



unnoticed revolutions?

time, space, and money

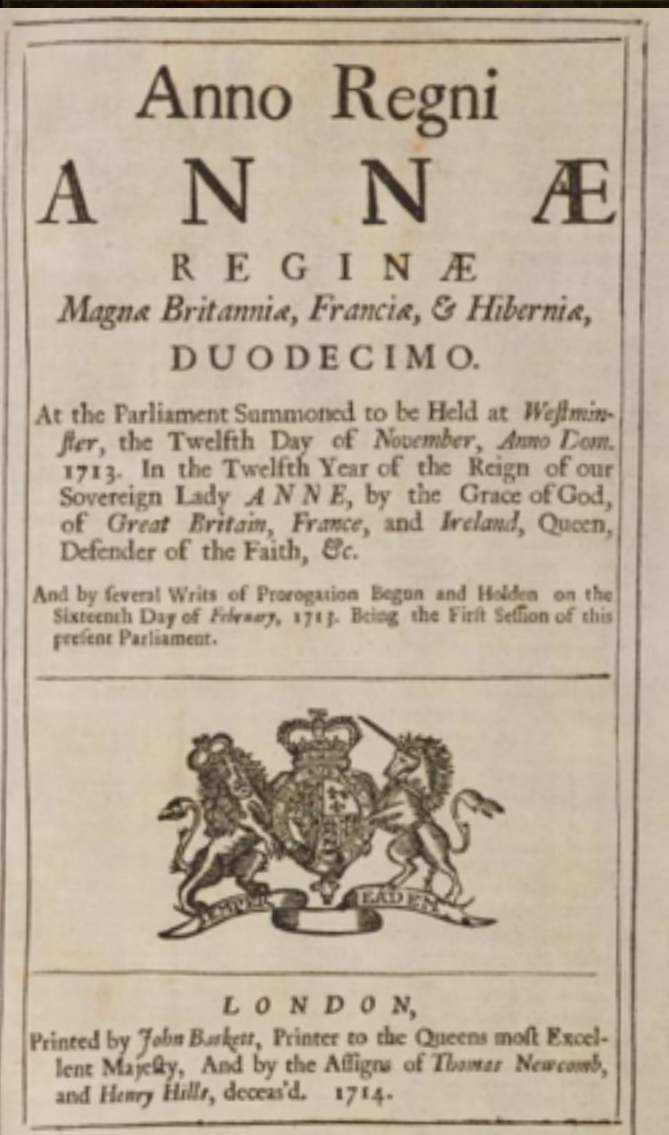
communication, coordination, and standards

making information?

History of information

Tuesday

Feb 24, 2015



1827	Account	£ 12 0	1827	Carried up	484 1 11
Jan 1.	Betty Farmer	1 . .	21.	M ^r Butcher sent to the	
4	Children's books	10 6.		School of industry by handiwork	1 . .
5	Placed in the 3 ^d Cante	300 .		& female forcibly sewing	1 . .
-	to Thackeray's account	69 19		(during the weekly school day, paid 10)	
-	Lewis for a sheet	1 1.	24	Pauli (Furnaces)	15 .
8.	Makes for Charities	4 1 6		Brown (furnished 2 up)	2 12 .
	Hodgkinson's bill	22 16.		Rufel & Prigg (Lab)	2 10 .
	Stubb's d ^r .	7 10 6	26	Brown & James	2 17 6 .
11	L. M.	5 .	30	Couture's bill	28 15 4
12	D ^r to Masterman on			D ^r black silk	4 18 10 .
	W ^r Butler's acc ^t of 1826	42 . .		Remedy for & Fidelity	3 . .
16	Haughton Stationer	7 9 8	Feb 15	M ^r Maasdam (arrived)	25 6 .
	Hewitt & James	16 6 .		M ^r Wiggall's bill	4 - 6 .
	D ^r imp for L ^y R. Howard	3 17 .		Drawings (Nichols) (Cathay's)	2 - -
	Uvery	~ 12 .		M ^r Day's bill	10 2 .
	Arnould (T ^r Viner)	3 6	9	Thompson's friend society	5 . .
				paid at 2 ^d 52 R. Bond P ^r	2 10 .
				Cathay's for drawings	11 1 10 .
				J. Nicholson's book	10 1 8 .
				23 Redmayne (L ^y Viner's) (arrived)	22 16 6
				25. Billance of Guineas acc ^t	627 8 11
				from Dec 1826. Taylor's, Fellers	
				Hollingsworth, Fellers, Viner	
				Charles & Co. including 20	
				admission & expenses Dec 26.	

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.



what day?

All a Tiwitter?

tuesday: *Originally cognate with or formed similarly to Old Frisian tīesdei , ... the genitive of the Germanic base of the name of (the god) Tiw*

mardi

dienstag

terça-feira

मंगलवार

星期二

火曜日

יום שלישי

(يوم) الثلاثاء



History of information
Tuesday
Feb 24, 2015

feverish dates

pure and simple?

Anglo-Norman feverer,
feverrer, feveryer,
feverzere, feverell,
februer, februlare,
februarie, etc., ...
means of purification,
expiatory offerings, of
uncertain origin

24 February

février [9 ventôse]

feverio

二月

Phalugra 9 [Indian]

Rabi`athani 18 [Islam]

Adar 5 [Jewish]

Esfand 9 [Persian]



History of information

Tuesday

Feb 24, 2015

happy 5 times a year?

4713 - Chinese

New Year: Feb 19 (sheep)

1393 - Persian

New Year: March 21

5775 - Jewish

New Year: September 13-15

1436 - Islamic

New Year: October 13-14

“the temptation to lie in an extra hour in the morning” –Thompson



and that 9:30?

“Formerly [i.e. before the 14th century] the hours were commonly reckoned as each equal to one-twelfth of the natural day or night, whatever its length (called planetary, temporary, or unequal hours); the equal hours were sometimes distinguished as equinoctial, being each equal to a temporary hour at the equinoxes, sidereal hour, solar hour, 24th part of a sidereal, or solar, day.”

OED



counting down

minute: Despite its currency as the name of a sexagesimal division in geometry, the first systems of time-reckoning in which *minutum* was used were **non-sexagesimal** ... Although there was some variation in these systems, in Old English contexts, *minutum* usually meant **one-tenth of an hour**. ... When Honorius Augustodunensis divided the hour into sixtieths in *De Imagine mundi* (early 12th cent.), he called the sixtieths *ostenta*. These sixtieths were sometimes called *minuta* by the end of the 12th cent. (e.g. in the chronicle of Robertus de Monte), although the word continued to be used of tenths of an hour at least into the 13th cent. ... Until the 16th cent., **the rarity of mechanical clocks meant that references to precise subdivisions of the hour such as the minute were most often made in theoretical and astronomical treatises; hence the late occurrence of some of the Romance forms.**

OED



second: < French *seconde*, < medieval Latin *secunda*, feminine of Latin *secundus*, used ellipt. for *secunda minuta*, lit. 'second minute', i.e. the result of the second operation of sexagesimal division; the result of the first such operation (now called 'minute' simply) being the 'first' or 'prime minute' or 'prime'.

counting down

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OED

putting the other "Rs" in their place

"The Scientific Revolution outshines everything since the rise of Christianity and reduces the Renaissance and Reformation to the rank of mere episodes, mere internal displacements within the system of medieval Christianity."

— Herbert Butterfield,
The Origins of Modern Science, 1300-1800, 1948

key machines

"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

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

—Lewis Mumford, *Technics & Civilization*, 1934





not just time

“The imperial pint (≈ 568 ml) is used in the United Kingdom and Ireland and to some extent in other [Commonwealth](#) nations. In the United States, two pints are used: a liquid pint (≈ 473 mL) and a less-common dry pint (≈ 551 mL). Each of these pints is one-eighth of its respective [gallon](#) but the gallons differ and the imperial pint is about 20% larger than the US liquid pint ... dates back to 1824, when the British [Weights and Measures Act](#) standardised various liquid measures throughout the British Empire, while the United States continued to use the earlier English measures. The imperial pint consists of 20 imperial [fluid ounces](#) and the US liquid pint is 16 US fluid ounces, making the imperial fluid ounce about 4% smaller than the US fluid ounce.”

—Wikipedia



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WIKIPEDIA
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in your cups



The **cup** is a unit of measurement for volume, used in cooking to measure liquids (**fluid measurement**) and bulk foods such as **granulated sugar** (**dry measurement**). It is principally used in the **United States** and **Liberia** where it is a legally defined unit of measurement. ...



WIKIPEDIA
The Free Encyclopedia

in your cups



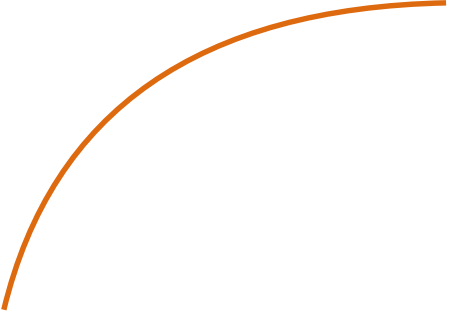
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The United States **Customary** Cup ...

236.5882365 millilitres

The United States **Legal** Cup ...

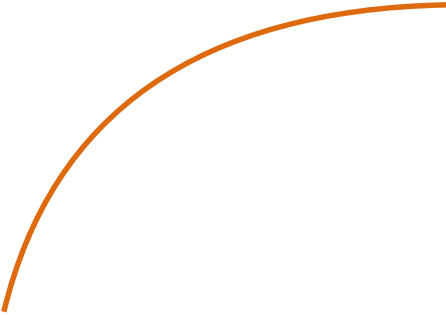
240 milliliters



don't get us started

feet 'n' inches

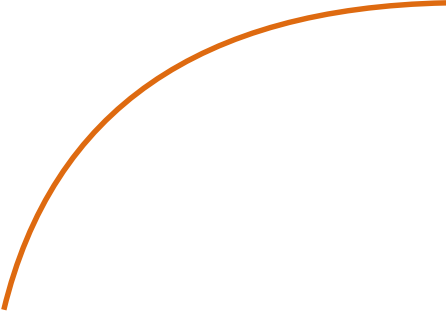
don't get us started



feet 'n' inches

yards (rods, poles/perches)

don't get us started

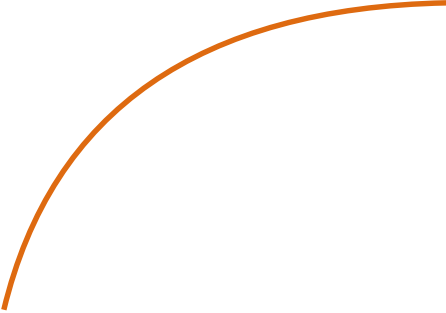


feet 'n' inches

yards (rods, poles/perches)

miles

don't get us started



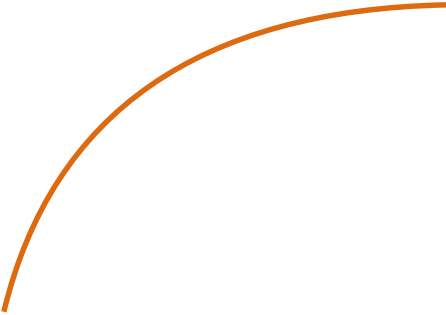
feet 'n' inches

yards (rods, poles/perches)

miles

nautical miles

don't get us started



feet 'n' inches

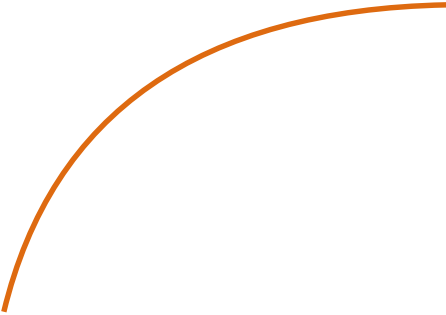
yards (rods, poles/perches)

miles

nautical miles

furlongs

don't get us started



feet 'n' inches

yards (rods, poles/perches)

miles

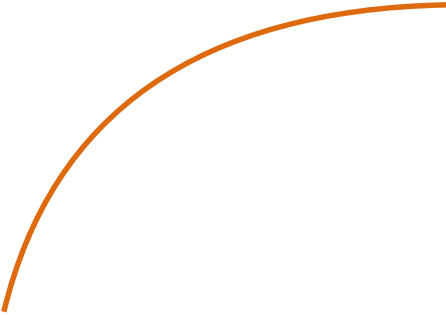
nautical miles

don't get us started

furlongs

acres





feet 'n' inches

yards (rods, poles/perches)

miles

nautical miles

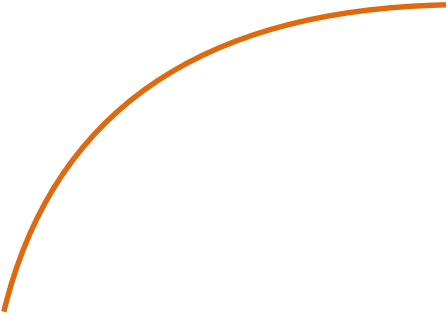
don't get us started

furlongs

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yards (rods, poles/perches)

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don't get us started

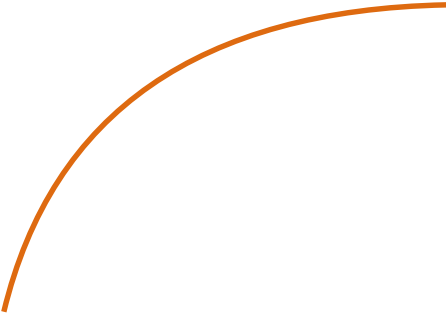


furlongs

acres

ounces

pounds (both lbs & £s)



feet 'n' inches

yards (rods, poles/perches)

miles

nautical miles

don't get us started

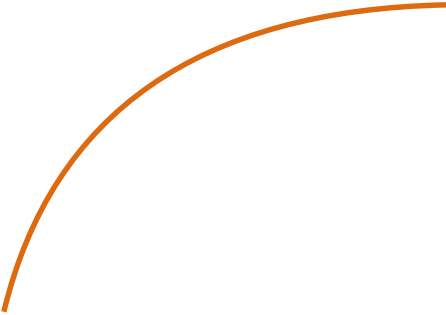
furlongs

acres

ounces

pounds (both lbs & £s)

stones



feet 'n' inches

yards (rods, poles/perches)

miles

nautical miles

don't get us started

furlongs

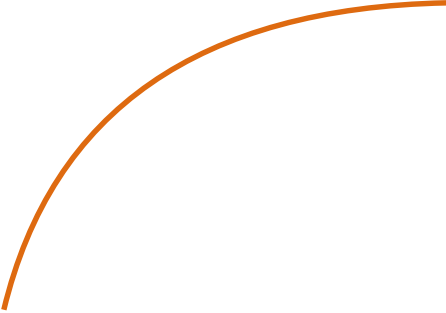
acres

ounces

pounds (both lbs & £s)

stones

hundredweights



feet 'n' inches

yards (rods, poles/perches)

miles

nautical miles

don't get us started

furlongs

acres

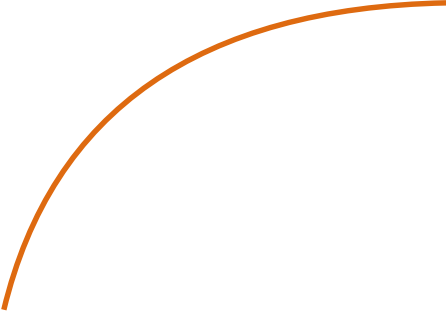
ounces

pounds (both lbs & £s)

stones

hundredweights

tons



feet 'n' inches

yards (rods, poles/perches)

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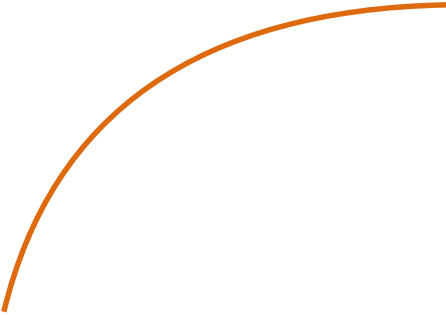
pounds (both lbs & £s)

stones

hundredweights

tons

Fahrenheit



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yards (rods, poles/perches)

miles

nautical miles

don't get us started

furlongs

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ounces

pounds (both lbs & £s)

