardens of our faculties,
And Stewards of our labour, watchful men
And skilful in the usury of time,
Sages, who in their prescience would controul
All accidents, and to the very road
Which they have fashion'd would confine us down,
Like engines."

William Wordsworth, *Prelude*, 1850
5 Mar: Communications “Revolution”

Required Readings


Additional Materials


7 Mar: The Telegraph in China

Guest Lecture: Tom Mullaney, Stanford University
Fisher, Franklin and other teachers of accounting suggested that the technology of accounting could help readers gain control over their lives. Thompson by contrast suggested that new technologies led to people having their lives controlled. (When he noted that "The small instrument which regulated the new rhythms of industrial life ... was not only useful; it conferred prestige upon its owner, and a man might be willing to stretch his resources to obtain one" [p70], he might have been talking about the cell phone.) Again, while many suggest that communications technology is liberating, George suggested that it was primarily used to control access to information and other people's lives. Are these two visions (one of increasing freedom, the other of increasing control) compatible? Use the readings and, if you wish, some modern technology to make your case.