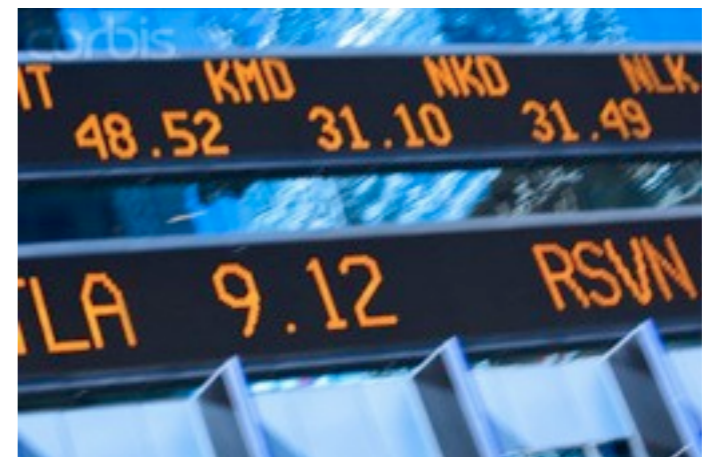


# unnoticed revolutions?

---

**time-keeping  
&  
book-keeping**

History of information



# dazed

---

**mars-day** Originally cognate with or formed similarly to Old Frisian *tīesdei* , Old High German *ziestag* , Middle High German *zīstag* (German regional (south-eastern) *Ziestag* , (south-eastern and Swiss) *Ziestig* ) < the genitive of the Germanic base of the name of (the god) *Tiw* ...

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.

**tuesday**

**mardi**

星期二

**terça-feira**

मंगलवार

火曜日

# purification

**uncertain** Anglo-Norman *feverer* ,  
*feverrer* , *feveryer* , *feverzere* , *feverell* ,  
*februer* , *februare* , *februarie* , etc., Anglo-  
Norman and Old French *fevrier* , *feverier* ,  
Old French (northern) *fevriel* (1119; Middle  
French *fevrier* , French *février* ) and its  
etymon classical Latin *Februārius* , in post-  
classical Latin also *Febrarius* (frequent in  
inscriptions), use as noun (short for *mēnsis*  
*Februārius* month of February) of masculine  
of *Februārius* of February < *februa* (plural;  
also *februm* , *februum* , singular) means of  
purification, expiatory offerings, of uncertain  
origin

**28 February**

**février [9 ventôse]**

**feverio**

二月

**Phalugra 9 [Indian]**

**Rabi`athani 5 [Islam]**

**Adar 5 [Jewish]**

**Esfand 9 [Persian]**

# where we are?

---

**2012**

**4710** - Chinese

**1433** - Islamic

**5772** - Jewish

**1390** - Persian





# overview of under-appreciated

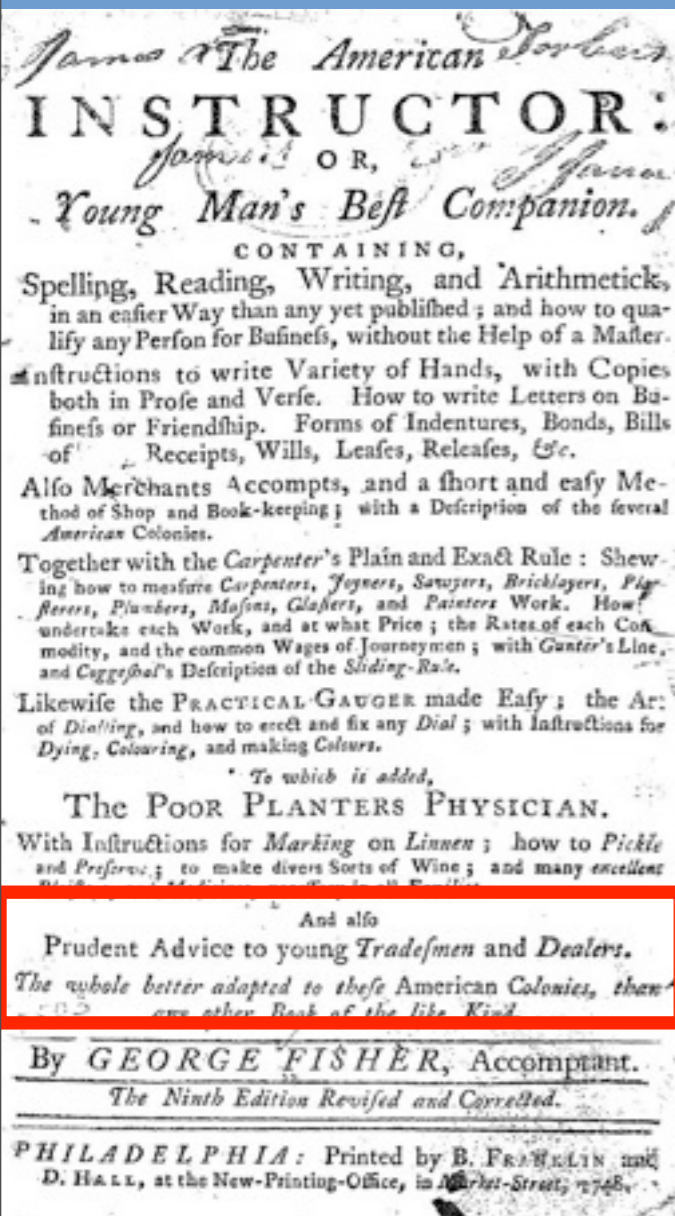


year  
2012  
1980  
1950  
1900  
1800  
1700  
1600  
1200  
600  
400  
0  
500  
3000  
5000  
30,000  
50,000





# "time is money"



*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.*

**R**EMEMBER 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.

The *American Instructor* is a primer of sorts, aimed at qualifying "any person for business, without the help of a master". The section on book-keeping nestles among lessons in reading, 'riting, and 'rithmetic, composition of formal documents, instruction in how to undertake trades and appraise the work of other tradesmen, pickle vegetables, graft fruit trees, make one's own dyes, wines, medicines... The whole seems to be a how-to guide for prospective self-made men in the American colonies.

--Timothy Webster

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# time-shift

---

"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

# real determinism?

---

## **Max Weber (1864-1920)**

*from*

rational capitalist accounting

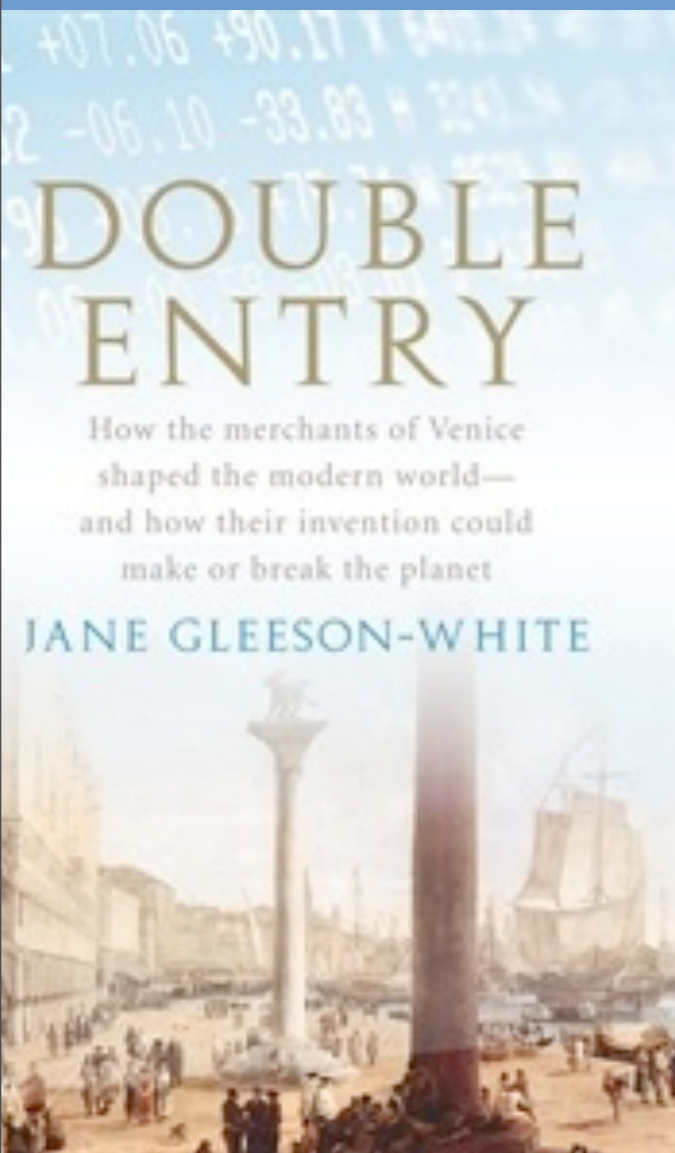
*to*

the iron cage

## **Werner Sombart (1863-1941)**

"abstraction of profit [leads to] economic calculation ... systemic organization ...

