Information work

time is money

Monday, October 9, 2006
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 Sixpence during his Diversion or Idleness, ought not to reckon That the only Expence; he has really spent or rather thrown away Five Shillings besides.

Benjamin Franklin, *Advice to A Young Tradesman Written by An Old One.* 1748
money, time, & sin

1309: An indulgence to pardon a year's worth of sin costs one penny.
Clement V.
summary

process of abstraction

time, time keeping

money, balancing
the long then

C 3100 BCE
Julian calendar

Julius Caesar (100 - 44 bce)

midwinter equinox

46 bce: 445 days

45 bce: 366-1/4

Augustus (63 bce - 14 ce)

8 bce: a further course correction
when does time begin?

imperial/papal/regnal years

new year's day
January 1 or March 25?
"The 1118st year AD, the 21st year of Pope Alexander III, the 27th regnal year of King Henry II of the English, the 11th regnal year of King Henry the son of the king, the 18th year that time has passed since the translation of Bishop Gilbert Foliot from Hereford to London, when this inquest was made by Ralf de Diceto, dean of London, in the first year of his deanship."

--Dean Ralf de Diceto
that quarter day

the battle for Easter
slipping equinox again

Roger Bacon
Nicholas of Cusa
Copernicus
Gregorian reform

1582: Gregory XIII

Wednesday October 3
Thursday October 4
Friday October 15

1583: Joseph Scaliger,
De Emendatione Temporum
the beginning of time

[Dominicus Petavius (1714-95)
divides the epochs at year 0]
anti-catholicism

Orthodox & Protestants hang on
licensing act: 1694/5
copyright act: 1709/10

1752: Anglo-American course correction
"give us back our eleven days"

revolution
year 1 again [1792]
Vendémiaire, Brumiare, Frimiare, Nivôse, Pluviôse, Ventose, Germinal, Floréal, Prairial, Messidor, Thermidor, Fructidor
dividing the day

accordian hours
"are there not twelve hours in the day?"
John 6.6.

equal hours
1330 (Germany)
1370 (England)
"seven times a day I praise Thee"
Psalms 119: 64

matins, prime, tierce, sext
none, vespers, compline

the heroic trek of noon
and the clock

3500 bce: sundials
700 ce: hourglasses
1086: Su Sung's water clock
1300: mechanical clocks
1656: Huygens pendulum clock
1761: Harrison's nautical clock
c1850: telegraph time
1852: Greenwich mean time
absolute (and abstract) time

"Absolute, true, and mathematical time, of itself, and from its own nature, flows equably without relation to anything external."

Isaac Newton, *Principia Mathematica*
geological time

**Georges Couvier** (1769-1832): fossils

**James Hutton** (1726-1797): gradualism

**Charles Lyell** (1797-1875): uniformitarianism

1830-33: *Principles of Geology*
"In China the calendar was a perquisite of sovereignty, like the right to mint coins. .... The Emperor's time was China's time."
"In 1335, Philip VI granted power to the mayor and alderman of Amiens to ordain and control by a bell the time when the workers of the city should go to work in the morning, when they should eat, when they should return to work after eating, and when they should quit."

Alfred Crosby

**from fields to factories**

"Time, Work-Discipline & Industrial Capitalism," E.P. Thompson
accounting for time

"How longe tyme wol ye rekene and caste
Youre somme, and your bookes, and your thynges?
The devel have part on all swich rekenynges"
- Geoffrey Chaucer, The Shipman's Tale

"What can there great and noble be expected
from him whose attention is ever fixed upon
balancing his books, and watching over his
expenses."
- Joseph Addison, Spectator
Max Weber (1864-1920)
"a rationalistic capitalistic establishment ... one with capital accounting, that is, an establishment which determines its income yielding power by calculation according to the methods of modern bookkeeping and the striking of a balance"

Werner Sombart (1863-1941)
"abstraction of profit ... economic calculation ... systemic organization ... depersonalization."
from accounts to accounting

- Sumerian tablets
- Roman codex
- monastic cartularies
- pipe rolls
- merchant accounts
- the "joint-stock" firm
1340: double entry in Genoa

1366: The Merchant of Prato (Francesco di Marco Datini) "Arabic" numerals

1494: Luca Pacioli *Summa de Arithmetica*
"On this day, we have (or I have) bought from Filippo de Ruffoni of Brescia, twenty pieces of white Bresciani cloth. They are stored in Stefano Tagliapietra's vault and are of so many arm lengths apiece, as agreed upon. They cost twelve ducats each and are marked with a certain number. Mention if the cloth is made of triple warpcord, four to five arm lengths square, wide or narrow, fine or medium, whether Bergamene, Vicenzan, Veronese, Paudan, Florentine, or Manuan. State whether the transaction was made entirely for cash, or part only for cash and part on time."
A BRIEFE INSTRUCTION and maner how to keepe books of Accompts after the order of Debiter and Creditor, & as well for proper Accomptes passible, &c.

By the three bookes named the Memoriall, Journal & Ledger, and of other necessaries appertaining to a good and diligent merchant. The which of all other reckoning is most lawful & for this treatise well and sufficiently knowne, all other waxes and maners may be the easier & sooner discermed, learned and knowne. Newly augmented and for ther by John Alto & Scholemaster. 1588.

Imprinted at London by John Windet, dwelling at the signe of the white Boorie, high Bywardes Ecclis. 1588.
the books

"after the form of Venice"

"the three principall bookes"

memorial
journal
ledger
"in which a merchant writes all his daily business"

19

October 9th, bought two pipes of wine @ £30 each from Joseph Smith, paid £20 cash with balance to be paid January 1.

27

October 30, sent two pipes of wine to England for sale there; cost £10.

30

November 1, sold two pipes of wine to B&H @ £50 ea.
"This Journal ought to bee signed and marked with the same marks or letter as the memorial. And also the leaves numbered."
Journal

October 9

19. Wine owes cash £20 for deposit on two pipes of wine bought of Joseph Smith.


October 30th, wine owes transport £10 for carriage of two pipes of wine to England.

November 20, B&H owes wine £100 for two pipes of wine sold them.
"every one parcell that is sette in your Journall ought to bee made two parcels in your ledger."

## wine account

<table>
<thead>
<tr>
<th></th>
<th>to cash</th>
<th></th>
<th>from B&amp;H</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td></td>
<td>20</td>
<td></td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>to Joseph Smith</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>to transport</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>70</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>To profit &amp; loss</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>for 2 pipes of wine</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>----</td>
<td>---------------------</td>
<td>----</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td></td>
<td>from cash</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>from wine</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>
Interlinked accounts
A debit in one set is a credit in another's.

Balancing the books
"In the past seven centuries bookkeeping has done more to shape the perceptions of more bright minds than any single innovation in philosophy or science. While a few people pondered the words of René Descartes and Immanuel Kant, millions of others of yeasty and industrious inclination wrote entries in neat books and then rationalized the world to fit their books."

Alfred Crosby, *The Measure of Reality*
balancing nations

the balance of trade
mercantilism and national interest

Treaty of Utrecht, 1713
War of the Spanish Succession

the commercial treaty
free trade with France
science, statistics & the public sphere

public good and private interest

rousing the wool interest

Mercator vs British Merchant
"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
in sum

time is money

technological developments

social agreements

standards and interdependencies