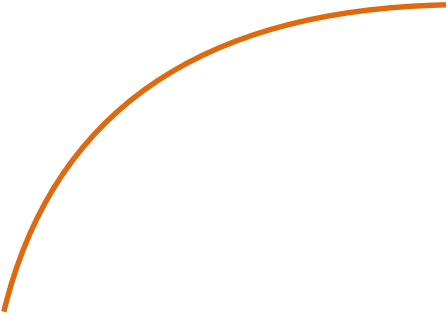
stones

hundredweights

tons

Fahrenheit

dates 6/7



feet 'n' inches

yards (rods, poles/perches)

miles

nautical miles

don't get us started

furlongs

acres

ounces

pounds (both lbs & £s)

stones

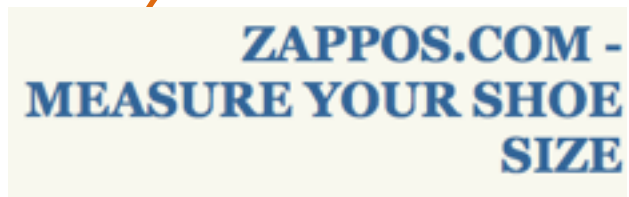
hundredweights

tons

Fahrenheit

dates 6/7

shoe sizes



feet 'n' inches

yards (rods, poles/perches)

miles

nautical miles

don't get us started

Men's Size Conversions				
US Sizes	Euro Sizes	UK Sizes	Inches	CM
6	39	5.5	9.25"	23.5
6.5	39	6	9.5"	24.1
7	40	6.5	9.625"	24.4
7.5	40-41	7	9.75"	24.8
8	41	7.5	9.9375"	25.4
8.5	41-42	8	10.125"	25.7
9	42	8.5	10.25"	26
9.5	42-43	9	10.4375"	26.7
10	43	9.5	10.5625"	27

furlongs

acres

ounces

pounds (both lbs & £s)

stones

hundredweights

tons

Fahrenheit

dates 6/7

shoe sizes

feet 'n' inches

yards (rods, poles/perches)

miles

nautical miles

don't get us started

furlongs

acres

ounces

pounds (both lbs & £s)

stones

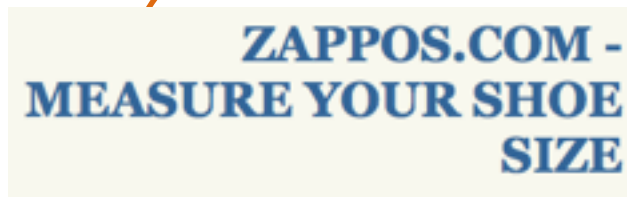
hundredweights

tons

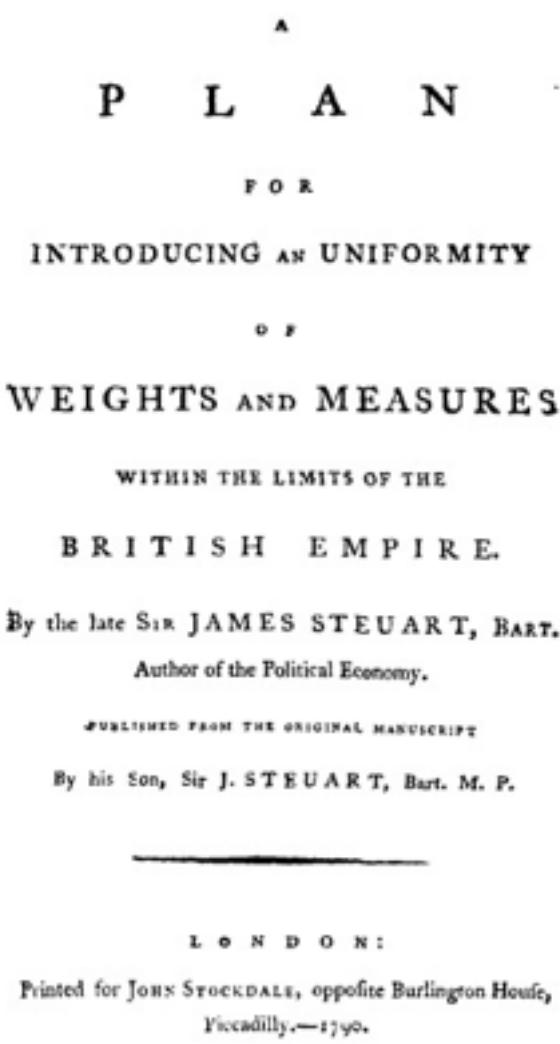
Fahrenheit

dates 6/7

shoe sizes



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feet 'n' inches

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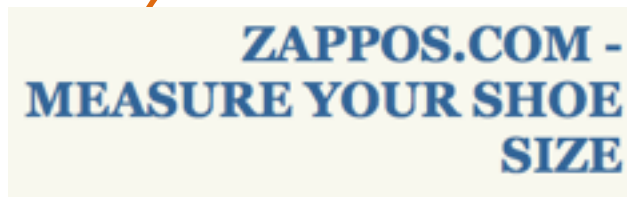
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tons

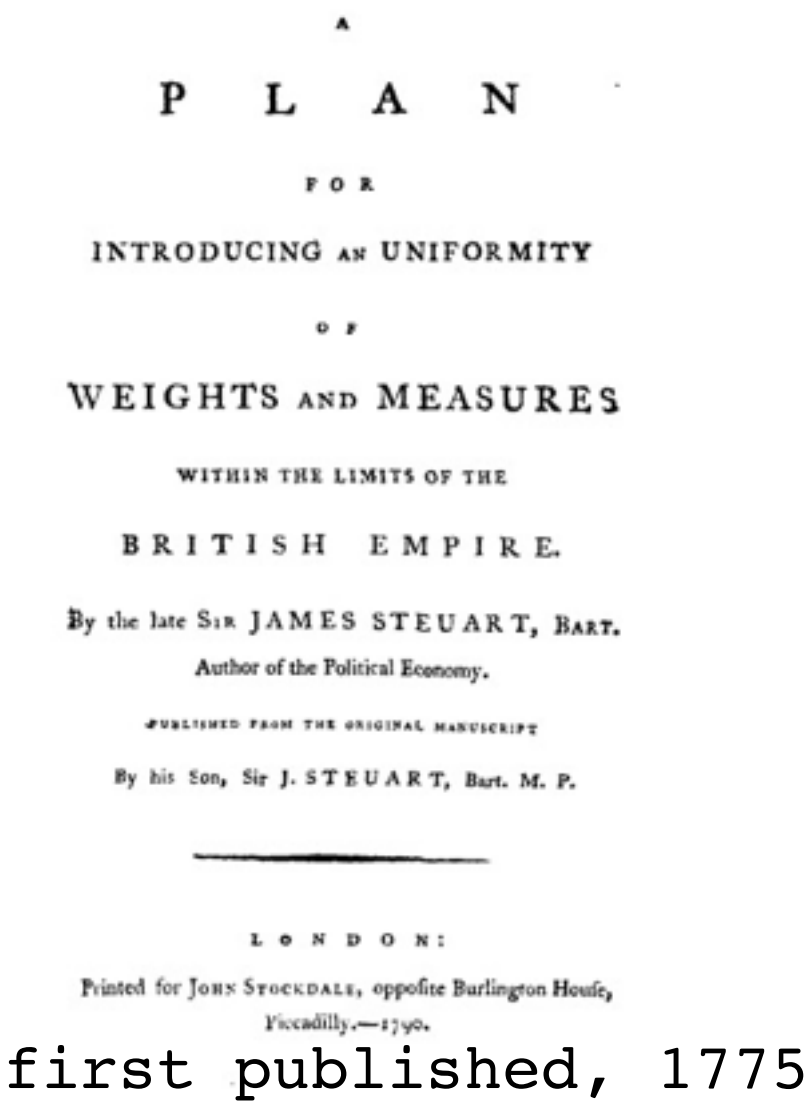
Fahrenheit

dates 6/7

shoe sizes



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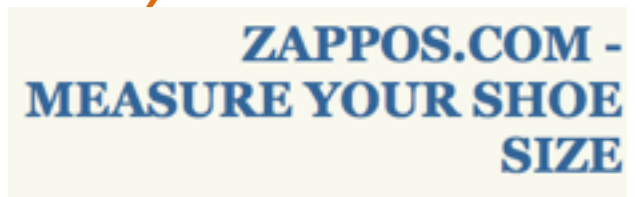
hundredweights

tons

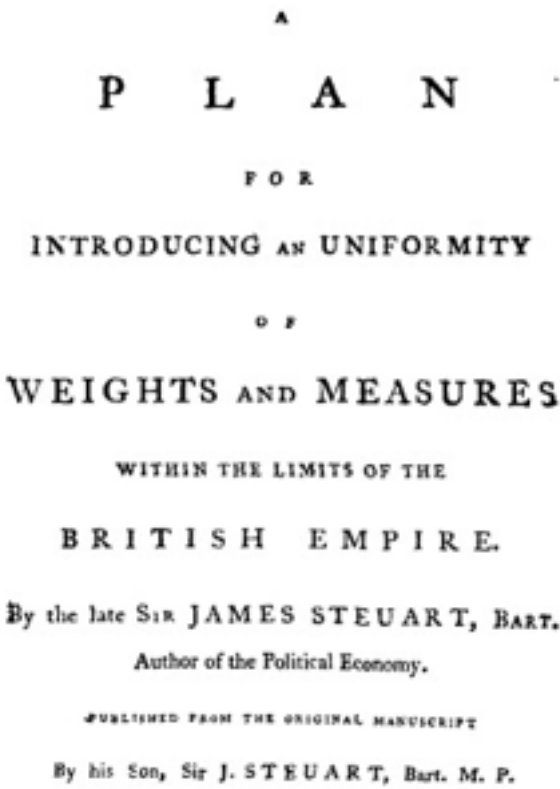
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first published, 1775

"Weights and measures, once established, survive the greatest revolutions."

1700 Yards.

190080 Barley-Corns.

Land Measure.

- 5 Yards and an Half, 1 Pole, Perch, or Rod.
- 40 Poles make 1 Furlong, or Quarter of an Acre.
- 60 Poles in Length, and 1 in Breadth, is 1 Acre.
- 80 Poles in Length, and 2 in Breadth, 1 Acre ; and
- 40 Poles in Length, and 4 in Breadth, 1 Acre.
- 4 Poles in Length make 1 Chain.
- 10 Chains in Length, and 1 in Breadth, make 1 Acre.

westward
the course of chains ...



Gunter's chain

1 chain $\frac{66 \text{ ft.}}{100 \text{ links}}$
=
4 poles $\frac{16.5 \text{ ft.}}{16.5 \text{ ft.}} \frac{16.5 \text{ ft.}}{16.5 \text{ ft.}} \frac{16.5 \text{ ft.}}{16.5 \text{ ft.}} \frac{16.5 \text{ ft.}}{16.5 \text{ ft.}}$
(or rods)

10 chains = 1 furlong

10 square chains = 1 acre

80 chains = 5,280 feet = 1 mile



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- 40 Poles in Length, and 4 in Breadth, 1 Acre.
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J.W. Powell's view, c. 1879

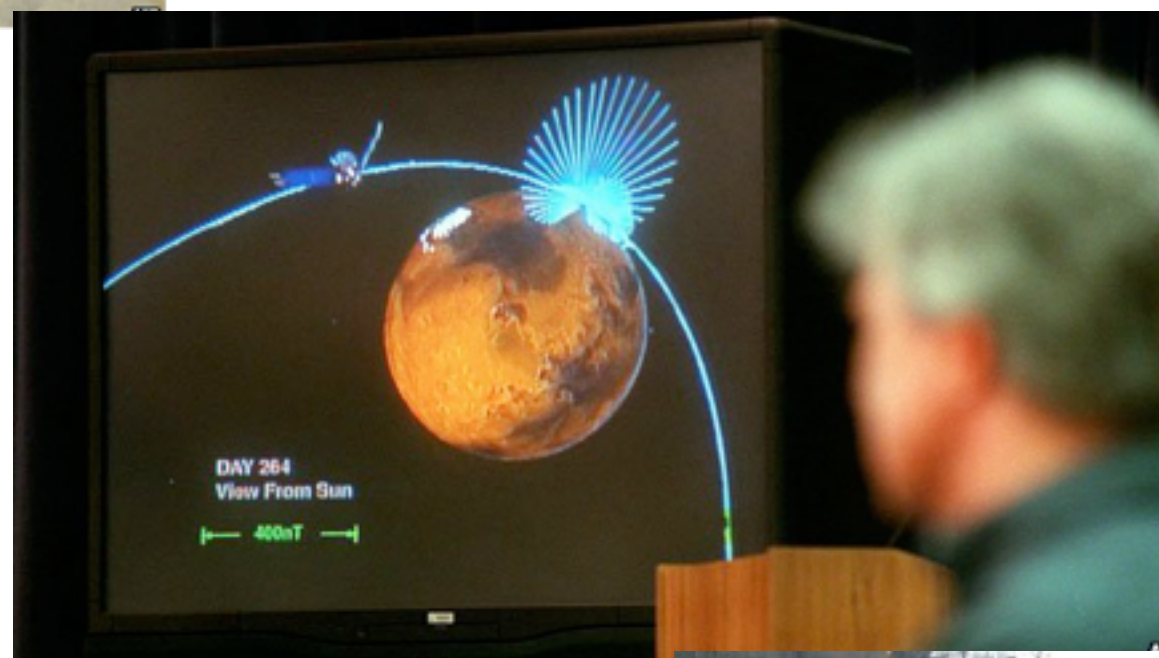
French red faces over trains that are 'too wide'



2014: SNCR trains

(15bn euros; \$20.5bn; £12.1bn)

inconsequential?



1999: Mars orbiter

(\$125m)

in or cm?

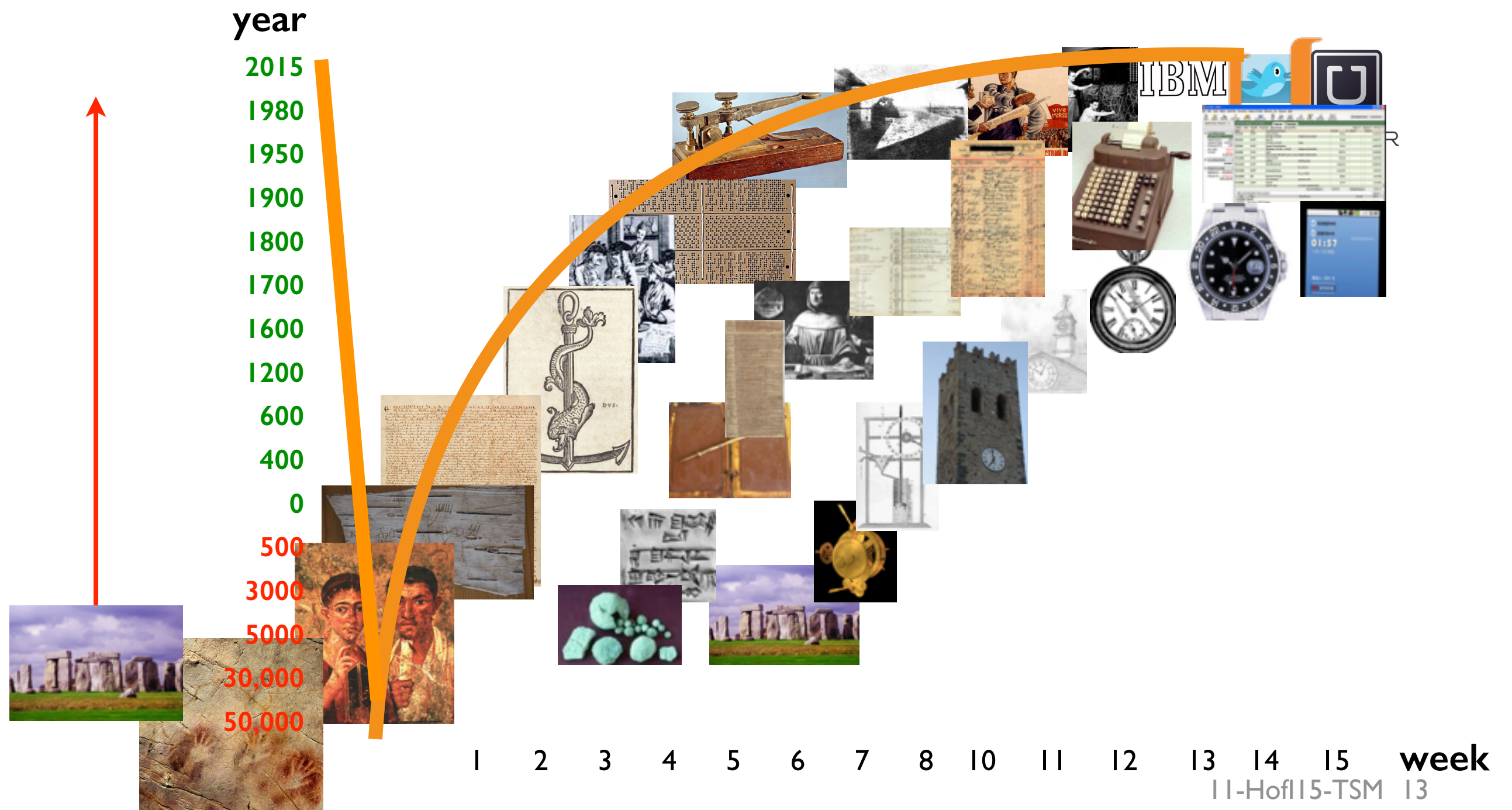
2003: Laufenburg Bridge

what height sea level?