**depersonalization."**



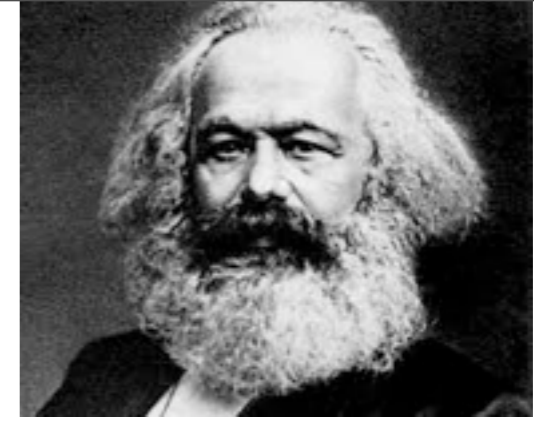


# relatively speaking

---

"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



## emblematic?

---

[O]ur friend Robinson ... having rescued a watch, ledger, and pen and ink from the wreck, commences, like a true-born Briton, to keep a set of books. His stock-book contains a list of the objects of utility that belong to him, of the operations necessary for their production; and lastly, of the labour time that definite quantities of those objects have, on an average, cost him. All the relations between Robinson and the objects that form this wealth of his own creation, are here so simple and clear as to be intelligible without exertion.

--Karl Marx, *Capital*, 1887

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overview

balancing

accounting

time control

technology  
of time

fighting  
time

# theme: information relativity?

---

## **absolutism**

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

--Isaac Newton, *Principia Mathematica*, 1687

"This ... restructured our concept of time from natural markers ... Rather than time working for us, we tailor ourselves to time, letting it mold our lives ... Almost every structure in modern daily life is structured by this constructed and artificial concept—stores have business hours, schools conduct classes at certain times of the day, and work is literally run by time. We set alarm clocks that jar us into wakefulness by reminding us of the time."

--Elizabeth Laning



# zoned out

## RUSSIA TIME FROM 2011

On 27 March 2011 all Russian Time Zones moved their clocks forward to Daylight Saving / Summer Time and this became the new *de facto* Standard Time.

There were a couple of exceptions: **Irkutsk** became Moscow +5 (TZ7) (GMT+9) and **Ulan-Ude** became Moscow+5 (TZ7) (GMT+9).

## RUSSIAN TIME ZONES CHANGES IN 2010

On March 28, 2010, Regions below changed their time zone. Effectively Russia Time Zones 3 & 11 disappeared.

All regions in Russia Time Zone 3 move to Time Zone 2, and those in Russia Time Zone 11 moved to time Zone 10. Details:

1. **Kamchatka region** ([Petropavlovsk-Kamchatskiy](#)), will change current time zone GMT+12, MSK+9 to current [Magadan Time Zone](#) (GMT+11, MSK+8)
2. **Chukotka region** (Chukotskiy Avtonomnyy Okrug, [Anadyr](#)), will change current time zone GMT+12, MSK+9 to current [Magadan Time Zone](#) (GMT+11, MSK+8)
3. **Udmurt Republic** (Udmurtia, [Izhevsk](#)) will change time zone GMT+4, MSK+1 to [Moscow Time Zone](#) (GMT+3, MSK)
4. **Samara oblast** ([Samara](#)) will change time zone GMT+4, MSK+1 to [Moscow Time Zone](#) (GMT+3, MSK)
5. **Kemerovo oblast** ([Kemerovo](#)) will change time zone GMT+7, MSK+4 to [Novosibirsk Time Zone](#) (GMT+6, MSK+3) (previous approval for Kemerovo region)

# dithering?

30 December 2011 Last updated at 06:23 ET

466

Share



## Samoa and Tokelau skip a day for dateline change

 COMMENTS (98)

**Samoa and Tokelau have skipped a day - and jumped westwards across the international dateline - to align with trade partners.**

As the clock struck midnight (10:00 GMT Friday) as 29 December ended, Samoa and Tokelau fast-forwarded to 31 December, missing out on 30 December entirely.

Samoa announced the decision in May in a bid to improve ties with major trade partners Australia and New Zealand.

Neighbouring Tokelau decided to follow suit in October.

The change comes 119 years after Samoa moved in the opposite direction. Then, it transferred to the same side of the international date line as the United States, in an effort to aid trade.



Samoa's Prime Minister Tuila'epa Sailele Malielegaoi says that he "feels great" after the time jump

[Related Stories](#)

13-Hofl12-Time&Money 14



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 [VIEW PRINTER - FRIENDLY](#)

FEATURE ARTICLE

## The Future of Time: UTC and the Leap Second

**Earth's clocks have always provided Sun time. But will that continue?**

David Finkleman, Steve Allen, John Seago, Rob Seaman, Ken Seldelmann

Before atomic timekeeping, clocks were set to the skies. But starting in 1972, radio signals began broadcasting atomic seconds and leap seconds have occasionally been added to that stream of atomic seconds to keep the signals synchronized with the actual rotation of Earth. Such adjustments were considered necessary because Earth's rotation is less regular than atomic timekeeping. In January 2012, a United Nations-affiliated organization could permanently break this link by redefining Coordinated Universal Time. To understand the importance of this potential change, it's important to understand the history of human timekeeping.



[+ enlarge image](#)

# AMERICAN Scientist

# artificial?

## Hold On A Second...Or Not. The Leap Second Lives For Now

by [Suzi Parrasch](#) | January 19, 2012 | 8:14 pm

32 comments



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- Send FACEBOOK
- Tweet
- +1 1
- REDDIT
- STUMBLEUPON
- DIGG
- E-MAIL
- TEXT SIZE: A | A | A | A

The lowly leap second got a new lease on life today when delegates at an [International Telecommunication Union \(ITU\)](#) meeting in Geneva decided to remain undecided on whether or not to do away with this smidgen of time. So the leap second will tick on, however sporadically, for three more years, while the ITU continues to study how purposeful it is.

Richard C. Beard, a State Department official who led the American delegation, said in a statement that discussions at the meeting "revealed a heightened degree of interest that has not previously existed on this issue," [The New York Times reported](#). The *Times* said Mr. Beard characterized the delay as "a significant step forward" and said the burst of interest in leap seconds "should allow for a decision that will



# hard cash?

FEBRUARY 26, 2012, 9:07 PM LEGAL/REGULATORY

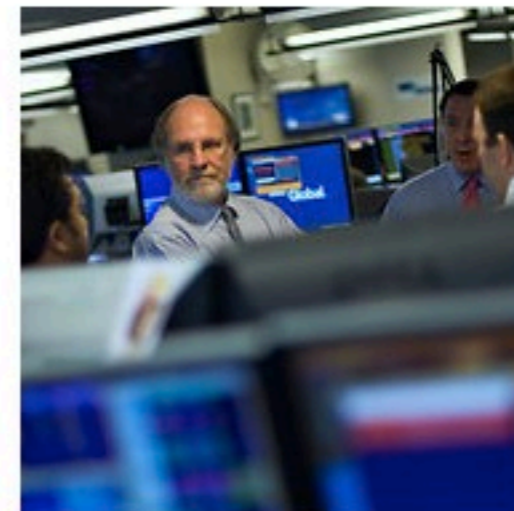
## Investigators Scrutinize MF Global Wire Transfers

BY AZAM AHMED AND BEN PROTESS

Federal investigators examining the final days at MF Global and how customer money went missing are poring over scores of wire transfers in and out of the brokerage firm, including the possible movement of \$325 million that may have belonged to customers, according to people briefed on the matter.

The suspicious transfer, which until now has not been made public, was first discovered in the early hours of Oct. 31, the day the firm filed for bankruptcy. Initially, the firm attributed a shortfall of more than \$1 billion in customer money to an “accounting error,” records show. But after hours of searching, executives acknowledged to regulators in the firm’s offices in Chicago that the shortfall was real — and may have been caused in part by the \$325 million transfer, said one of the people briefed on the matter.

It remains unclear where that money went, or even if it belonged to customers. But it is one of many significant wire transfers that federal authorities — including the [Commodity Futures Trading Commission](#) and the [Federal Bureau of Investigation](#) — have spent months reviewing to piece together MF Global’s final days.



David Goldman for The New York Times

Jon S. Corzine, the former chief of MF Global, in the firm’s Midtown Manhattan office in 2010.

# "information"

---

"Fisher describes the many different kinds of journals and books used to record exchanges and information."

--Kevin Huang

"Fisher is more convincing. This is because I think the organization and detail of which a ledger/day-book is set up leads to a very clear and helpful collection of information."

--Mary Nguyen

# "information"

---

## *Keeping a Day Book.*

**BOTH** merchants and mechanics are greatly indebted to their books of accounts, for information and success in the several branches of their business, by regular and correct entries. The transaction of every day should be correctly noted. The time when you plough, sow, plant, mow, pull flax, cut fuel, gather corn, potatoes, &c. and the quantity and quality of manure laid on each field, should be carefully noticed. You will then know the season when labor must

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accounting

time control

technology  
of time

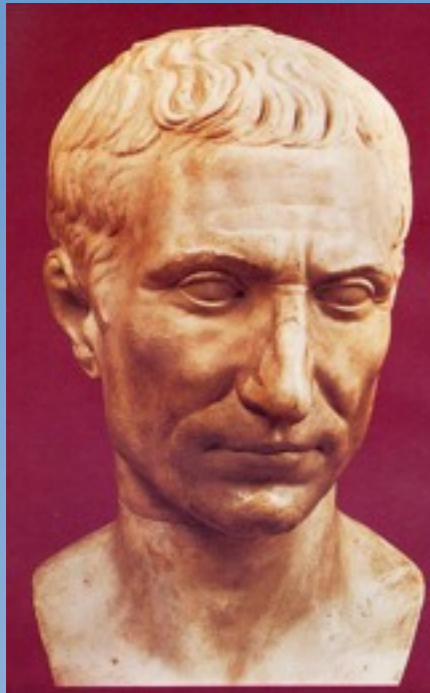
fighting  
time



**8th century bce:** 10 month calendar  
**713 bce:** 2 months added  
**153 bce:** beginning of the year moved  
from March to January

## Roman rules

---



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

Julian Calendar

**troublesome equinox**

**46 bce:** 445 days

**45 bce:** 365



**Augustus** (63 bce - 14 ce)

**8 bce:** a further course correction

Augustan Calendar

# when to begin?

---

## **the year dot:**

Dionysius Exiguus (c 470-544 ce)

## **still uncertain:**

"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."