time and money





time and money

year

2015

1980

1950

1900

1800

1700

1600

1200

600

400

0

500

3000

5000

30,000

50,000

1

2

3

4

5

6

7

8

10

11

12

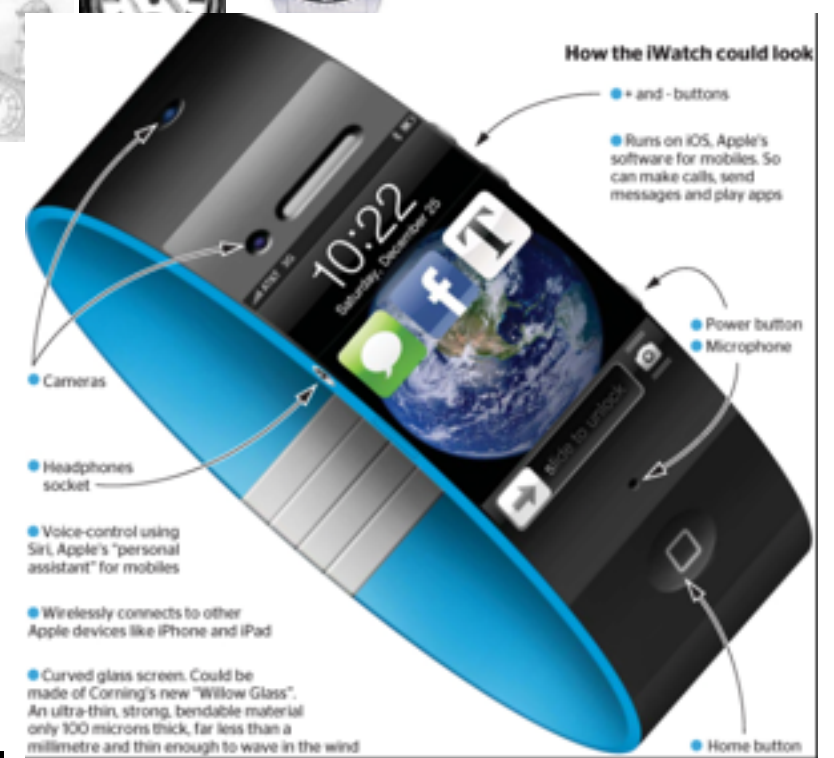
13

14

15

13

week



11-Hof115-TSM 13



time and money

year

2015

1980

1950

1900

1800

1700

1600

1200

600

400

0

500

3000

5000

30,000

50,000

1

2

3

4

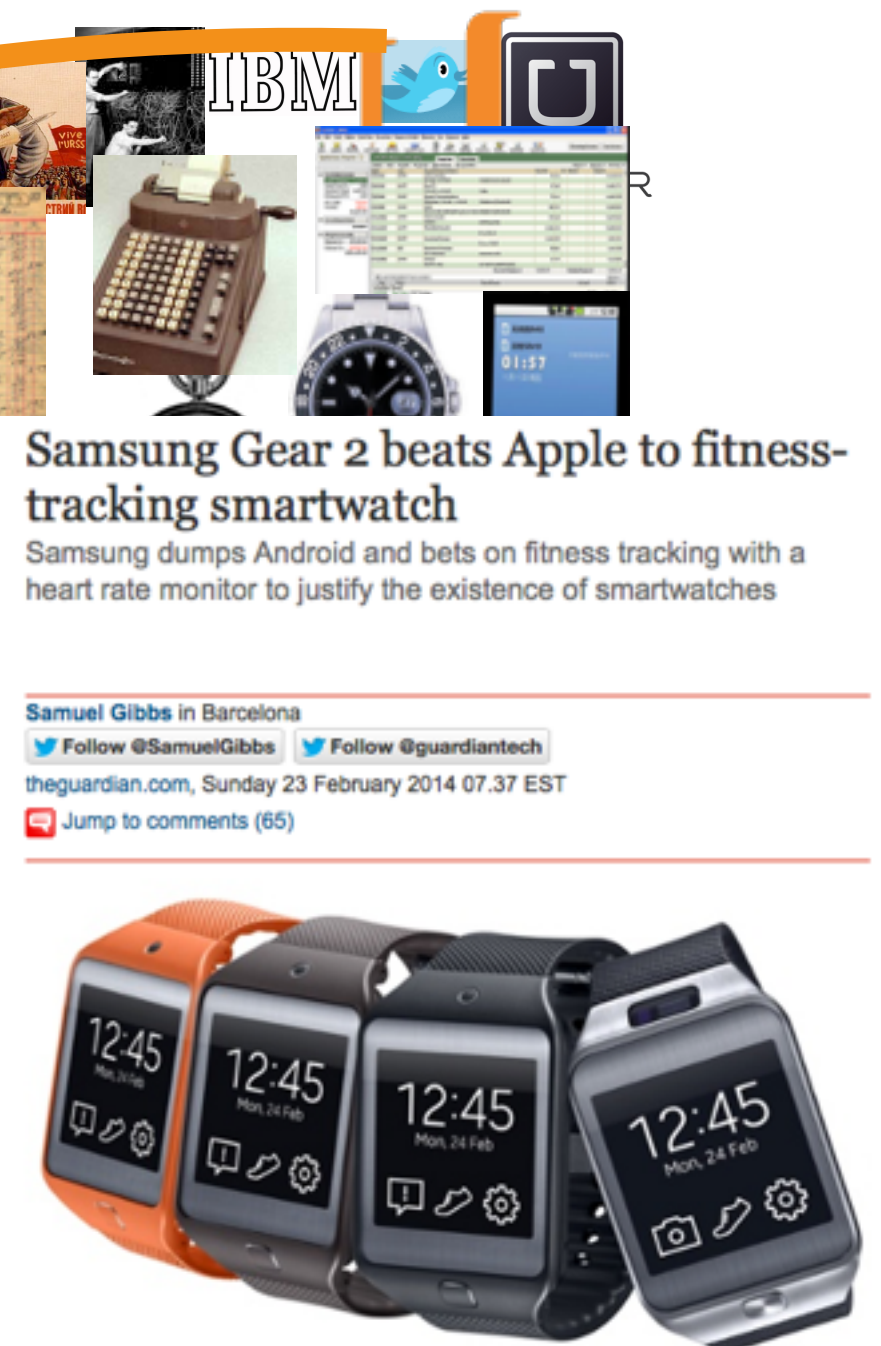
5

6

7

8

10



Samsung Gear 2 beats Apple to fitness-tracking smartwatch

Samsung dumps Android and bets on fitness tracking with a heart rate monitor to justify the existence of smartwatches

Samuel Gibbs in Barcelona

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theguardian.com, Sunday 23 February 2014 07.37 EST

[Jump to comments \(65\)](#)

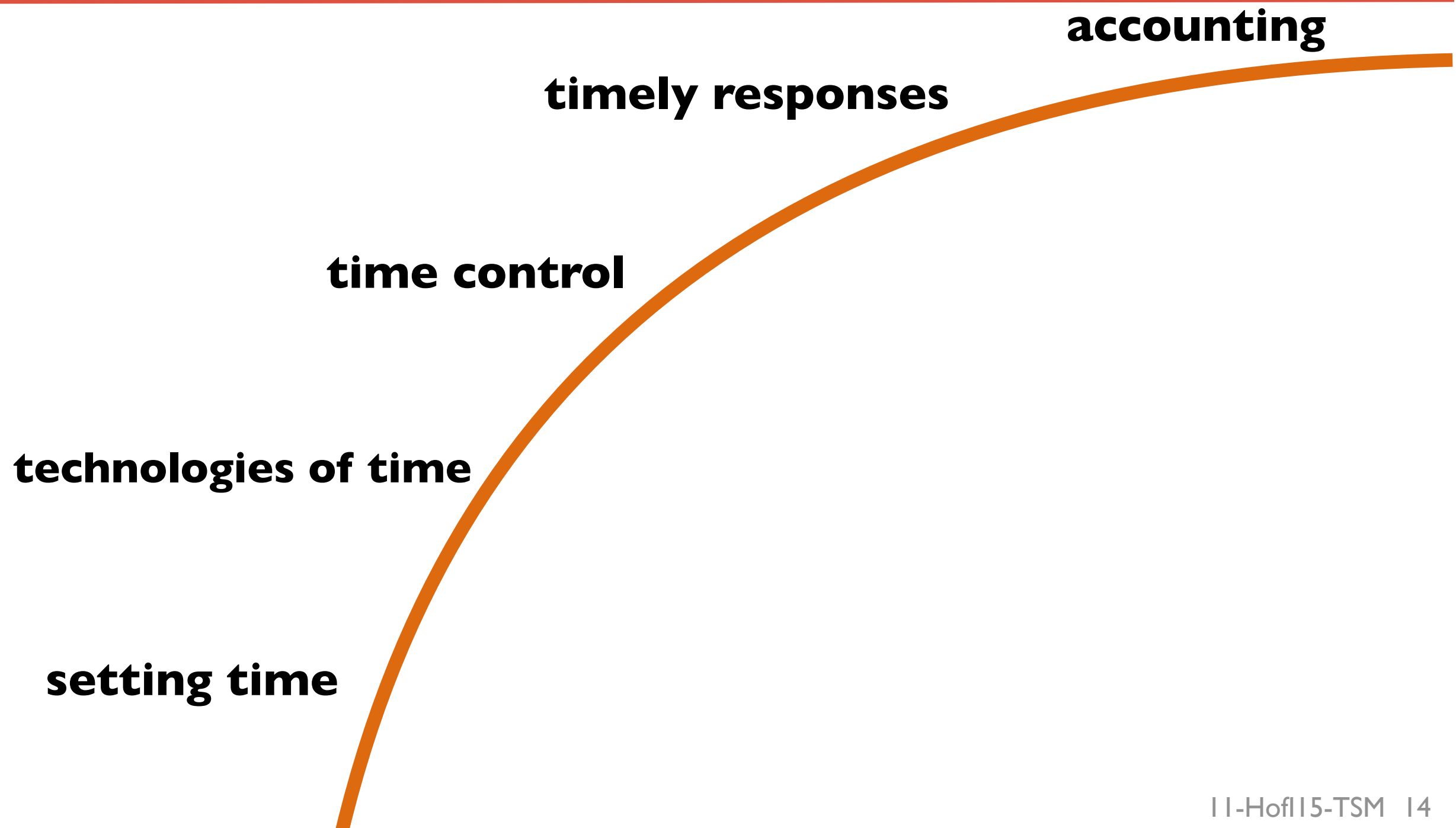




"I wasted time, and now doth time waste me;
For now hath time made me his numbering clock:
My thoughts are minutes; and with sights they jar
Their watches unto mine eyes"

— Richard II

where our time will be spent?





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where our time will be spent?

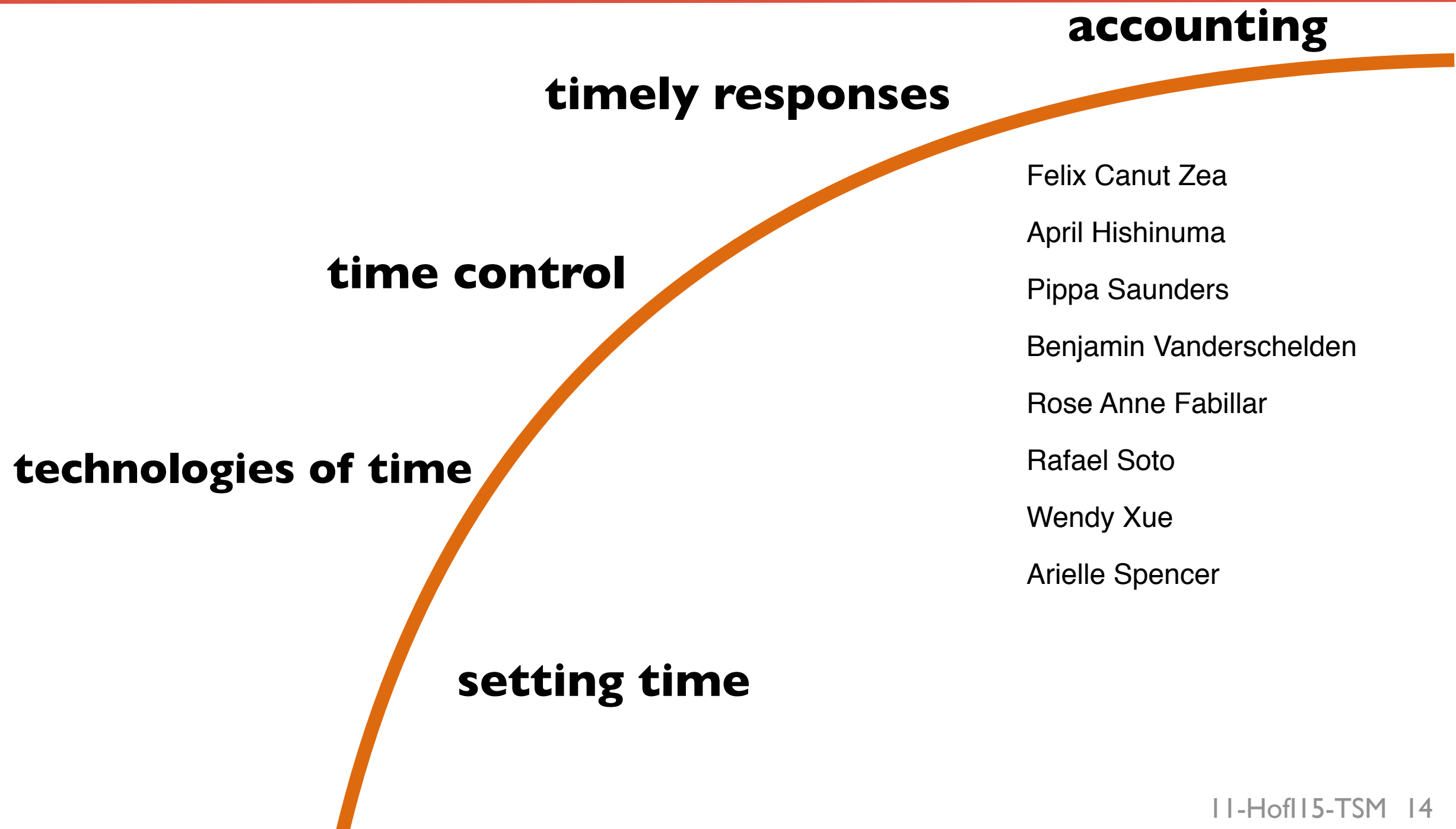




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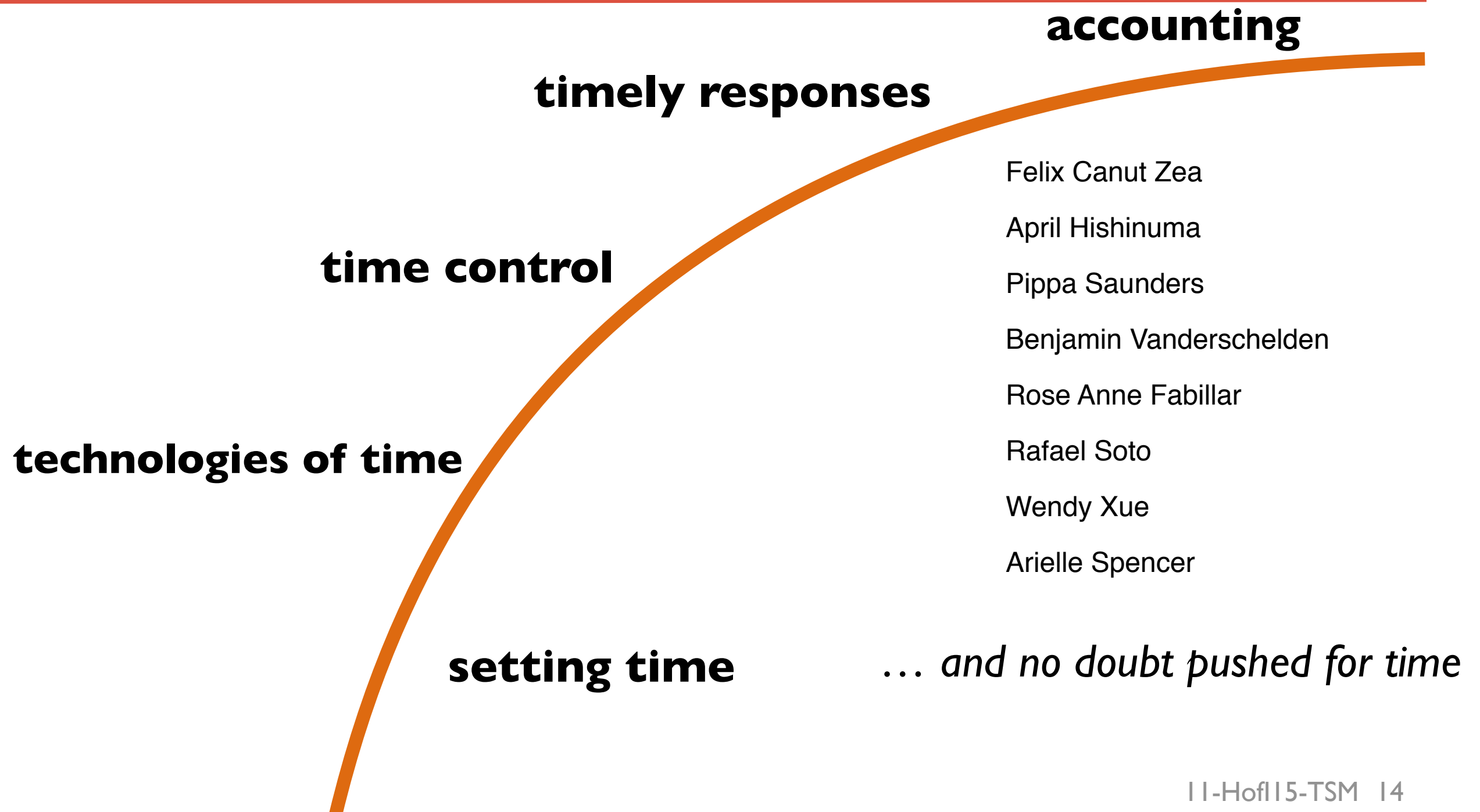




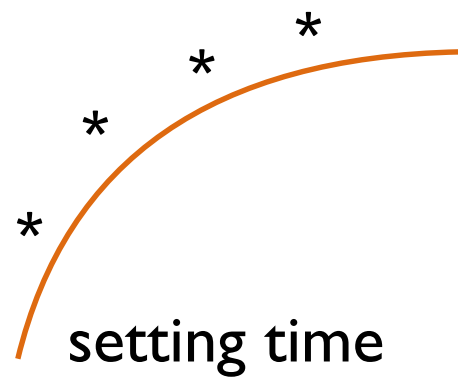
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For now hath time made me his numbering clock:
My thoughts are minutes; and with sights they jar
Their watches unto mine eyes"

— Richard II

where our time will be spent?



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

fixing the troublesome equinox

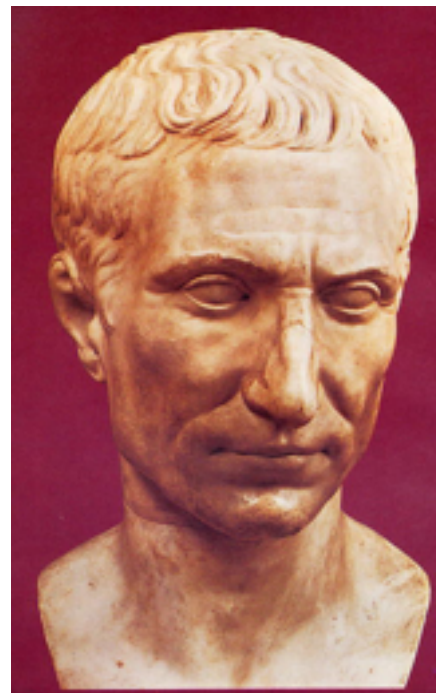
46 bce: 445 days

45 bce: 365

Augustus (63 bce - 14 ce)

8 bce: a further course correction

Augustan Calendar





Luigi Lilio
d 1576



Gregory XII
1502–1585

“Of all the days i' the year, I came to't that day
that our last king Hamlet overcame Fortinbras.”

further uncertainties

the year dot:

Dionysius Exiguus (c 470-544 ce)

day one

January 1 (Julian Calendar)

March 25 (Ascension, 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



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`java.lang.Object`

the equal hour

`java.util.Calendar`

14th century

`java.util.GregorianCalendar`

the struggle for Easter

`public class GregorianCalendar`

`extends Calendar`

1582: Gregorian Calendar (leap years, centurial years)

the big leap

Thursday October 4 to Friday October 15



John Wallis
1616–1703

QUARTER DAYS

Lady Day 25 March
Midsummer 24 June
Michaelmas 29 Sept
Christmas 25 Dec

old time religion

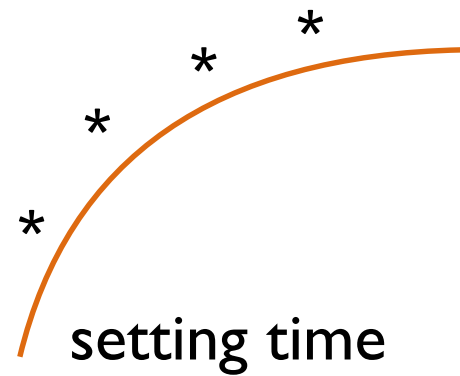
Orthodox & Protestant resistance

"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

behind the times

Gregorian Calendar — 1752

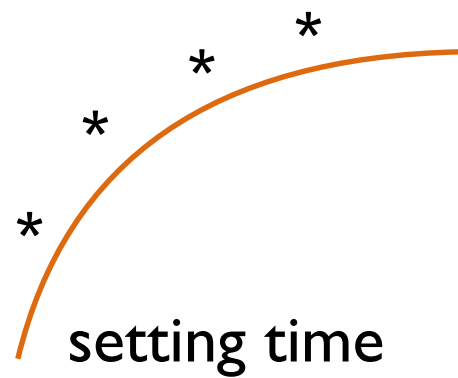
Wednesday September 2

Thursday September 14

complaints from Montaigne to Pynchon

"give us back our eleven days"





revolutionary change

Si, à l'expiration des six années, le présent Traité n'est pas dénoncé un an à l'avance, il continuera à être obligatoire d'année en année, jusqu'à ce que l'une des deux Hautes Parties contractantes ait annoncé à l'autre, mais un an à l'avance, son intention d'en faire cesser les effets.

En foi de quoi, les Plénipotentiaires respectifs ont signé le présent Traité et y ont apposé le cachet de leurs armes.

Fait à Saint-Petersbourg, le 14 (9) juin de l'an de grâce 1857.

(L. S.) *Signé* MORNY.

(L. S.) *Signé* GORTCHACOW.

(L. S.) *Signé* BROCK.

Russia

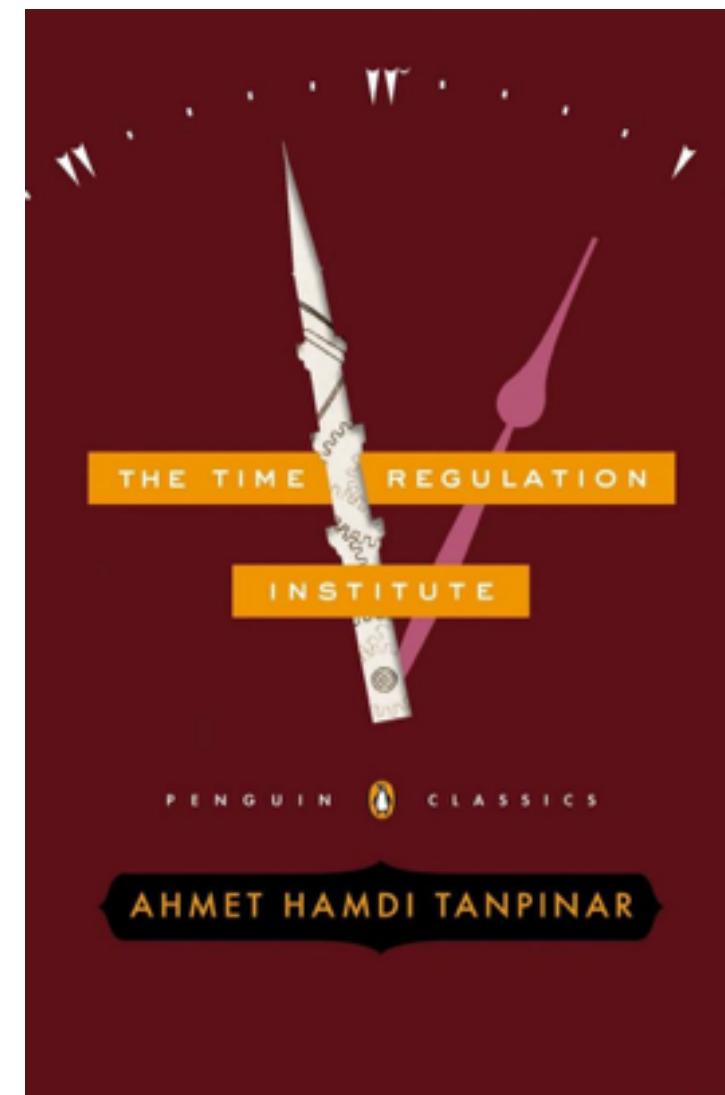
Wednesday Jan 31, 1918

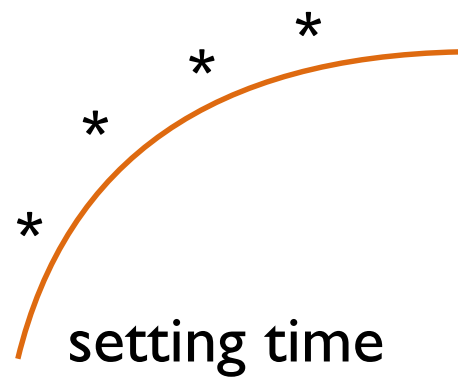
Thursday Feb 14, 1918

Turkey

December 18, 1926

January 1, 1927





revolutionary change

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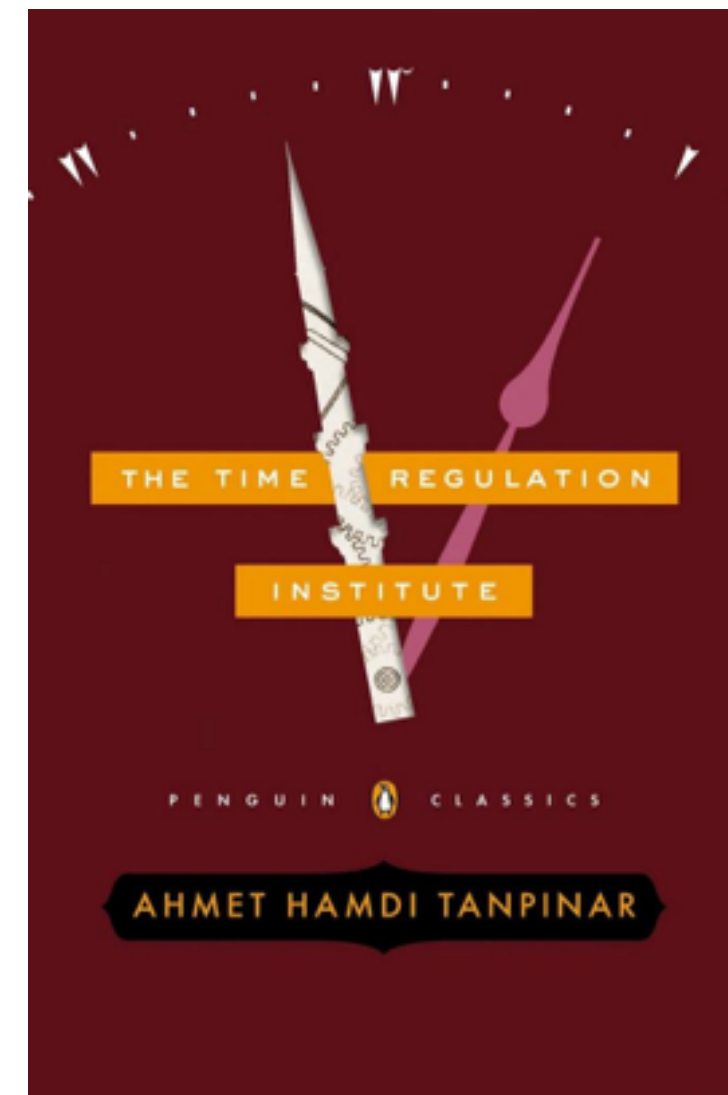
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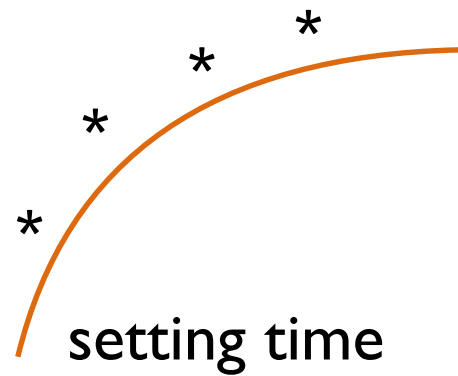
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Turkey

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January 1, 1927





revolutionary change



French decimalization

year 1 again (1793)

10 days a week

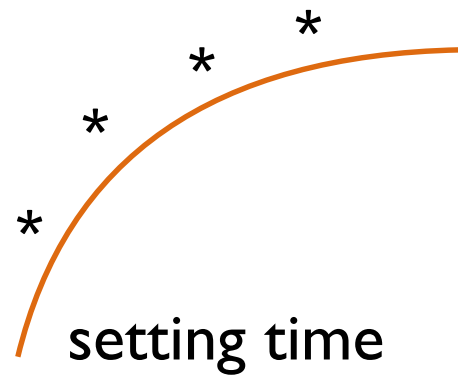
10 months a year

New Year September

an urban revolution?

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

“Weights and measures, once established,
survive the greatest **revolutions**.”



revolutionary change



French decimalization

year 1 again (1793)

10 days a week

10 months a year

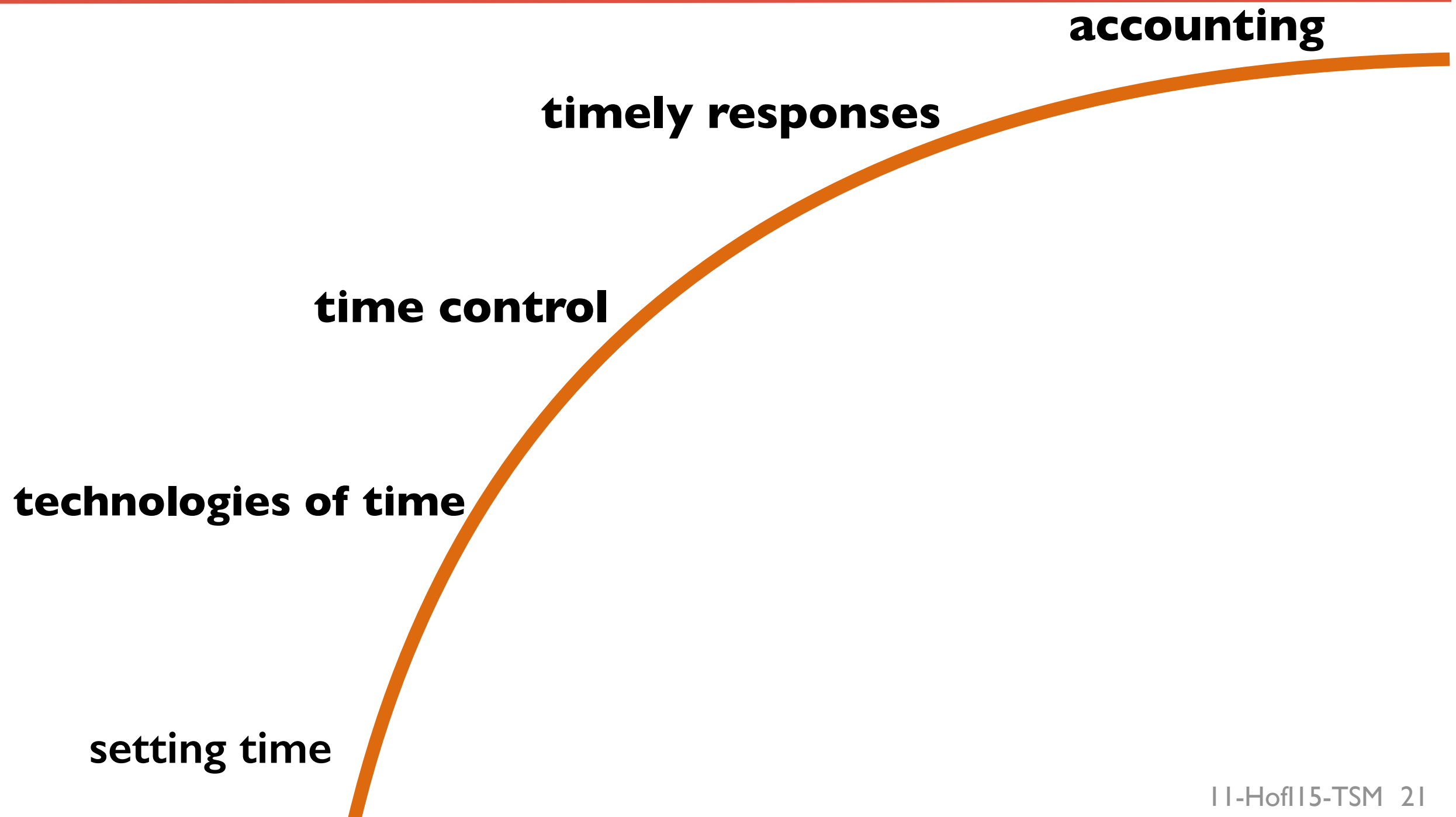
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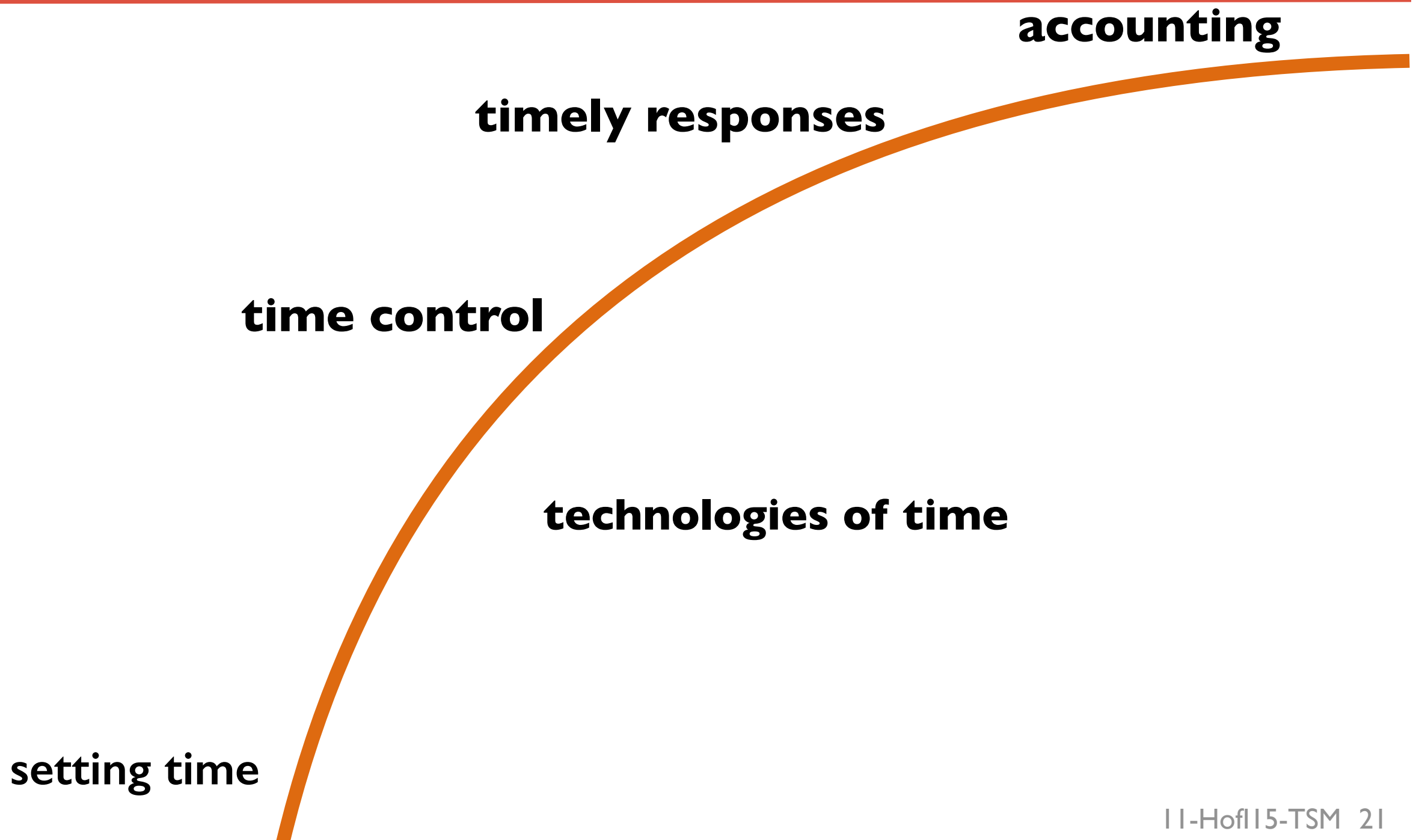