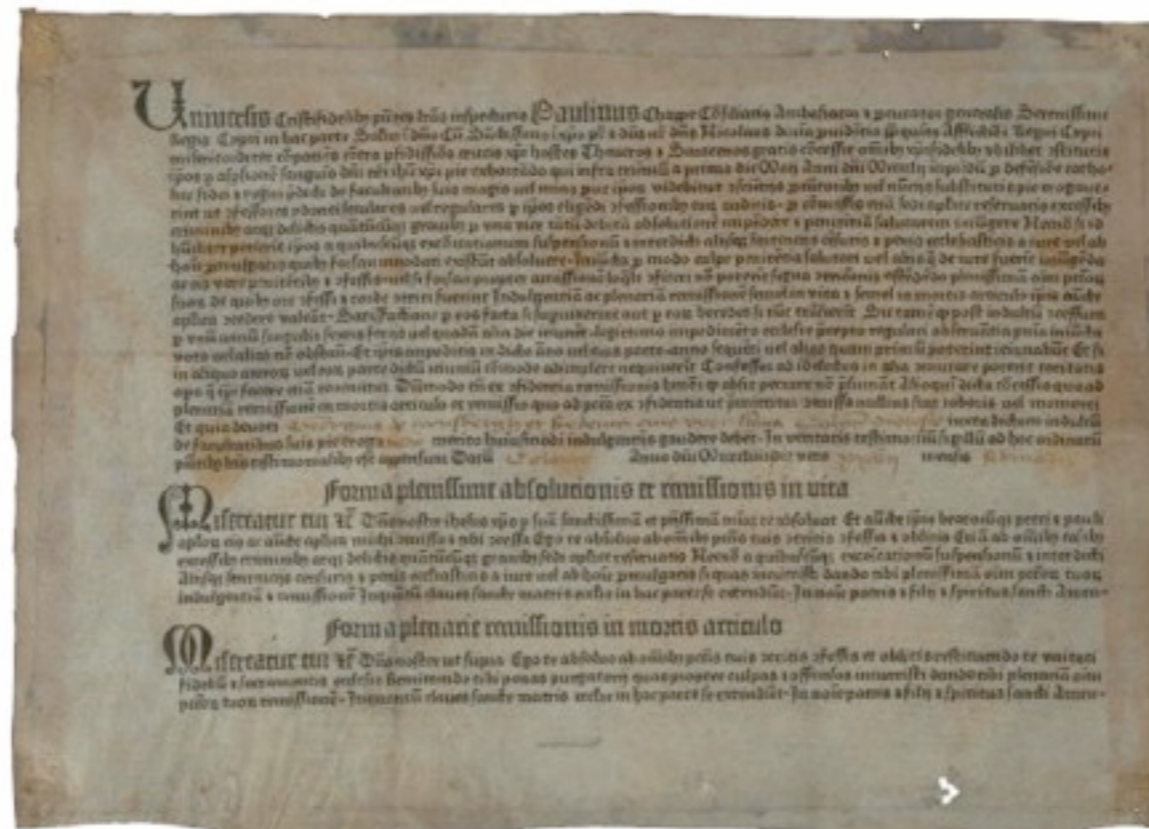
# cost of eternity

## time off for good behavior

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



Pope Clement V  
1260–1314







Luigi Lilio  
d 1576



Gregory XII  
1502-1585

# further uncertainties

---

## **New Year**

January 1 (Julian Calendar)

March 25 (Council of Tours, 567)

## **the struggle for Easter**

## **1582: Gregorian Calendar**

leap years, centurial years

## **the big leap**

Thursday October 4 to Friday October 15



# old time religion

## Orthodox & Protestants resist change


"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.

A portrait of John Wallis, an elderly man with a white beard and hair, wearing a black cap and a red and black academic or clerical robe. The portrait is set within a circular frame.

John Wallis  
1616–1703

# anglo-american course correction

---

**1752**

Wednesday September 2

Thursday September 14

**complaints from Montaigne to Pynchon**

"give us back our eleven days"







# old time religion

---

## **residual effects ....**

tax day: April 6

## **... and confusions**

historical dates --eg Statute of Anne 1709/10

Coming up  
*ip*



# old time religion

---

## residual effects ....

tax day: April 6

## ... 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](#).

Coming up  
*ip*

# old time religion

---

## residual effects ....

tax day: April 6

## ... and confusions

### History of copyright law

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### Statute of Anne

---

From Wikipedia, the free encyclopedia

(Redirected from [Statute of anne](#))

The **Statute of Anne** (c.19), an act of the [Parliament of Great Britain](#), was the first statute to provide for [copyright](#) as a matter regulated by the government and courts, rather than by private parties. Prior to the statute's enactment in 1710, copying restrictions were authorized by the Licensing Act. These restrictions were enforced by the [Stationers' Company](#), a guild of printers given the exclusive power to print—and the responsibility to censor—literary works. The censorship administered under the Licensing Act led to public protest; as the act had to be renewed at two-year intervals, authors and others sought to prevent its reauthorization. [1] In 1694

Coming up  
*ip*

# old time religion

## residual effects ....

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## ... and confusions

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### **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*.

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Coming up  
*ip*



# decimalization

---

## **French revolution**

year I again

10 days a week

10 months a year

New Year September

Vendémiaire, Brumaire, Frimaire, Nivôse, Pluviôse, Ventose,

Germinal, Floréal, Prairial, Messidor, Thermidor, Fructidor

## **industrial capitalism?**



overview

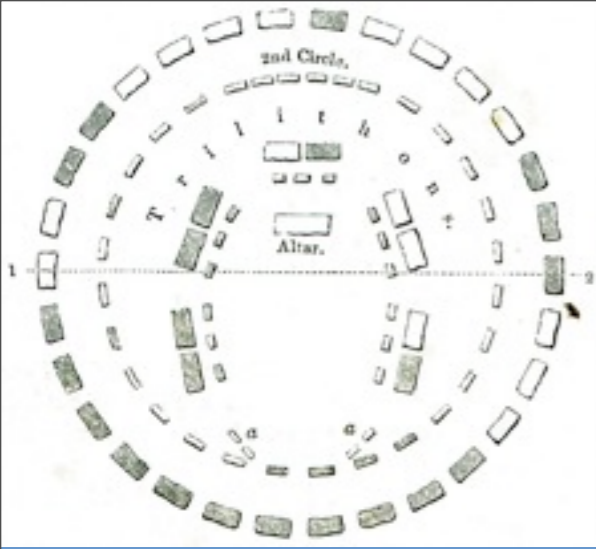
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of time

fighting  
time



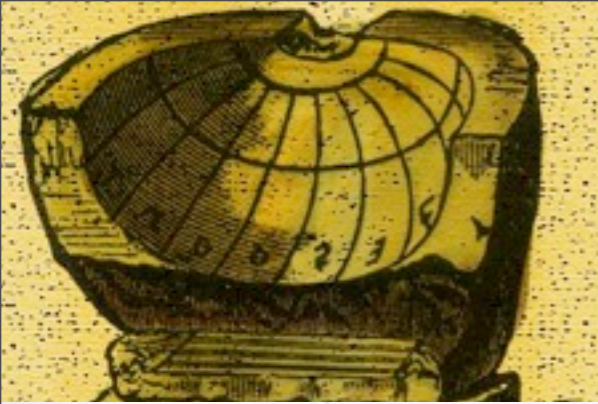
# the long then

"Most of what has been written about Stonehenge is nonsense"  
R.J.C. Atkinson

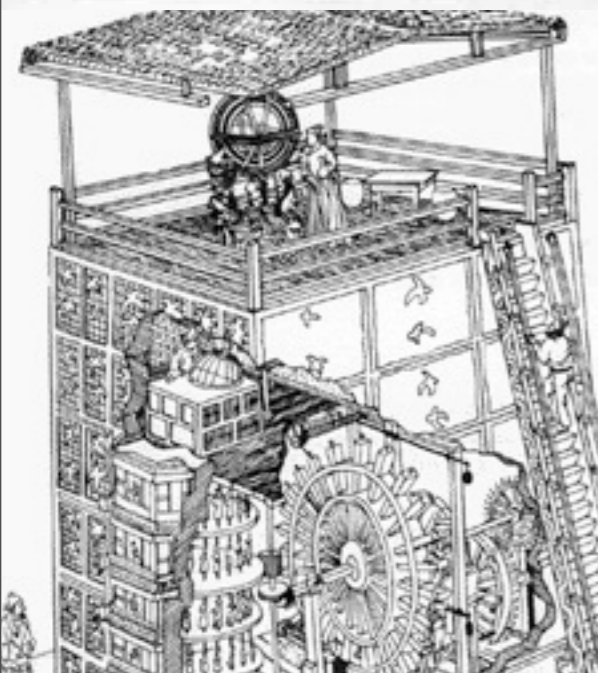
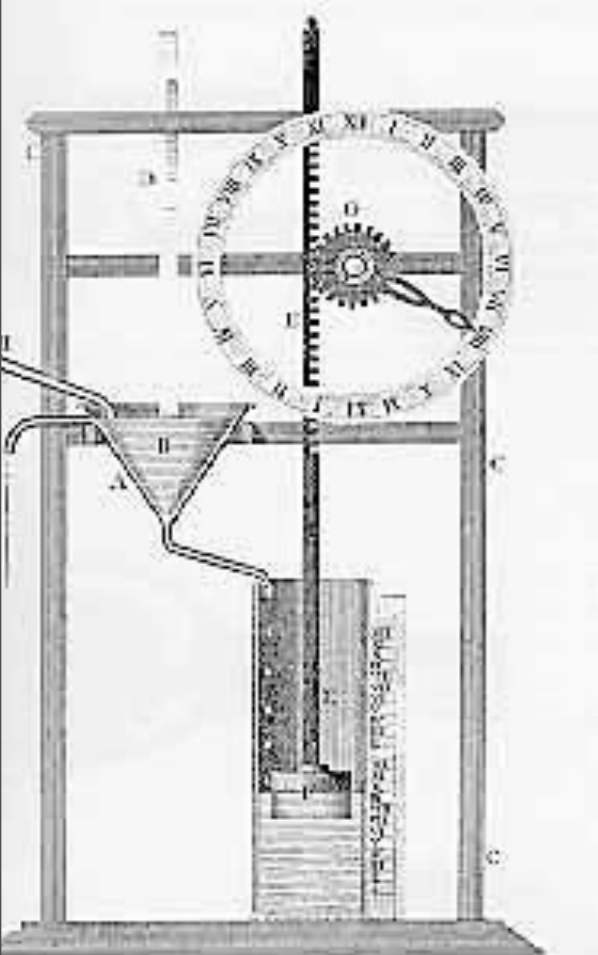
**c. 3100 bce**



**antikythera c 200 bce**  
13-Hof12-Time&Money 28

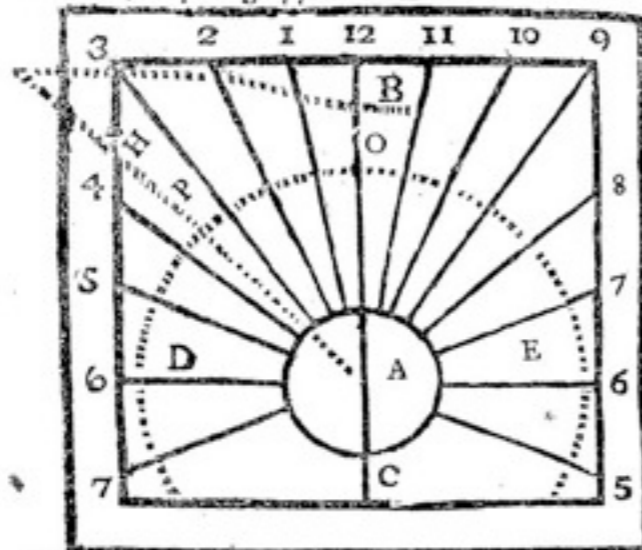


# clock time



244 *The Young Man's Best Companion.*

But to proceed to Dialing, the following Figure represents an Horizontal Dial, described for the Latitude of New-York, at 41 deg. 44m. North.



First, Draw the Meridian or 12 o'Clock Line *BAC* and cross the same with the Line *DE*, at right Angles in the Point *A*, which must be the Center of your Dial, and the Line *DE*, 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 *DOE*, 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 *DOE*.  
Latitude 41 Degrees 44m. North.

Hours.	Hour.	Hour.
Fere-noon.	After-noon.	Arches D. M.
11	1	9 46
10	2	20 22
9	3	32 44
8	4	48 4
7	5	67 22

**3500 bce:** sundials

**1400 bce:** Egyptian water clocks

**700 ce:** hourglasses

**1086:** Su Sung's water tower

**1668:** Joseph Moxon,  
*Mechanick Dyalling*



"Wel sikerer was his crowyng in his logge  
Than is a klokke, or an abbey orlogge"

## automata

**1300:** mechanical clocks  
Richard of Wallingford

**1656:** Huygens pendulum clock

**1660:** Hooke & the spring watch



86

*The Antiquity* Chap. VI.

Chap. VI. of *Clock-work*

87

*modum dentata, quæ unâ motione coacta, versando faciunt effectus, varietatesque motionum: in quibus moventur Sigilla, vertuntur Metæ, calculi aut Tona projiciuntur,* Clocks, and some other *Automata*, might have their beginning there; or that Clock-work (which had long been buried in oblivion) might be revived there. But

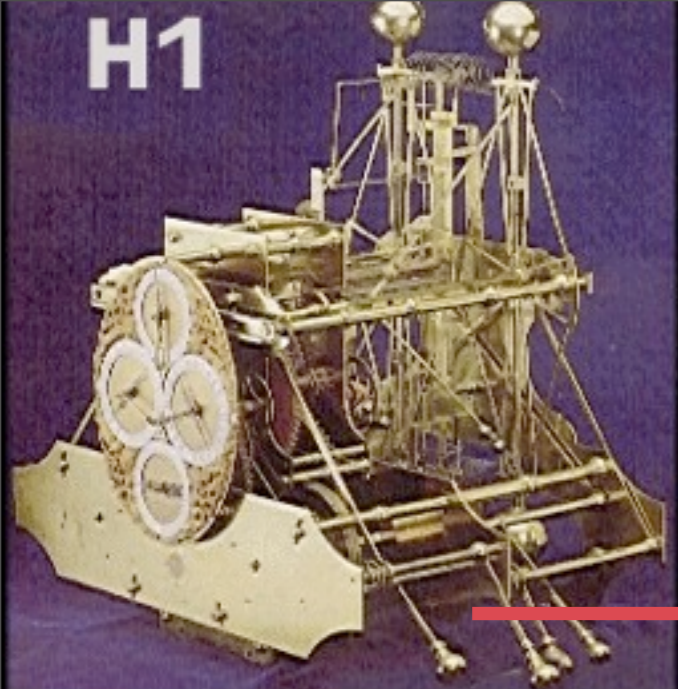
Derham, *The Artificial Clock Maker*, 1696

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Richard of Wallingford  
1292-1336



H1



## going global

---

**1730-61:** Harrison's nautical clock

**c1850:** telegraph time

**1852:** Greenwich mean time

**1883:** US standard time

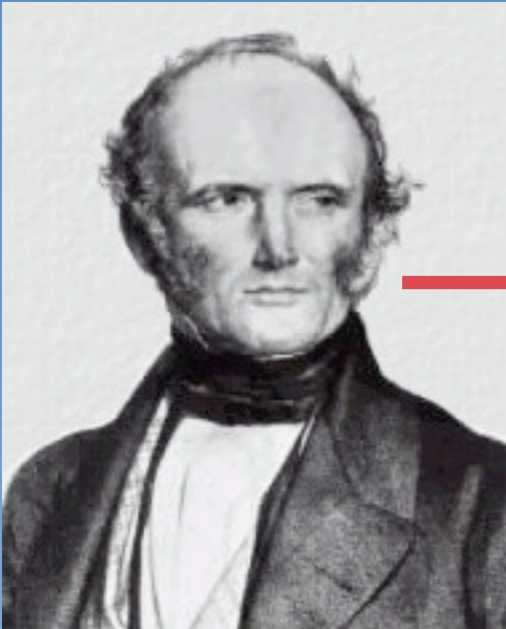
**1884:** Meridian Conference, DC

**1911:** France: Cassini Meridian

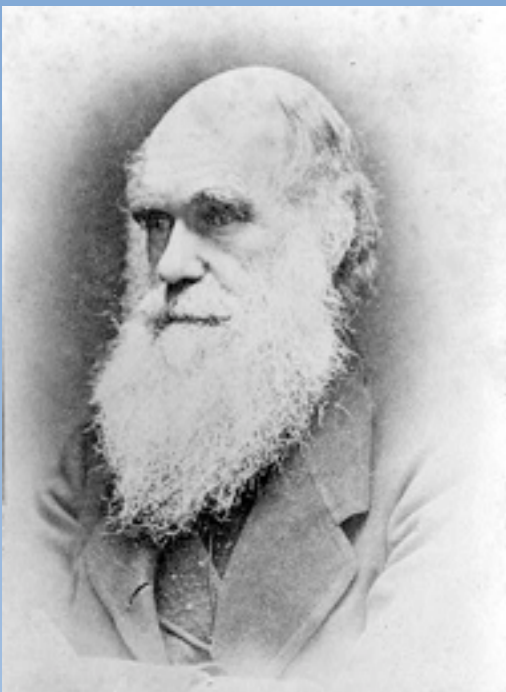


# deep time

---



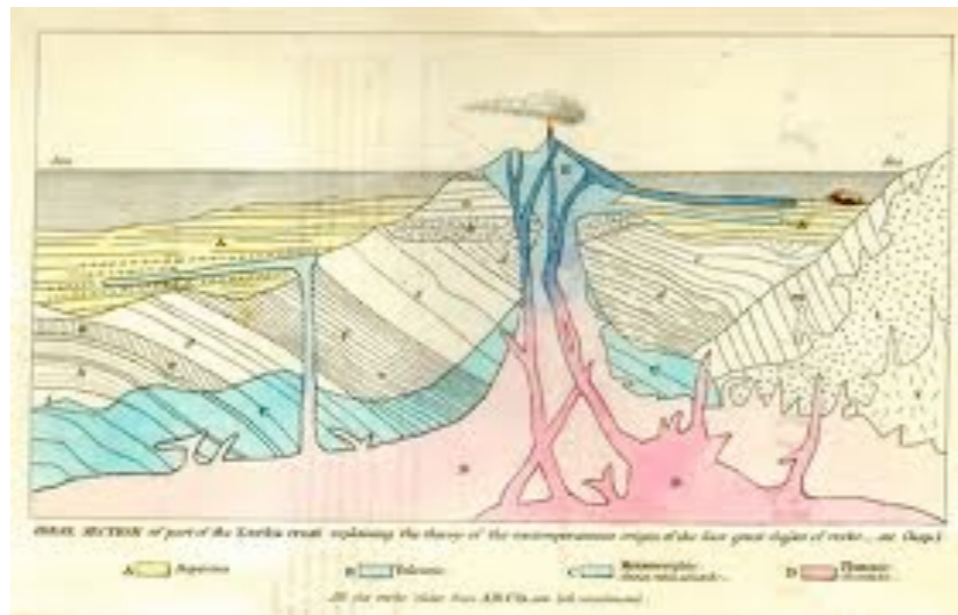
Charles Lyell  
1797-1875



Charles Darwin  
1809-1882

## geological time

Lyell: "time, time, time"



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

overview

balancing

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time



# 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"

# fields to factories

---

"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"

schools "a spectacle of order and regularity"...