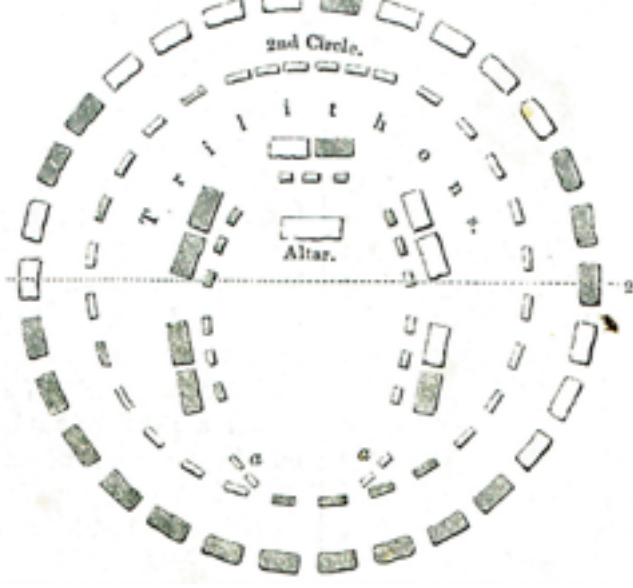
where our time will be spent





where our time will be spent





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

c. 5000 bce

'World's oldest calendar' discovered in
Scottish field

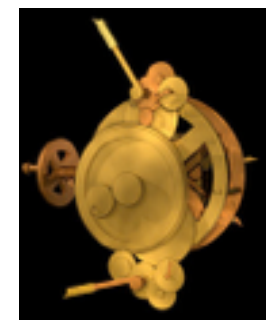


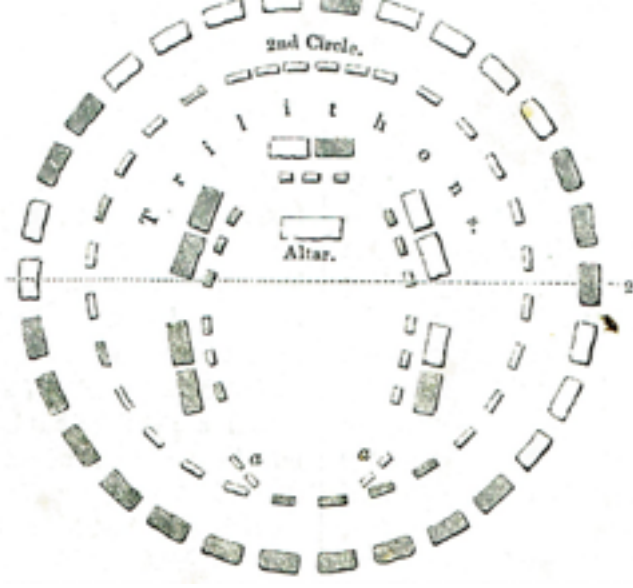
the long then



c. 3100 bce

antikythera
c 200 bce





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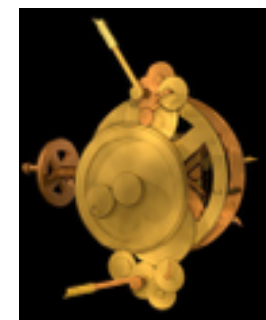


Whan that **Aprill** with his shoures soote
The droghte of **March** hath **Perced** to the roote,
And bathed every **veyne** in swich **licour**
Of which **vertu engendred** is the **flour**;
Whan Zephirus eek with his sweete breeth
Inspired hath in every holt and heeth
The **tendre** croppes, and the 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**...



c. 3100 bce

antikythera
c 200 bce





clock time

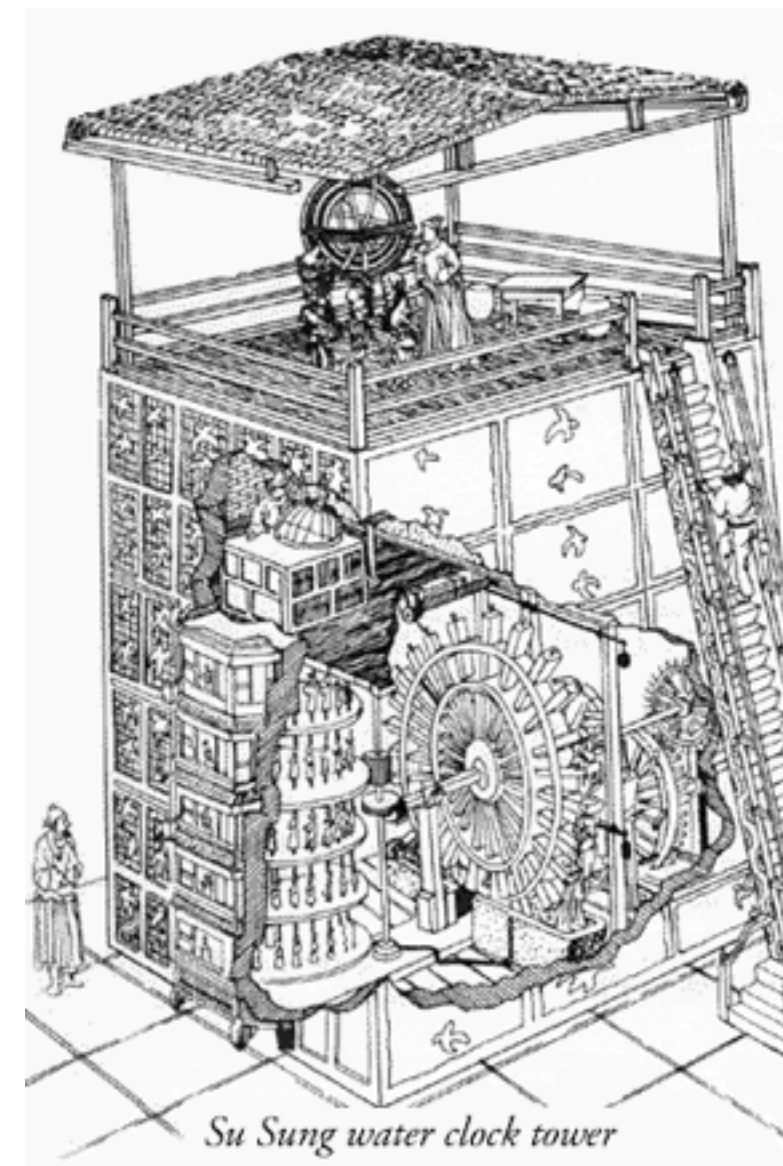
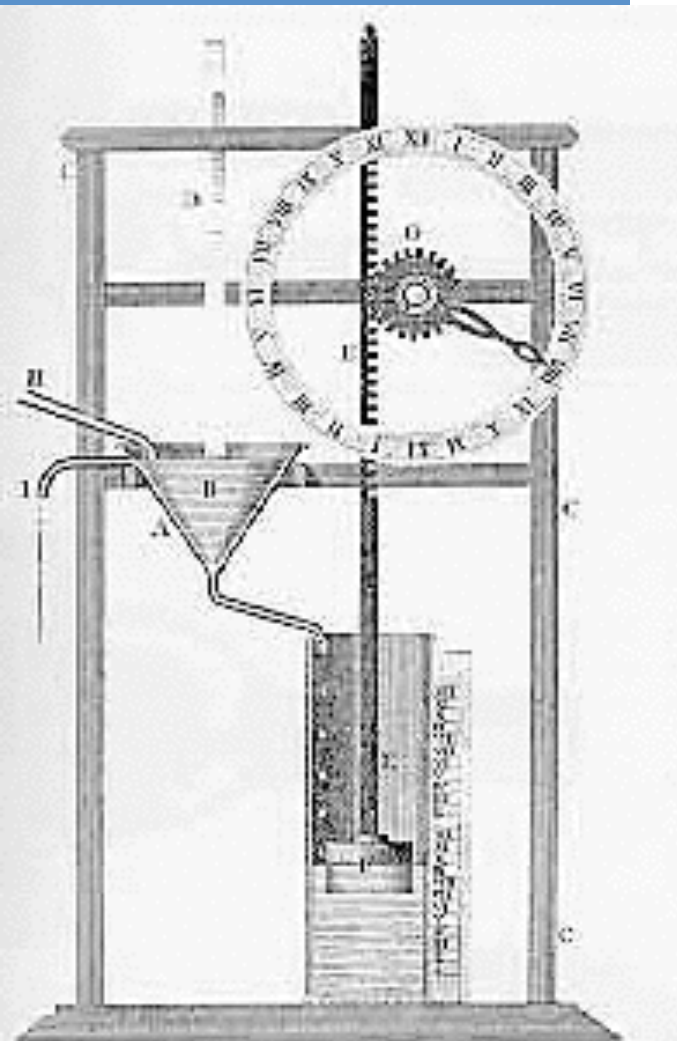


3500 bce: sundials

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 klokke, or an abbey orlogge"



higher tech

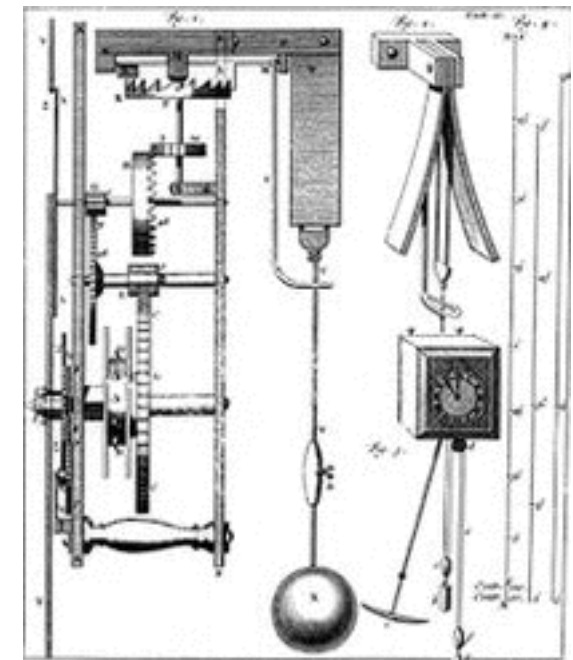
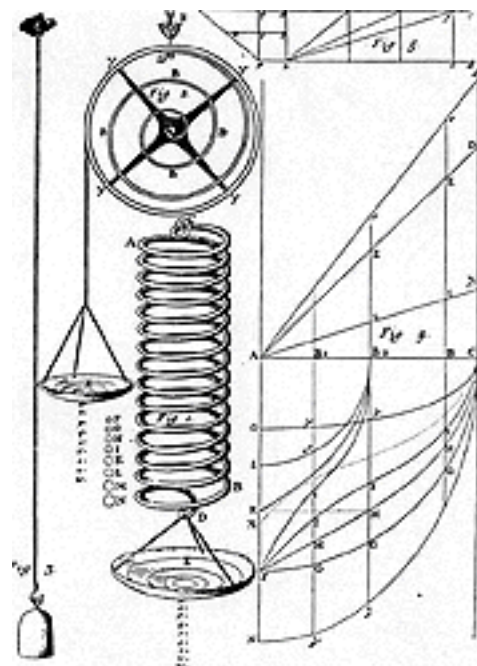


Richard of
Wallingford
1292-1336

1300: mechanical clocks
Richard of Wallingford

1656: Huygens pendulum clock

1660: Hooke & the spring watch





politics: a mechanical explanation?

Ottomans Mayr, *Authority, Liberty, and Automatic Machinery in Early Modern Europe* 1989

coming up 4/7:
Computer
“revolution”

looking ahead

automata

86

The Antiquity Chap. VI. | Chap. VI. of Clock-work.

87

modum dentata, quæ una motione coacta, versando faciunt effectus, varietatesque motionum: in quibus moventur Sigilla, vertuntur Metæ, calculi aut Tona præjiciuntur, 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

computus

84 Scaligeri Poetices in 2 Vol. interfol.

85 Cluverii computus chronologicus, interfol.

feedback mechanisms

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

—Beniger, *Control through Communication*



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3500 bce: sundials



Mechanick Dyalling:

TEACHING

Any Man, though of an Ordinary Capacity and unlearned in the Mathematicks, to draw a True

SUN-DIAL

On any

Given Plane,

However scituated: Only with the help of a straight *RULER* and a pair of *COMPASSES*; And without any Arithmetical Calculation.

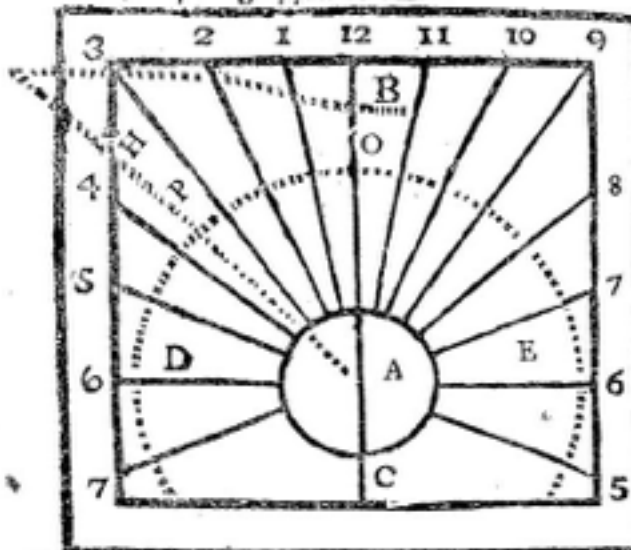
By Joseph Moxon, *Hydrographer to the Kings most Excellent Majesty.*

LONDON.