"they are become more tractable"

# factory discipline

## **Wedgwood's Etruria** "clocking in"



Coming up  
*advertising*





Laurence Sterne  
1713–1768

## the wind up

*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

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# time

---

"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

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# battles ahead

"a vigorous and licensed popular culture had evolved, which the propagandists of discipline regarded with dismay"

"fight, not against time, but about it"





**Janet Lee:** very little wiggle room for people who choose to deviate from this pattern

**Jessica Feng:** We are so focused on “having enough time” and “getting there on time” that time becomes a pull no matter how much of it we save up. We are not in control of our time; time is in control of us.

# control

---

**Alisa Karchemsky:** It is easy to observe the possible implications of Thompson’s argument in today’s mobile society, where the phrase ‘time is money’ has never been more true ... There seems to be less hours in the day and more things to do because work labor seeps into domestic and social life. In addition, time must be prudently delegated to pleasure, which becomes a task in itself.

**Colleen Murphy:** The idea that time and its accounting manages and restrains our lives is true now more than ever. In the modern day, it seems as if every last hour of our lives is planned or booked. Time is something we all feel we do not have enough of, because we are constantly piling things into already crammed schedules.

**Diana Perez:** technology has only fueled our obsession to fill every possible minute of the day with being productive and working to get ahead and to increase our monetary success.

# control

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**Angelica Tavella:** illustrative of the drastic effect timed labor has had a majority of the population, but also the disparity time-management has on the quality of life according to social statuses, and has only become more standardized since the publication of Thompson's work.

**Arla Rosenzweig:** Obsessed with routine and the constant counting of time passing, people have lost their ability to follow a more natural pattern, one dictated by anything other than a machine. It has become so engrained within society that a new problem arises. Are humans even able to live without a sense of time anymore? If the answer is no, have we become a breed of robots, unable to function without a strict routine? Much of today's society is centered on social norms, which dictate a strict schedule a person is expected to follow. But perhaps as this schedule begins to define society more, people lose more than just control over their lives; they may also be losing a sense of identity that isn't dependent upon time.

# freedom

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**Douglas Blue:** However, if we compare current work conditions to those Thompson cites, it seems like "time control" is lessening. Certainly not many employers require their employees to give up their time pieces or set clocks forward or backwards according to their advantage. More jobs offer flexible hours or pay according to tasks completed, allowing employees to work according to their convenience, than in the time Thompson discusses.

**Stephen Chan:** Among the peoples, there should be a lessening distinction between work and play. I find this to be truer and truer as around me I see increasing evidence of successful and joyful self-employed people (though this might be a symptom of youthful optimism or a reflection of where I focus my attention). I believe the internet, in particular, provides a free realm for people to escape the standard employer-employee relationship birthed from the industrial age.

# freedom

---

**Emon Montamedi:** While I agree with Thompson in his opinion that the technology of time led to people being “undoubtedly subject to an intense labour discipline (Pg. 77)” and hence having their lives more controlled, I feel that it was a necessity to propel our society to where it is today. Without having strict timing requirements in regard to work shifts and other aspects, societal productivity would have been significantly hindered as managerial mechanisms would have been lost. Although this did lead to less freedom on an individual level, it significantly impacted society and allowed for the great innovation and progress that has been seen.

**Vinson Chuong:** Today, we are driven by accounting. Businesses make decisions based on what the accounting says about their bottom lines. Public transportation operates on precise time tables, the content of those tables accounting for demand and potential profits at various times of day. ... Accounting is empowering to an individual or an organization.



**Jeremy Elster:** Through the Marxist lens, the proletariat did not have control over their days (working at the time 10-14 hours in a factory). Today, we have a comparable situation in which the 'technology of time' exists and some exploit while others are exploited. Like most "inventions", some stand to gain while others will not. Ultimately, its success rides on perspective and the individual.

libras

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**Sophia Richter:** Overall, the concepts of time and accounting organization as tools of freedom and control depend on who is the agent. When time is controlled by the worker, it can mean immense freedom. The same is true for accounting and organization. However, when these tools are in the hands of others, they allow for a powerful hold over those that are controlled by these systems.

**Vyoma Shah:** Whether this is "good" or "bad" is a moral debate not to be addressed here.

**Alexander Wen:** Through careful and thorough accounting, the resulting written records can provide a way to order and organize one's life in an effective, visual way. However, an over reliance on accounting or scheduling that is inflexible, with standards set personally or externally, as from nature or a boss, can result in a life that is controlled and dictated by the clock.

overview

balancing

accounting

time control

technology  
of time

fighting  
time

# accounting

---

## **Sumerian tablets**

record keeping

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

--Hammurabi 1700 bce

## **Roman**

adversaria, codex accepti et dispensi, liber rationum



# the Italian method

**1494:** Luca Pacioli *Summa de Arithmetica*

"The inventor of Accounting ..."

[cp Gutenberg et al ...]

**1211:** proto double entry, Florence

**c 1340:** double entry in Genoa

**1366:** The Merchant of Prato  
(Francesco di Marco Datini)

accounting  
"Arabic" numerals



Luca Pacioli  
c 1445– 1517





Maurice of Nassau  
1567–1625

# a popular literacy?

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**from princes and courts**

Prince Maurice of Nassau

"Information master"

**to plebians and the gallows**

Peter Linbaugh, *The London Hanged*, 1993

*Anna Karenina vs War & Peace*



Jean-Baptiste  
Colbert  
1619–1683

popular item

mysterious

Mr Fisher and

Mrs Slack

*James & The American Colonies*  
**INSTRUCTOR:**  
*James & The American Colonies*  
*Young Man's Best Companion.*  
CONTAINING,  
Spelling, Reading, Writing, and Arithmetick,  
in an easier Way than any yet published; and how to qua-  
lify 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 Bu-  
siness or Friendship. Forms of Indentures, Bonds, Bills  
of Receipts, Wills, Leafes, Releases, &c.  
Also Merchants Accompts, and a short and easy Me-  
thod of Shop and Book-keeping; with a Description of the several  
*American Colonies.*  
Together with the *Carpenter's* Plain and Exact Rule: Shew-  
ing how to measure *Carpenters, Joiners, Sawyers, Bricklayers, Plaf-  
sterers, Plumbers, Masons, Glasiers, and Painters* Work. How  
undertake each Work, and at what Price; the Rates of each Com-  
modity, 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  
*Plaisters,* 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,** Accomptant.  
*The Ninth Edition Revised and Corrected.*



# made in America

---

*In the British Edition of this Book, there were many Things of little or no Use in these Parts of the World : In this Edition those Things are omitted, and in their Room many other Matters inserted, more immediately useful to us Americans. And many Errors in the Arithmetical Part are here carefully corrected.*

V A L E & F R U E R E .

"spelling  
reading  
writing  
arithmetic  
... how to  
qualify any  
person for  
business ...  
write  
letters ...  
Merchants  
Accompts ...  
the several  
American  
Colonies"

## the next thing

---

"The next Qualification to fit a Man for  
Business, after *Arithmetick*, is the Art of *Book-  
Keeping* or *Merchants Accompts*, after the *Italian  
Manner*, by Way of Double Entry."

Waste-Book (Memorial)

Journal

Leidger



# accounting for ...

---

## **profit . . .**

"the Pleasure that accrues to a Person by seeing what he gains by each Species of Goods .. and his whole Profit by a Year's trade"

## **. . . and control**

"to know the true State of his Affairs and Circumstances; so that he may, according to Discretion, retrench or enlarge his Expences, &c. as he shall think fit."



still going



## Quicken Home & Business 2012

### Welcome to GnuCash.org

Fe

*GnuCash* is personal and small-business financial-accounting software, freely licensed under the **GNU** GPL and available for GNU/Linux, BSD, Solaris, Mac OS X and Microsoft Windows.

Wt

Se

Designed to be easy to use, yet powerful and flexible, *GnuCash* allows you to track bank accounts, stocks, income and expenses. As quick and intuitive to use as a checkbook register, it is based on professional accounting principles to ensure balanced books and accurate reports.

Cu

Sy

#### Download GnuCash 2.4.10



Linux Source | Via distribution



Microsoft Windows XP/Vista/7



Mac OS X Intel | Power PC | Readme

[More downloads \(Source, Development,...\)](#)



# waste-book

"In this Book must be daily written whatever occurs in the way of Trade; as Buying, Selling, Receiving, Delivering, Bargaining, Shipping, &c. without Omission."

*Delivered, of the*

## *Waste-Book Entry.*

*London, January 1, 1758.*

*Bought of William Wilkins, of Norton-Falgate, 120 Yards of white Sarcenet,*

*at 2s. 3d. per Yard, to pay in two Months. — — — — —*

<i>l.</i>	<i>s.</i>	<i>d.</i>
13	10	—

5/23/06	WITHD	Good Earth Groceries	27.36	Deposit	1,669.04
		Groceries	4456 PURCHASE	Open Split	
5/23/06	[EFT	Sun State Credit Cards	250.00		1,419.04
		[Sun State]			
5/24/06	1209	Water Company	32.15		1,386.89
		Utilities:Water			
5/27/06	[EFT	Phone Company	47.62		1,339.27
		Utilities:Telephone			

# journal

"Into this Book every Thing is posted out of the *Waste-Book*, but in other Terms, in a better Stile, and in a fairer Hand, without any Alteration of Cyphers or Figures; and every Parcel, one after another, promiscuously set without Intermission, to make the Book, or several Entires of it, of more Credit and Validity, in case of any Law Dispute, or any other Controversy."



# ledger

---

From the *Journal* or *Day-Book* ... all Matters of Things are posted to the *Ledger*, which by the *Spaniards* are called *El Libro Grande*.

... The Left-hand Side of this book is the *Debtor*, and the Right the *Creditor*

*Waste-Book.*

London, Feb. 2d. ———— 1758.

Sold *Thomas Townsend*, viz.

246 lb. of Virginia Cut Tobacco, at 14d. per lb. }	14 07 —		
460 Ells of Dowlas, at 3s. per Ell ———— }	69 — —		
		83	07

*Feb. 2.  
Journal.*

6 <i>Thomas Townsend</i> , Debtor to Sundries, viz.			
1 To Tobacco, for 246 lb. at 14d. per lb. ———— }	14 07 —		
1 To Dowlas, for 460 Ells, at 3s. per Ell. ———— }	69 — —		
		83	07

*Waste-Book.  
Ditto 24th.*

Bought of *Leonard Legg*, 4 Pipes of Canary, at 28l. per Pipe. ————  
To pay in 6 Months.

112

*Ditto 24th.  
Journal.*

1 Canary Wine, Debtor to <i>Leonard Legg</i> , for 4 Pipes, at 28l. per Pipe. ————			
2 To pay in 6 Months.		112	—

# cross referencing

The short Lines ruled against the Journal Entries are ...Posting Lines, and the Figure on Top of the Lines denotes the Folio of the Leidger where the Debtor is entered.

# double-entry

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## **well, duh ....**

"This Art of *Italian* Book-keeping, is called *Book-keeping by double Entry*, because there must be two Entries; the first being a Charging of a Person, Money, or Goods; and the second a Discharging of a Person, Money or Goods."

## **more than double**



John Schmidt-Surlehn

D

174	February 12	To Goods for 119 dozens	3	215 12
175	May 25	To do for 116 dozens	157	190 6
176	Sept 7	To Schiff for 20 Bundles stuff	256	64
177	Decem 16	To do for 30 Bundles &	.	00 6
				<u>100 6</u>
175	April 29	To Goods for 58 dozens	269	135 10 4
176	May 15	To Schiff for 20 Bundles stuff	275	53 8 4
176	July 12	To do for 15 & 30 dozens of Linings	255	206 6
				<u>395 4 8</u>
176	July 3	To Goods for 60 dozens	296	112 3
177	Sept 13	To Schiff for 22 Bundles	298	58 4
177	Sept 31	To Goods for 110 dozens	299	166 15
177	April 25	To Goods for 102 dozens	302	264 8
177	October 22	To W. Madden some Alts. advised by him to pay them	157	15 15 8
				<u>283 3 8</u>

£224.14.0

W & J Cox & Nottingham

179	Decem 31	To Goods	173	3
179	Aug 21	To W. Madden for off in Ind to London	154	100
179	Sept 29	To Cash	169	65
179	Decem 31	To Abatements for direct received	164	4 13
				<u>175 13</u>
179	Nov 31	To Cash paid them	223	107 11
179	Decem 31	To do for 77.00 direct	256	9 3 6
175	July 29	To Cash paid them	272	145
176	Aug 31	To do	.	12 14
176	Aug 31	To do	.	33 7
176	Oct 31	To do	.	36 16
176	Decem 31	To do	.	27 5
				<u>271 6 6</u>
176	Aug 31	To Cash paid them	272	46 10
176	Decem 31	To do	.	144 7
176	Decem 31	To do	.	22 5
		To Abatements for Direct received	247	17 14 10
				<u>230 16 10</u>
177	May 31	To Cash paid them	272	80 6
177	July 31	To do	.	140 11
		To London of off in Ind to London	244	78 13
177	Aug 31	To Cash paid them	272	13 11
177	Decem 31	To do	.	103 9 4
		To Abatements for Direct received	307	48 18 5
				<u>466 8 9</u>

Contra

Co 93

174	October 15	By London for 2 Bills on London & direct £12.0	754	215 12
174	Decem 14	By 3/4 flight to for off in Harman to London and by from Baltimore	157	185
174	Decem 31	By Abatements for direct received (see entries & draw this Bill. Schmidt-Surlehn of 174)	164	5 6
				<u>190 6</u>
175	Nov 30	By Cash of Reid Irving & London & 30 night	223	00 3 3
175	Decem 31	By Abatements for off in Ind to London	149	3 16 9
175	March 31	By Sundries & off in John Mayer London for 10 & 6 of direct £5.16 7 1/2	244	00 6
				<u>100 6</u>
175	Aug 31	By Cash of off in Harman & London	272	150
175	Decem 30	By do	.	26 12
		To Abatements for off in Ind to London	276	11 6 7
175	May 31	By London of off in London for 13 & 6 of direct £12.8	244	207 6
				<u>305 4 8</u>
175	October 14	By London of off in B. A. Godefrucht to & 6 of direct £11.5 11 3/4	113	7 12 3
175	March 31	By Sundries of off in C. P. Wagners London & 6 of direct £13.10 11 3/4	154	2 13 10
175	April 30	By Cash of off in Harman & do	272	11 9
				<u>224 14 0</u>
177	Oct 22	By Sundries of 2 Bills on London & 6 of direct £15.17	203	283 3 8

Contra

179	Decem 31	By Schiff for 294 11 Silks bought this year	151	120 7 5
179	Decem 31	By London 12.11.10 & 4 7/2 of Silk piece	1125	46 5 7
				<u>175 13</u>
179	Decem 31	By Schiff for 58 4 Silks	256	164 12 6
175	Decem 30	By do for 134.12 &	285	106 9
				<u>271 6 6</u>
179	Decem 31	By Schiff for 101 1/4 Silks bought	249	230 16 10
179	Decem 31	By Schiff for 191 1/4 Silks bought	305	466 8 9



overview

balancing

accounting

time control

technology  
of time

fighting  
time

balancing  
accounts

writing off

bottom line

## assets = liabilities + equity

# Golden Rule

Balance in the Leidger.

The Rules for Balancing are these, *viz.*

1<sup>st</sup>, Even your Accompt of Cash, and bear the Nett Rest to balance Dr.

2<sup>dly</sup>, Cast up all your Goods bought, and those sold of what kind soever, in each Accompt of Goods; and see whether all Goods bought, be sold or not; and if any remain unsold, value them as they cost you, or according to the present Market Price, ready Money; and bear the Nett Rest to balance Dr.

3<sup>dly</sup>, See what your Goods or Wares severally cost, and also how much they were sold for, and bear the Nett Gain or Loss to the Accompt of Profit and Loss.

4<sup>thly</sup>, Even all your Drs. and all your Crs. in order as they lie, and bear the Nett Rest of every Dr. and Cr. to Balance.

5<sup>thly</sup>, Even your Voyages, your Factors Accompts wherein is either Gain or Loss, and bear the Nett Gain or Loss to the Accompt of Profit and Loss, and the Goods unsold to Balance.

6<sup>thly</sup>, Even the Accompt of Profit and Loss, and bear the Nett Rest to Stock or Capital, as an Advance to your Stock or Capital.

7<sup>thly</sup>, Even your Stock, and bear the Nett Rest to balance Cr.

Then cast up the Dr. and Cr. Sides of your Balance; and if they come out both alike, then are your Accompts well kept; otherwise you must find out your Error by pricking over your Books again, to see whether you have entered



# U.S. Census Bureau U.S. Bureau of Economic Analysis *NEWS*

U.S. Department of Commerce • Washington, DC 20230

FOR IMMEDIATE RELEASE  
8:30 A.M. EST FRIDAY, FEBRUARY 10, 2012

## U.S. Trade Deficit Exceeds Projections

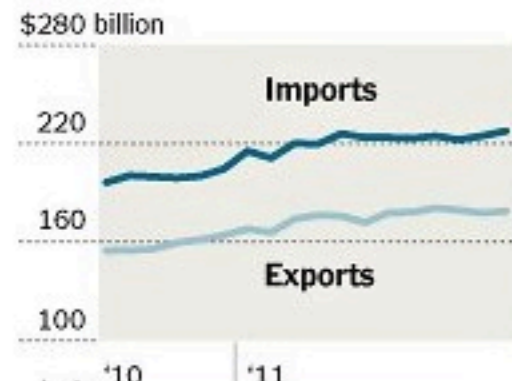
By REUTERS  
Published: February 10, 2012

WASHINGTON (Reuters) — The nation's trade deficit widened slightly more than expected in December, as stronger economic growth lifted imports to the highest level in three and a half years, the Commerce Department said on Friday.