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

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

computus

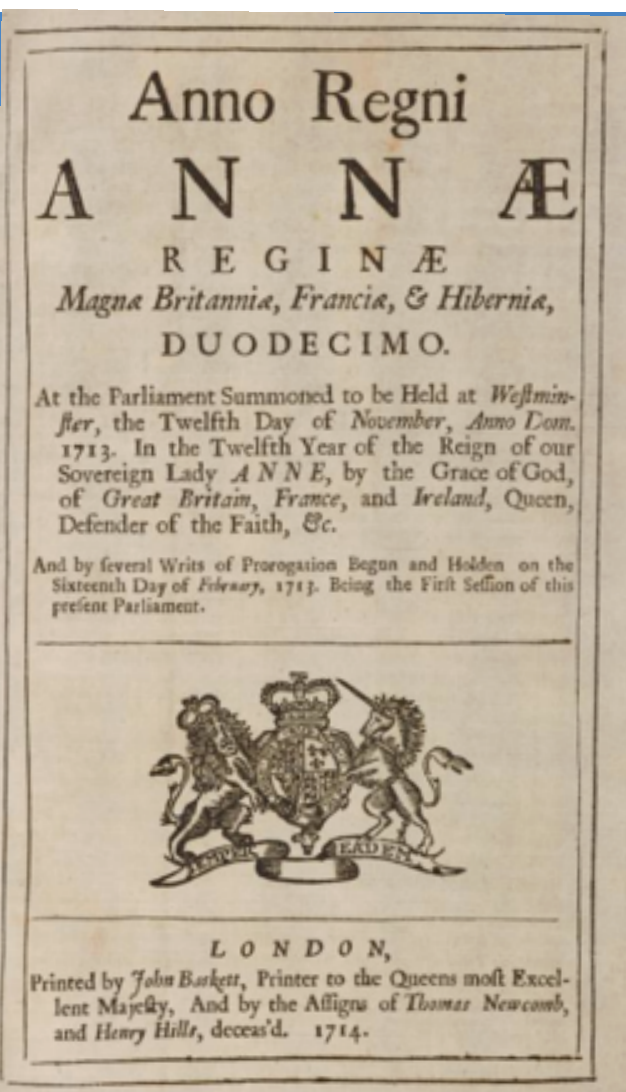
1668: Joseph Moxon, *Mechanick Dyalling*

1748: George Fisher, *American Instructor*

"the Art of
Dialling, and
how to erect and
fix any *Dial*"



log to longitude



time, space, and naval supremacy

starvation, piracy, wrecks

1480: *Regimento do Astrolabio e do Quadrante*
[Portugal]

1707: Sir Cloudesley Shovell's fleet
1,315 sailors; one survivor

1714: Longitude Act

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





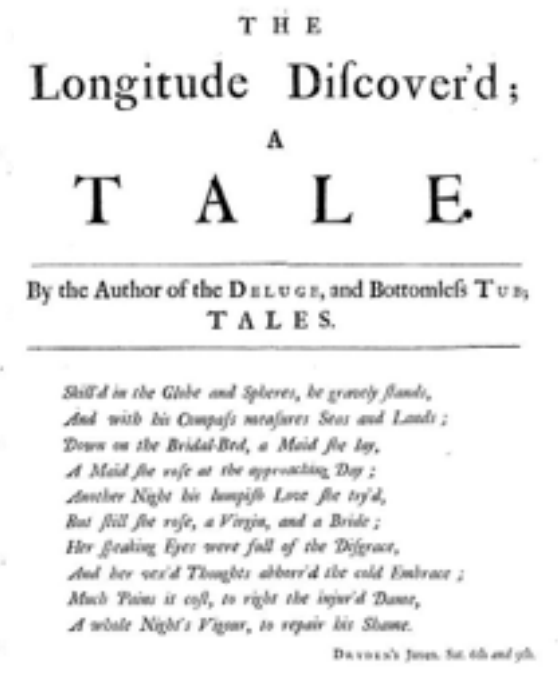
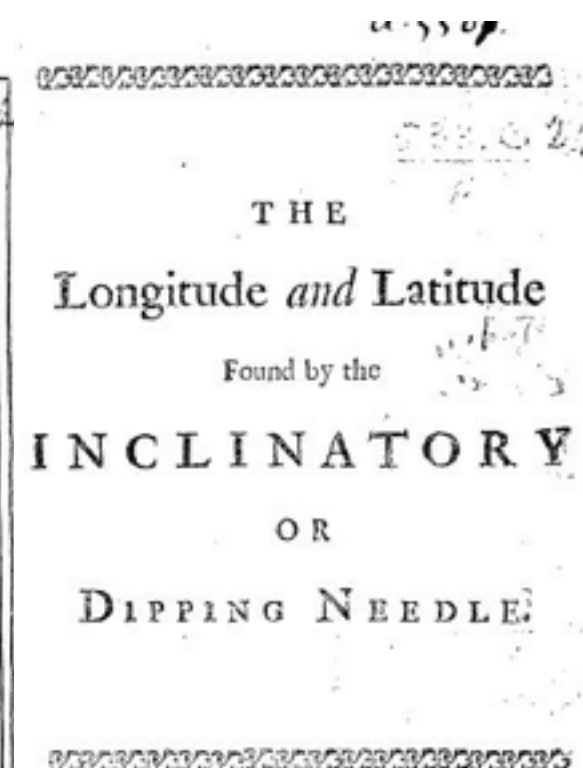
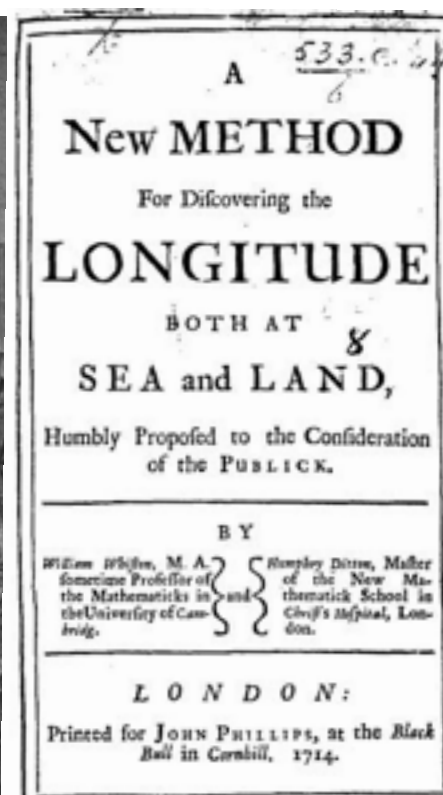
various contenders

time, space, and whelping dogs

Galileo, Newton, Huygens, Halley and the heavens

Wren's observatory

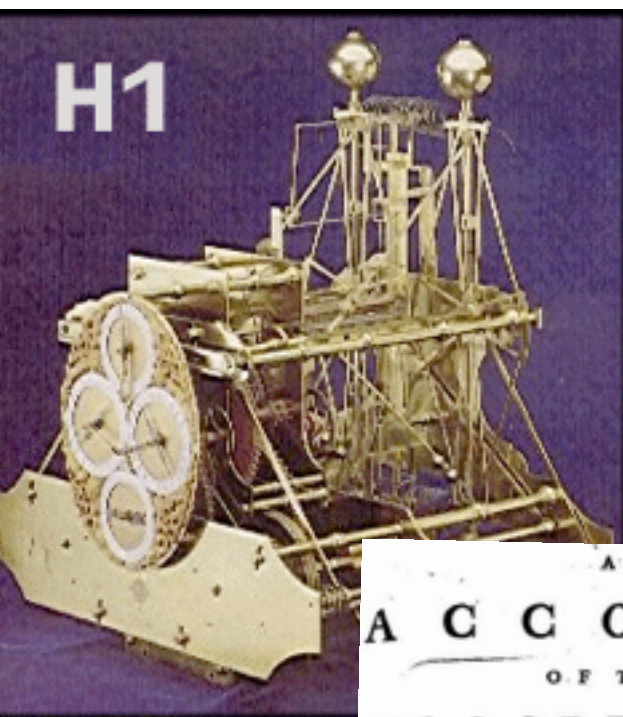
vs nutters galore





John Harrison
1693-1776

RS plays defense



Harrison vs Men of Science

H1 - Lisbon Trial, 1736

awarded prize, 1773

AN
ACCOUNT
OF THE
PROCEEDINGS,
IN ORDER TO THE
DISCOVERY
OF THE
LONGITUDE:
IN A
LETTER
TO THE
RIGHT HONOURABLE *****,
MEMBER OF PARLIAMENT.
L O N D O N :

Printed by T. and J. W. PASHAM, in Black-Priars, and Sold by the BOOKSELLERS, in London and Westminster. M.DCC.LXIII.

A
NARRATIVE
OF THE
PROCEEDINGS
RELATIVE TO
The DISCOVERY of
THE
Longitude at Sea ;
BY
Mr. JOHN HARRISON's
TIME-KEEPER,
Subsequent to those published in the Year
1763.
L O N D O N :
Printed for the AUTHOR, and Sold by
Mr. SANDBY, in Fleet-Street.

MDCCLXV.

THE
PRINCIPLES
OF
MR. HARRISON'S TIME-KEEPER,
WITH
PLATES OF THE SAME.
PUBLISHED BY ORDER OF
THE COMMISSIONERS OF LONGITUDE.
L O N D O N :
PRINTED BY W. RICHARDSON AND S. CLARK;
AND SOLD BY
JOHN NOURIE, AND MESS. MOUNT AND PAGE.
M DCC LXVII.

REMARKS
ON A
PAMPHLET
Lastly published by the
Rev. Mr. MASKELYNE,
Under the AUTHORITY of the
BOARD OF LONGITUDE.
By JOHN HARRISON.
L O N D O N :
Printed for W. SANDBY in Fleetstreet.
MDCCLXVII.
(PRICE SIXPENCE.)

A
DESCRIPTION
CONCERNING
SUCH MECHANISM
AS WILL AFFORD A MORE, OR TRUE
MENSURATION OF TIME;
TOGETHER WITH
SOME ACCOUNT
OF THE
ATTEMPTS for the DISCOVERY
OF THE
LONGITUDE BY THE MOON:
AS ALSO
AN ACCOUNT
OF THE
DISCOVERY
OF THE
SCALE OF MUSICK.
By JOHN HARRISON,
INVENTOR of the TIME-KEEPER for the LONGITUDE
at SEA.
L O N D O N :
Printed for the AUTHOR, and sold by T. JONES,
No. 138, FETTER-LANE.
MDCCLXV.



going global

standardization and resistance

c1850: telegraph time

1852: Greenwich mean time

1883: US **standard** time

1884: Meridian Conference, DC

1911: France: Cassini Meridian

1966: Uniform Time Act





going global

standardization and resistance

c1850: telegraph time

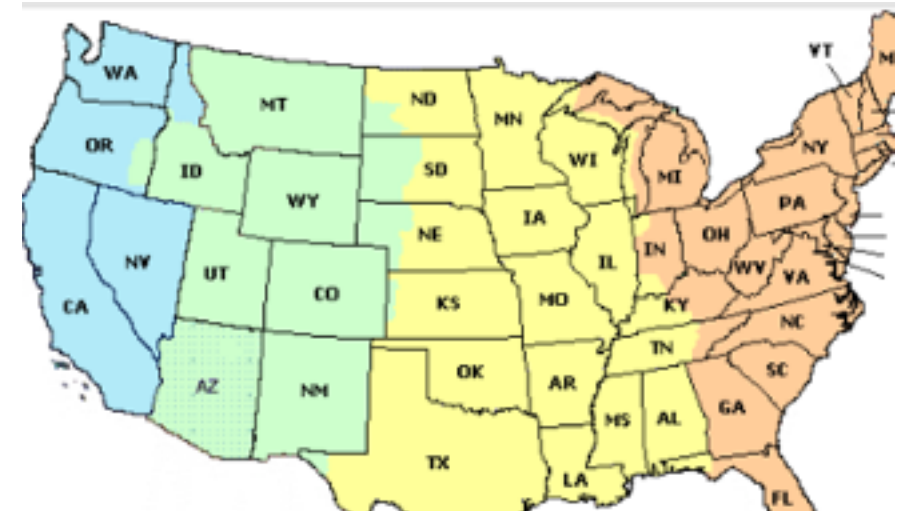
1852: Greenwich mean time

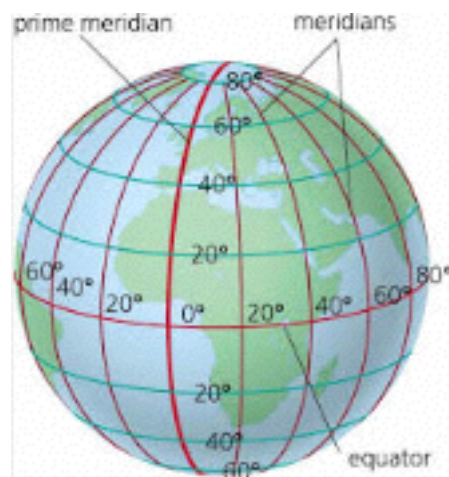
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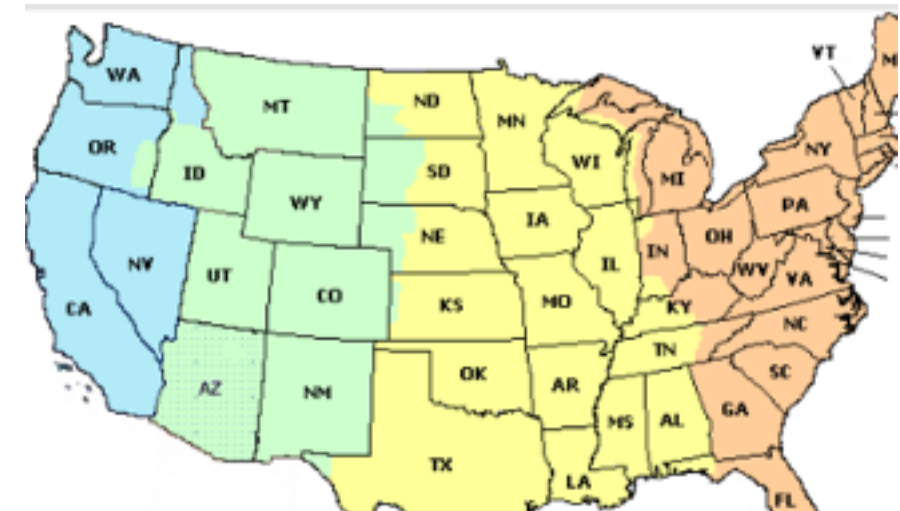
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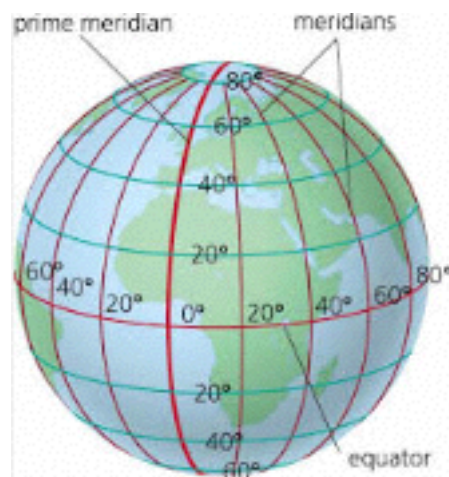
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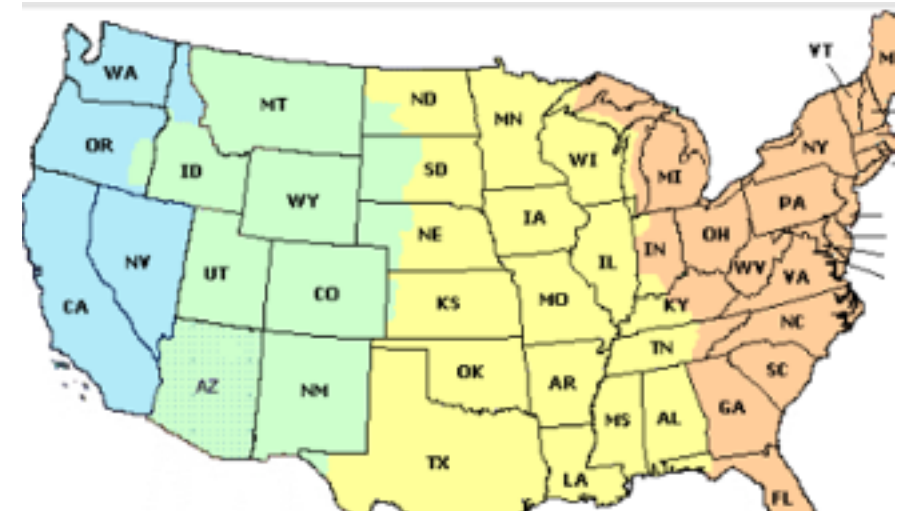
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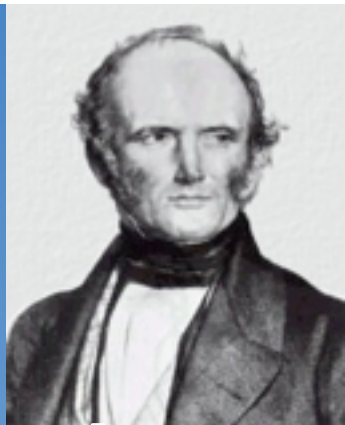
1966: Uniform Time Act

[cp Franklin,
letter to *Journal of Paris*, 1784]

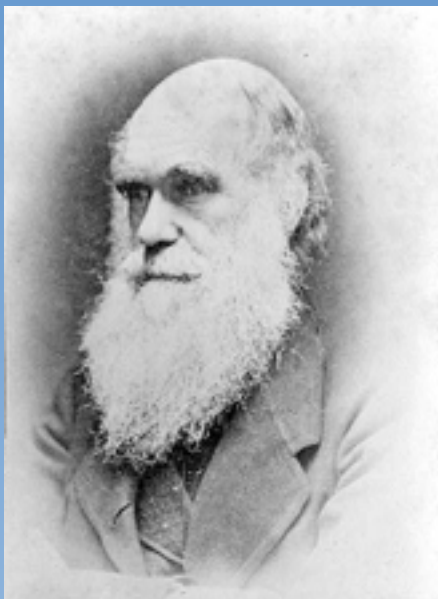




deep time



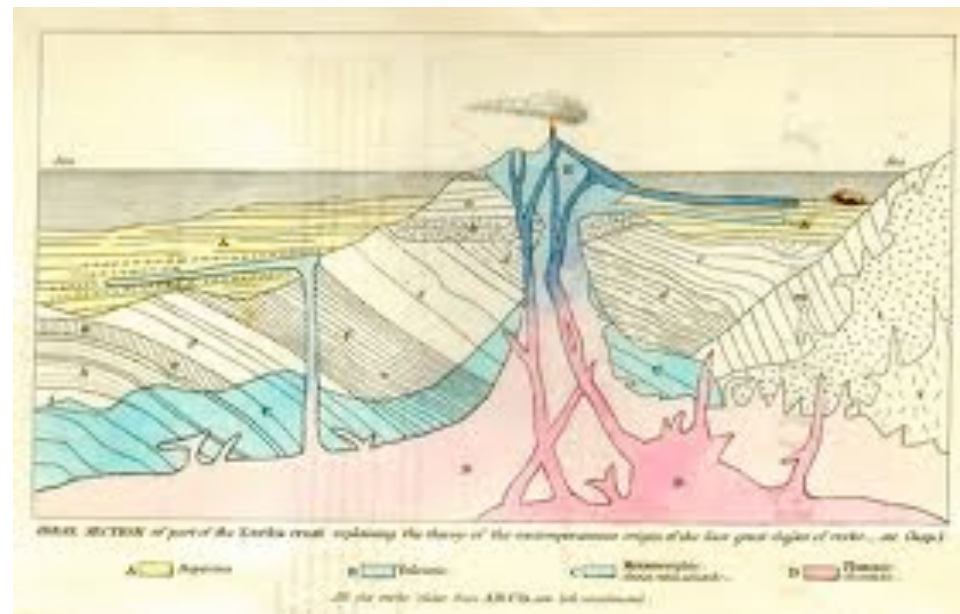
Charles Lyell
1797-1875



Charles Darwin
1809-1882

geological time

Lyell: "time, time, time"