### Balance of Trade

The deficit is the excess of imports over exports for goods and services. Amounts are rounded, in billions of dollars, seasonally adjusted.

Dec. 2011	
Imports	\$227.55 billion
Exports	178.75
<b>Balance</b>	<b>-\$ 48.80 billion</b>



The report showed that the deficit with China rose last year to a record high \$295.5 billion, underscoring an irritant in the relationship between the two countries ahead of talks next week.

In another report Friday, the Thomson Reuters/University of Michigan index of consumer sentiment showed that Americans felt worse about their personal finances in early February. The index fell to 72.5 in early February, from 75.0 in January. It was the first drop in six months and reflected households' anxiety over their finances.

The monthly trade gap swelled to \$48.8 billion as imports climbed to the highest level since July 2008, just before the financial crisis caused world trade to plunge.

Analysts surveyed before the report had forecast a December trade deficit of \$48.0 billion, up from a revised estimate of \$47.1 billion in November.

Exports from the United States grew slightly in December, with records set for petroleum, services and advance technology goods.

For information on services contact:  
U.S. Bureau of Economic Analysis:  
Technical: Edward Dozier 202-606-9559  
Media: Ralph Stewart 202-606-2649

CB12-27, BEA12-04, FT-900 (11-12)

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📄 REPRINTS

➕ SHARE



## CHANGE IN GOODS AND SERVICES TRADE BALANCE December 2011

U.S. International Trade in Goods and Services



(\$0.2 billion). Decreases occurred in *consumer goods* (\$1.0 billion) and *capital goods* (\$0.2 billion).

# 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



David Hume  
1711-1776



# unbalanced or "out of humour"?



**Michael Pento**, Contributor

I examine federal monetary policies and other macroeconomic issues

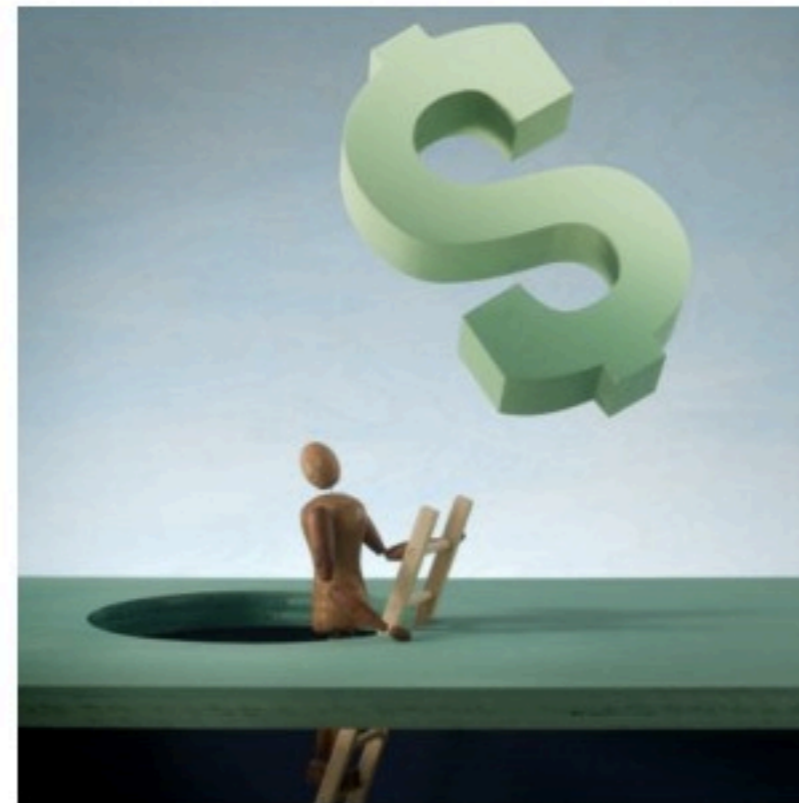
[+ Follow on Forbes](#)

2/15/2012 @ 12:35PM | 270 views

## Trade Deficit Data Belies U.S. Recovery

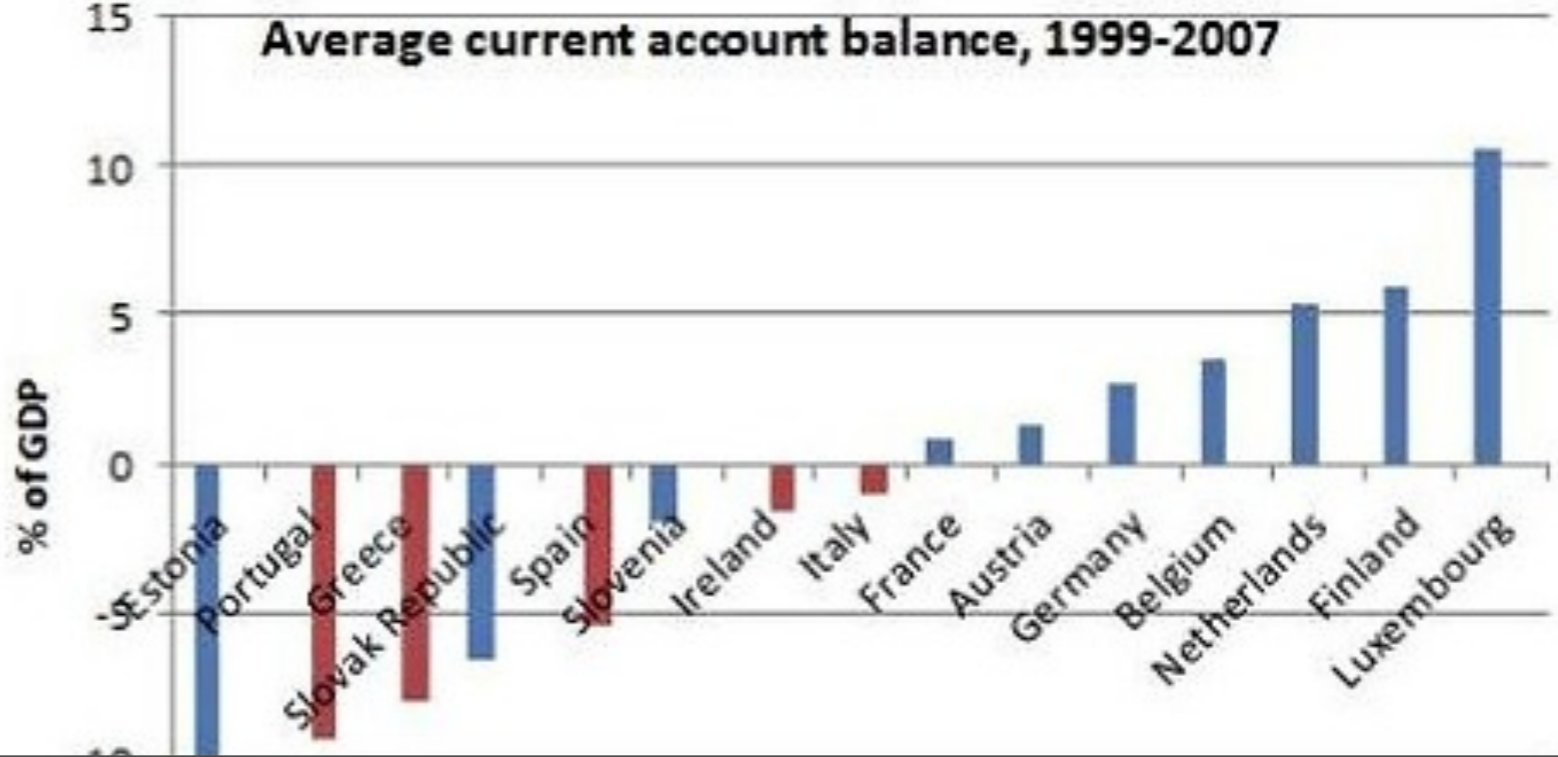
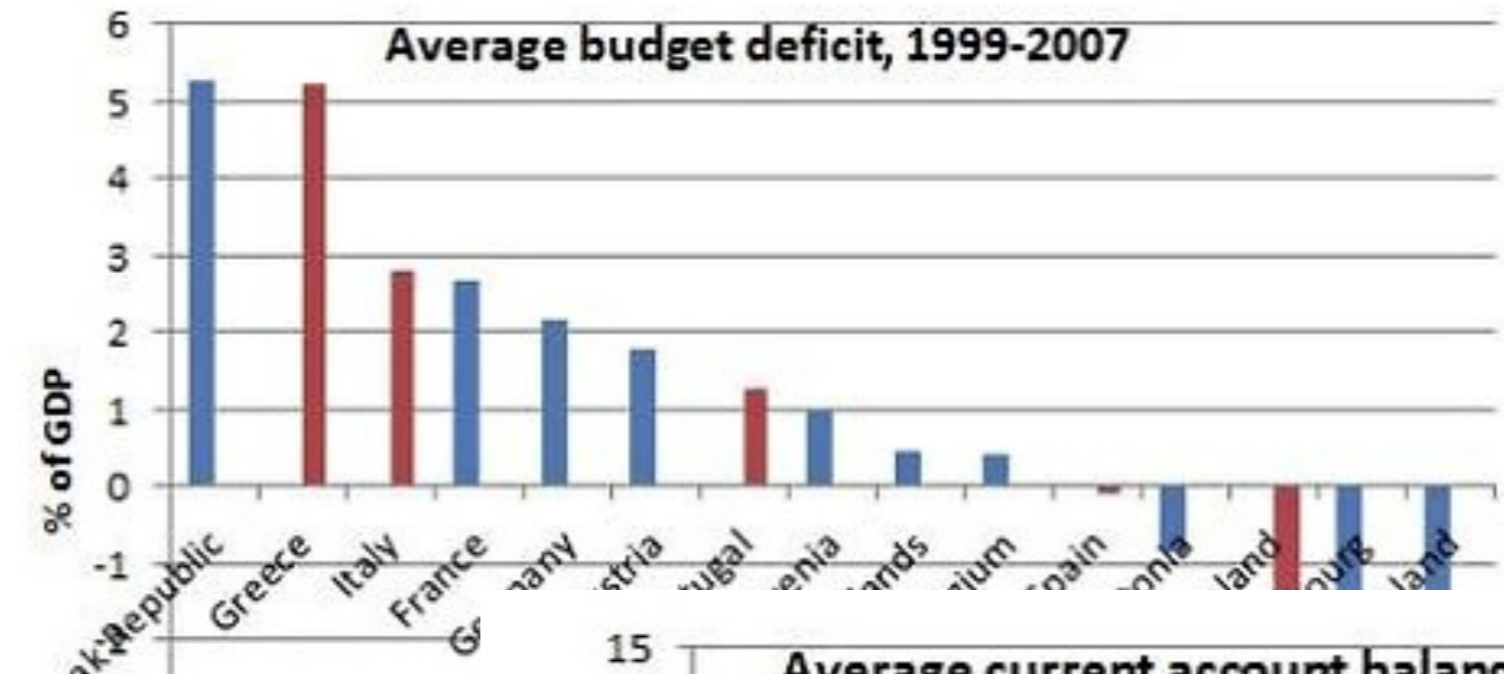
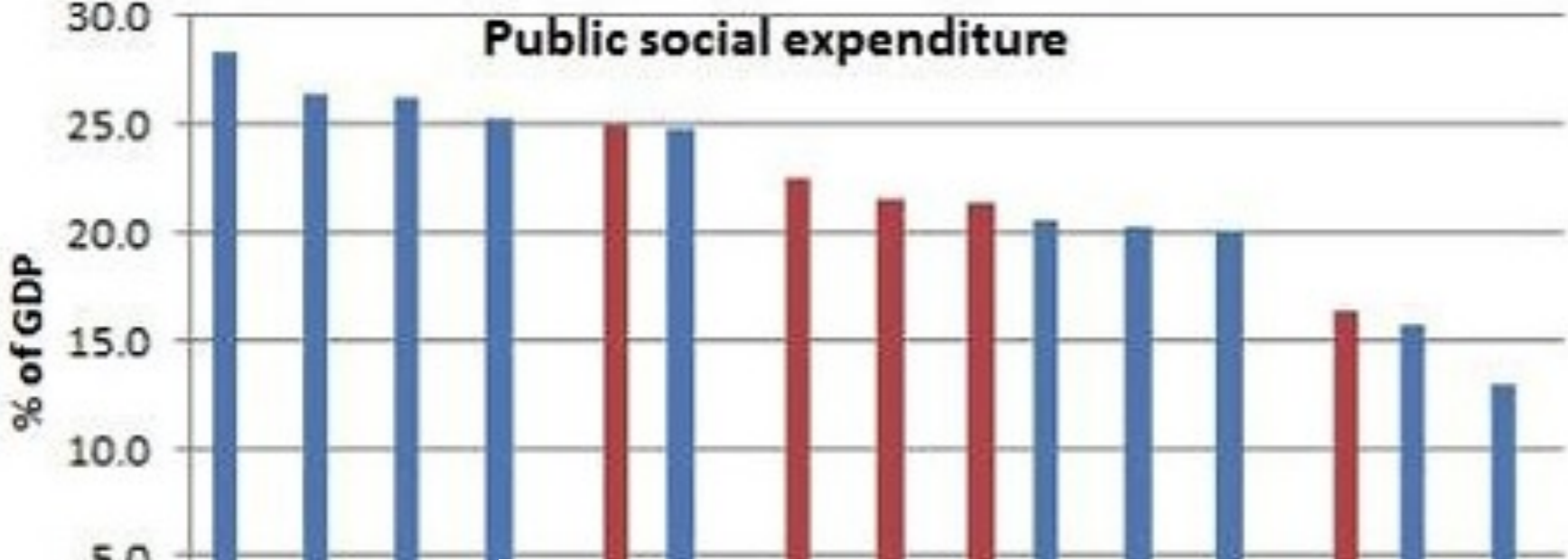
[+ Comment now](#)