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

4712 - Chinese
New Year: Jan 31 (horse)

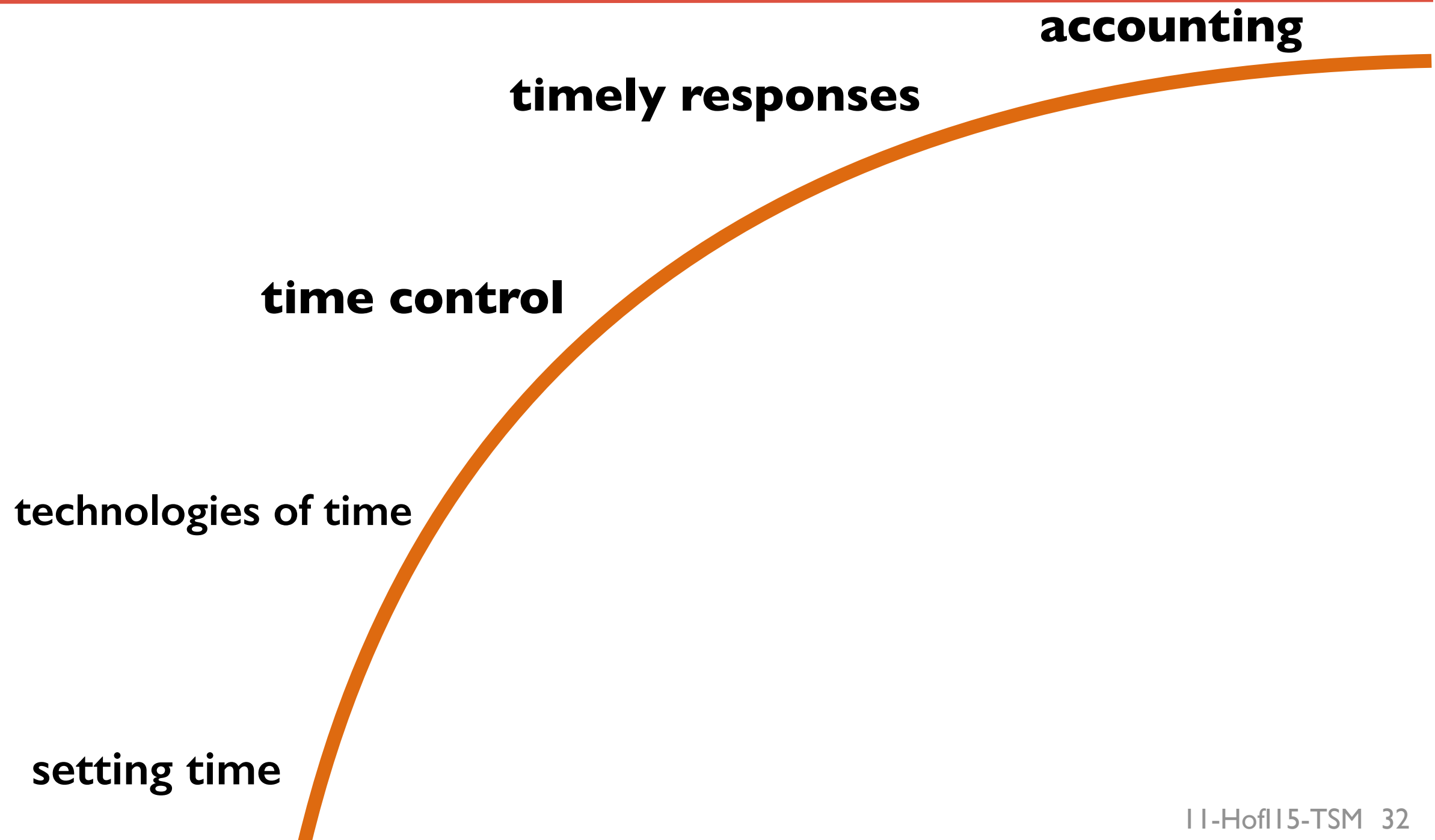
1392 - Persian
March 20 (04:03:13 am)

5774 - Jewish
September 25

1435 - Islamic
October 24

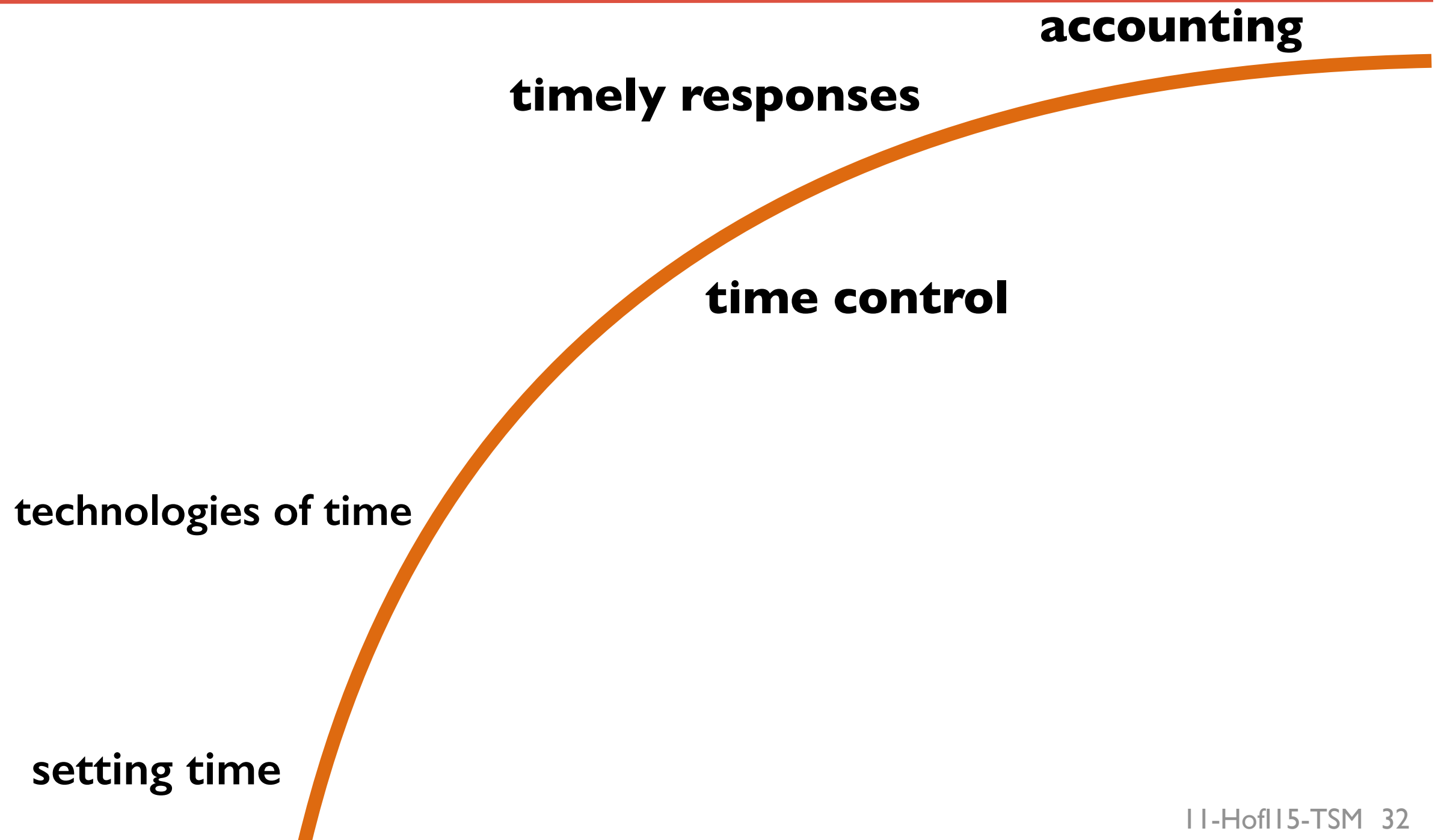


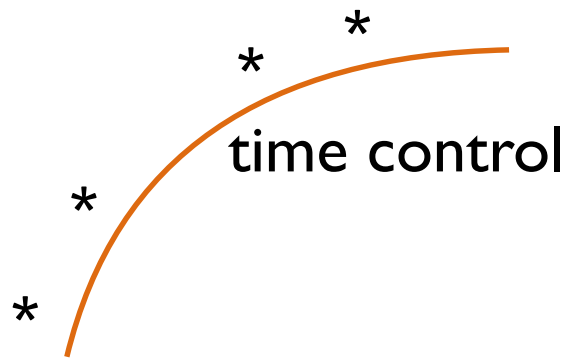
where our time will be spent





where our time will be spent





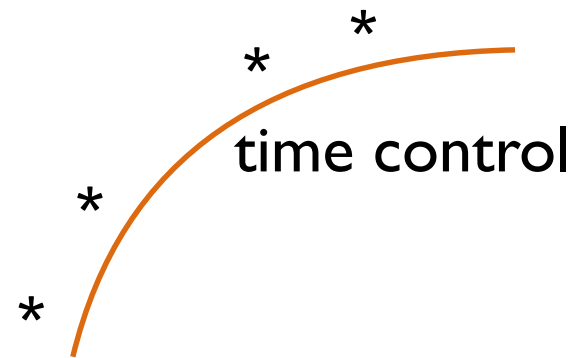
early alarms

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

an incomplete transition

"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



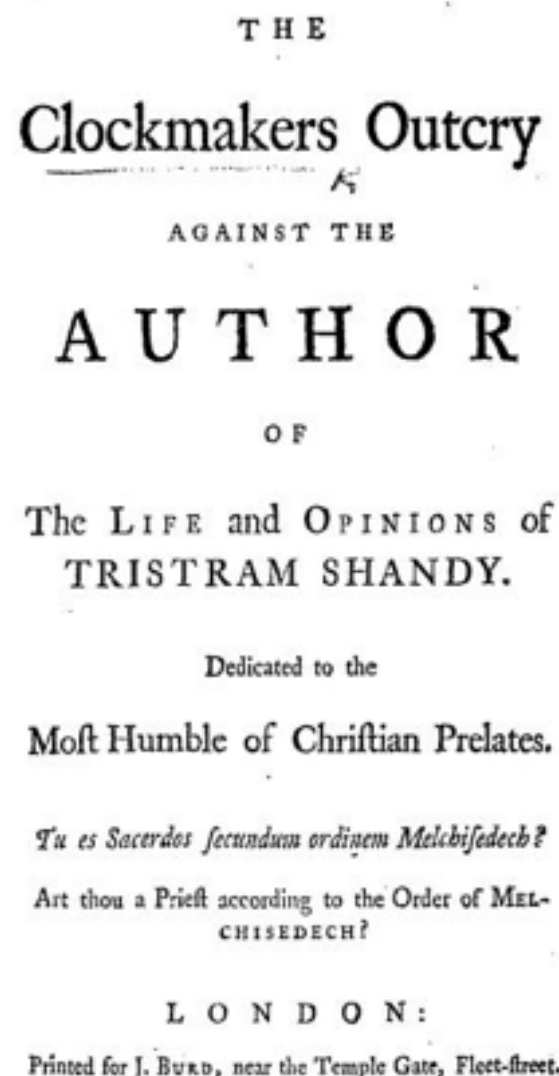
Laurence Sterne
1713–1768

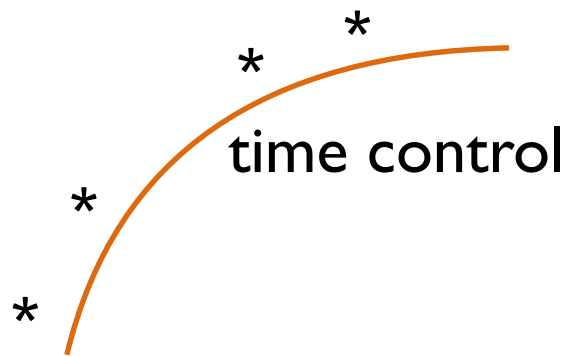
invasive clocks

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





factory discipline

“index”

Wedgwood's Etruria

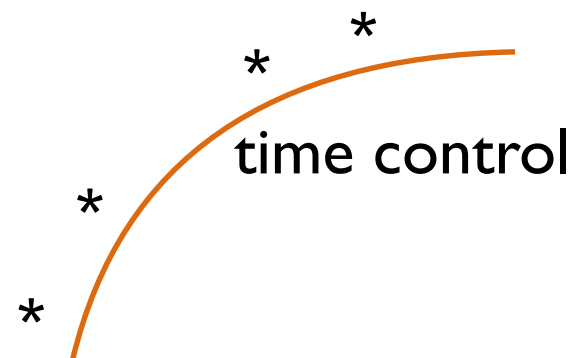
“the first recorded system of clocking-in” –Thompson

Coming up:
Advertising
IP



“tell-tale clocks”





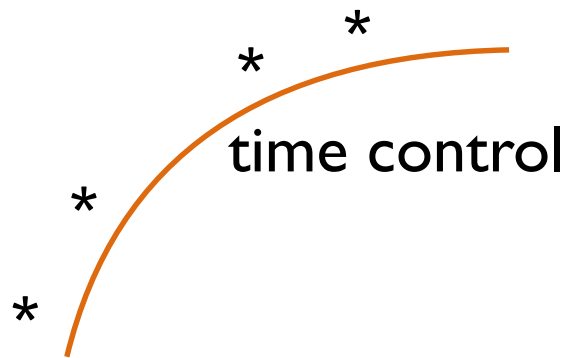
battles ahead

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

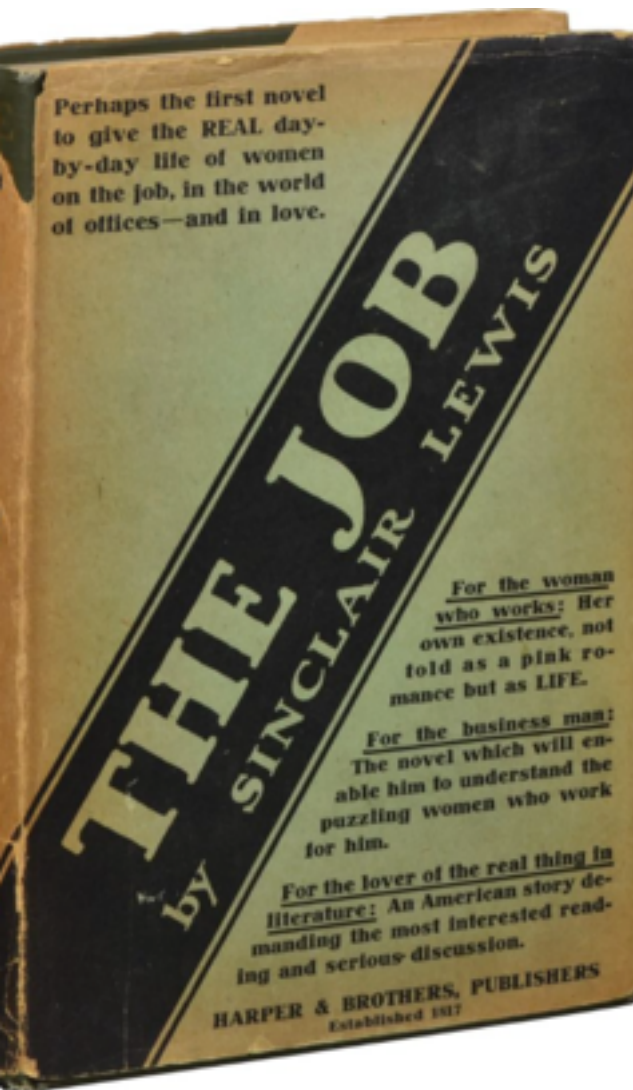
"fight, not against time, but about it"