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.



Feb 25, 2012

right  
balance?



# balancing nations

---

## **Treaty of Utrecht, 1713**

War of the Spanish Succession

## **the commercial treaty**

free trade with France

## **the balance of trade**

mercantilism and national interest





# trade problems

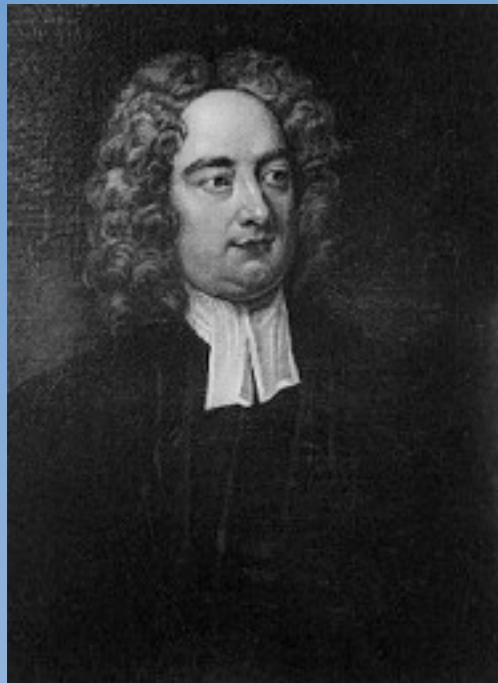
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## **rousing the wool interest**

*Mercator* (Daniel Defoe)

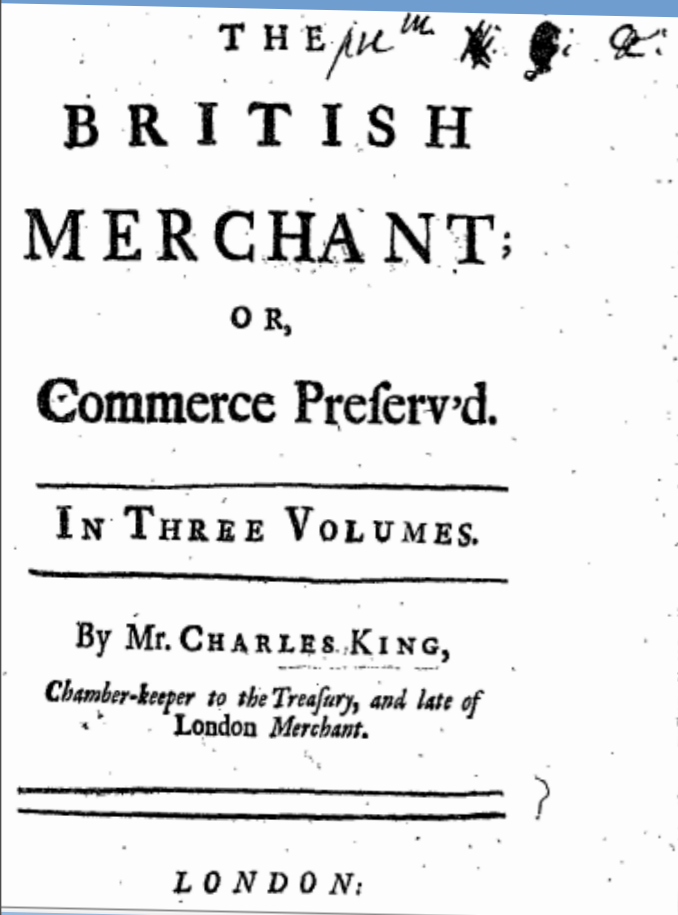
vs

*British Merchant* (Paul Methuen)



Paul Methuen  
1672-1757

# search for statistics



Charles Davenant

*An Essay upon the Probable  
 Methods of Making a  
 People Gainers in the  
 Ballance of Trade 1699*

VS

Paul Methuen

To sum up all, if we pay to <i>France</i> yearly,		
		l.
For their Wines	450000	
For their Brandies	70000	
For their Linen	600000	
For their Paper	30000	
For their Silks	500000	
	—————	
		1650000
And they take from us in Lead, Tin, Leather, Allum, Copperas, Coals, Horn-Plates, &c. and Plantation-Goods, to the Value of		200000
		—————
<i>Great Britain</i> loses by the } Balance of that Trade yearly }		1450000
		—————

# time is up

---

overview

balancing

accounting

time control

technology  
of time

fighting  
time

**information's  
uncertainties**



# coming up

---

## **1 Mar: Literacy and the 19th Century Public Sphere**

### Required reading:

- Schudson, Michael. 2003. "Where News Came From: The History of Journalism," Ch. 4 in *The Sociology of News*, Norton. Pp. 64-89.

### Additional material:

- Mindich, David. 1998. "Nonpartisanship," pp. 40-63 in *Just the Facts: How "Objectivity" Came to Define American Journalism*. New York: NYU Press.
- Stone, Lawrence. 1969. "[Literacy and Education in England 1640-1900.](#)" *Past & Present* 42: 69-139 (necessary to read only to p. 102).