Coming up
ip



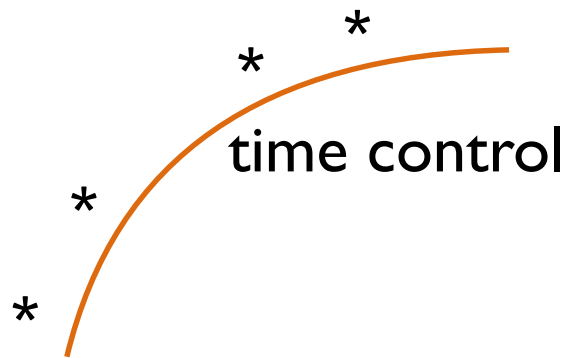
time machines



"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

schools "a spectacle of order and regularity ...
they are become more tractable" --Thompson



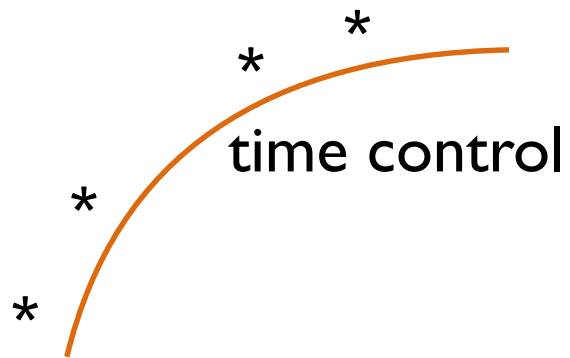
time, money, & education

Wedgwood to Wordsworth

"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

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time, money, & education

"The Nonequivalence
of High School
Equivalents"

Stephen V. Cameron
& James J. Heckman,
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High-School Equivalency Degree Loses Its Dominant Position

More States Pick Alternatives to GED After Revamping Makes It Harder and Costlier for Test Takers



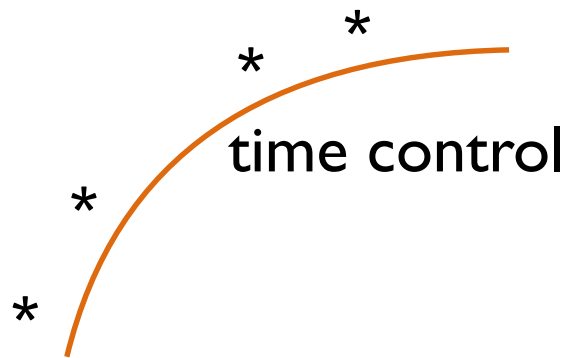
GED instructor Marcia Leister, standing in center, directs a class discussion at Bellingham Technical College in Bellingham, Wash., this month. PHOTO: DAVID RYDER FOR THE WALL STREET JOURNAL

By **CAROLINE PORTER**

Feb. 9, 2015 12:37 p.m. ET

 15 COMMENTS

For more than seven decades, the GED has reigned as the gold standard for high-school-equivalency certificates, a time-honored way for dropouts, immigrants and late bloomers to demonstrate familiarity with educational basics and get a foothold in the job market.



closer to home



confining us down like engines?

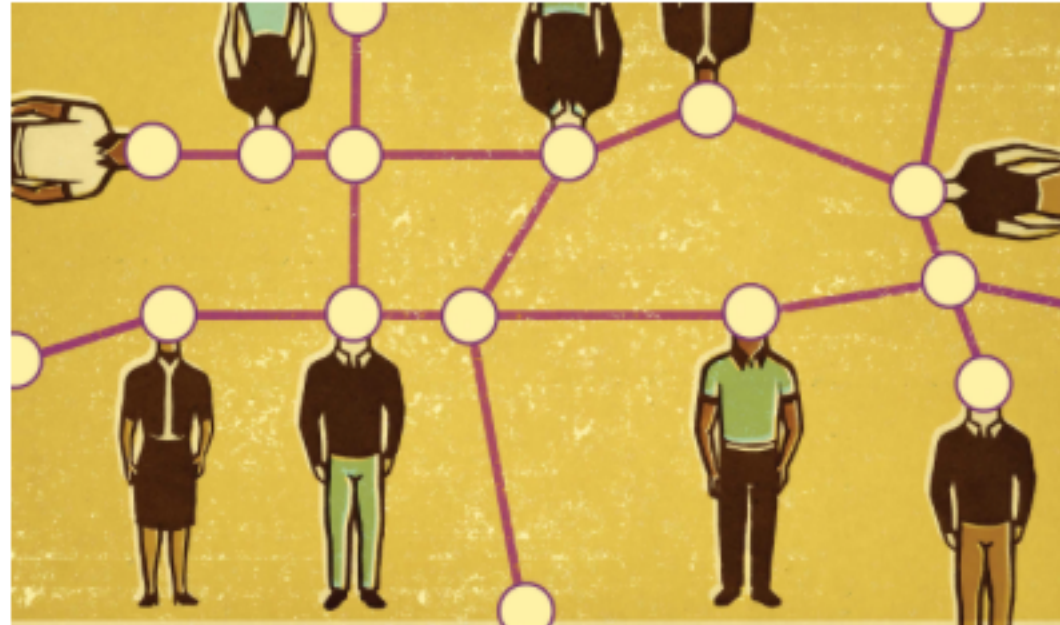
"There is a time when the operation of the machine becomes so odious, makes you so sick at heart, that you can't take part; you can't even passively take part, and you've got to put your bodies upon the gears and upon the wheels, upon the levers, upon all the apparatus, and you've got to make it stop. And you've got to indicate to the people who run it, to the people who own it, that unless you're free, the machine will be prevented from working at all!"

Amazon Mechanical Turk: The Digital Sweatshop

Unbeknownst to most users, our technological revolution depends in large part on the cheap-labor microtasking of Amazon Mechanical Turk and other tech employers.

By Ellen Cushing, from East Bay Express
January/February 2013

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Microtasking works by outsourcing small, virtual tasks to an army of online workers, who then perform them for pennies.

Illustration By Blair Kelly

[Slideshow](#)

confinin

"There is

becomes

that you

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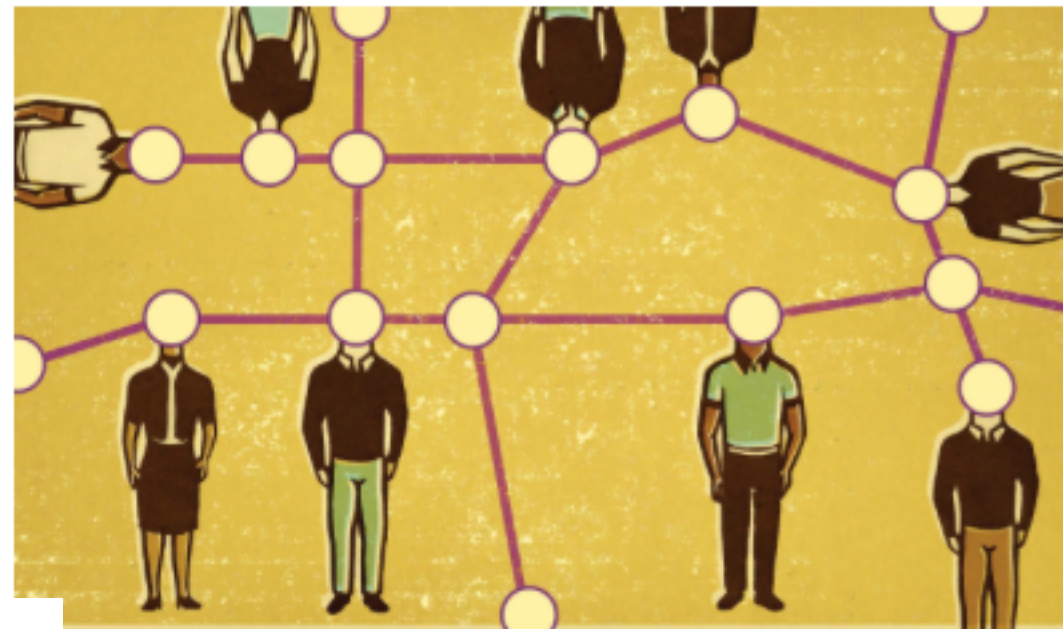
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BUSINESS 11/25/2013 @ 11:17AM | 16,588 views

Amazon.com Is Accused Of Abusive Work Conditions After BBC Secretly Videotapes Warehouse

[+ Comment Now](#) [+ Follow Comments](#)

Is Amazon driving its workers so hard they risk "mental and physical illness"? That's the opinion of Sir Michael Marmot, a top expert on the causes of stroke and heart disease at the University of London, after viewing video



Sir Michael Marmot: risk of "mental and physical illness" at Amazon. (Photo credit: Wikipedia)

footage secretly recorded at Amazon's mammoth warehouse in Swansea, Wales, by Adam Littler, an undercover reporter for the BBC who took a job at the facility.

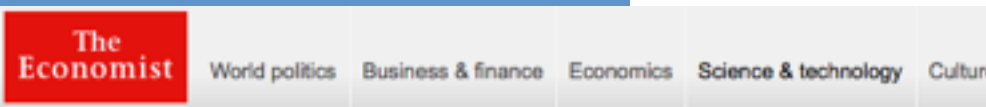


Quantified Self
self knowledge through numbers

"My pulse, as yours,
doth temperately keep time"
—Hamlet

self-control

the running on time



Technology Quarterly: Q1 2012

The quantified self

Counting every moment

Technology and health: Measuring your everyday activities can help improve your quality of life, according to aficionados of "self-tracking"

Mar 3rd 2012 | From the print edition

Like 1k Tweet 955

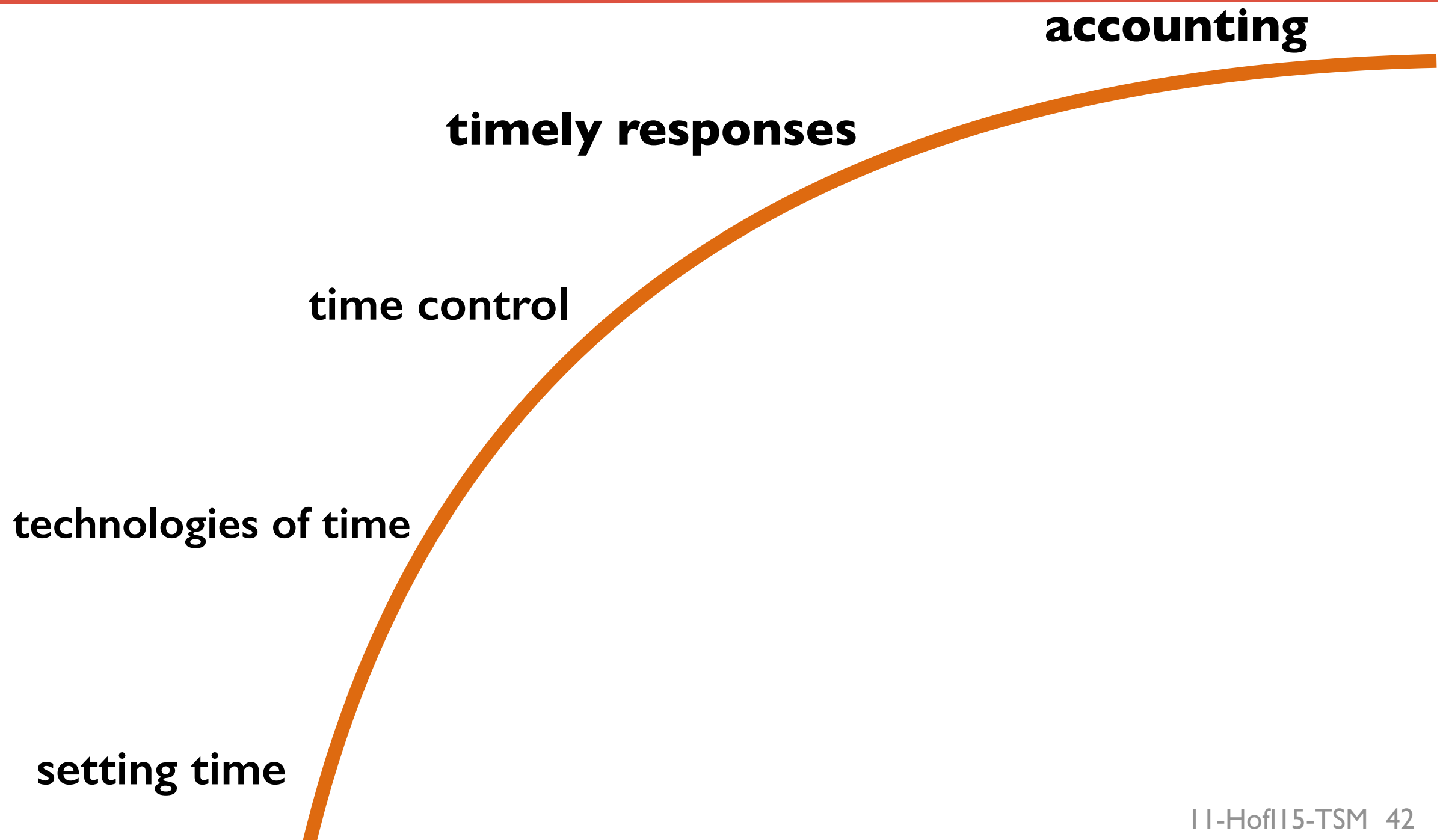
THE idea of measuring things to chart progress towards a goal is commonplace in large organisations. Governments tot up trade figures, hospital waiting times and exam results; companies measure their turnover, profits and inventory. But the use of metrics by individuals is rather less widespread, with the notable exceptions of people who are trying to lose weight or improve their fitness. Most people do not routinely record their moods, sleeping patterns or activity levels, track how much alcohol or caffeine they drink or chart how often they walk the dog.



“let us return from the timepiece to the task” —Thompson



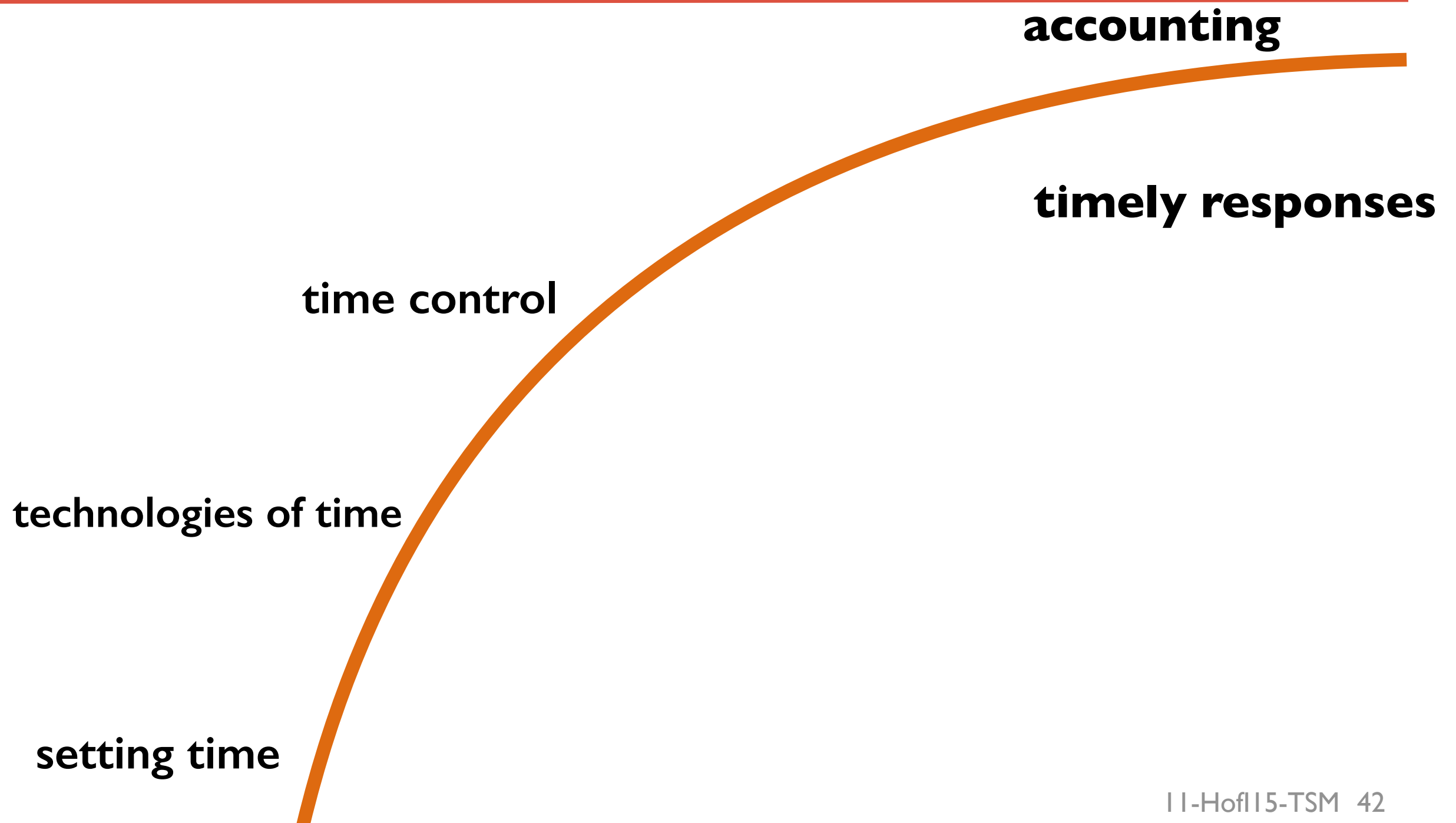
where our time will be spent



"let us return from the timepiece to the task" —Thompson



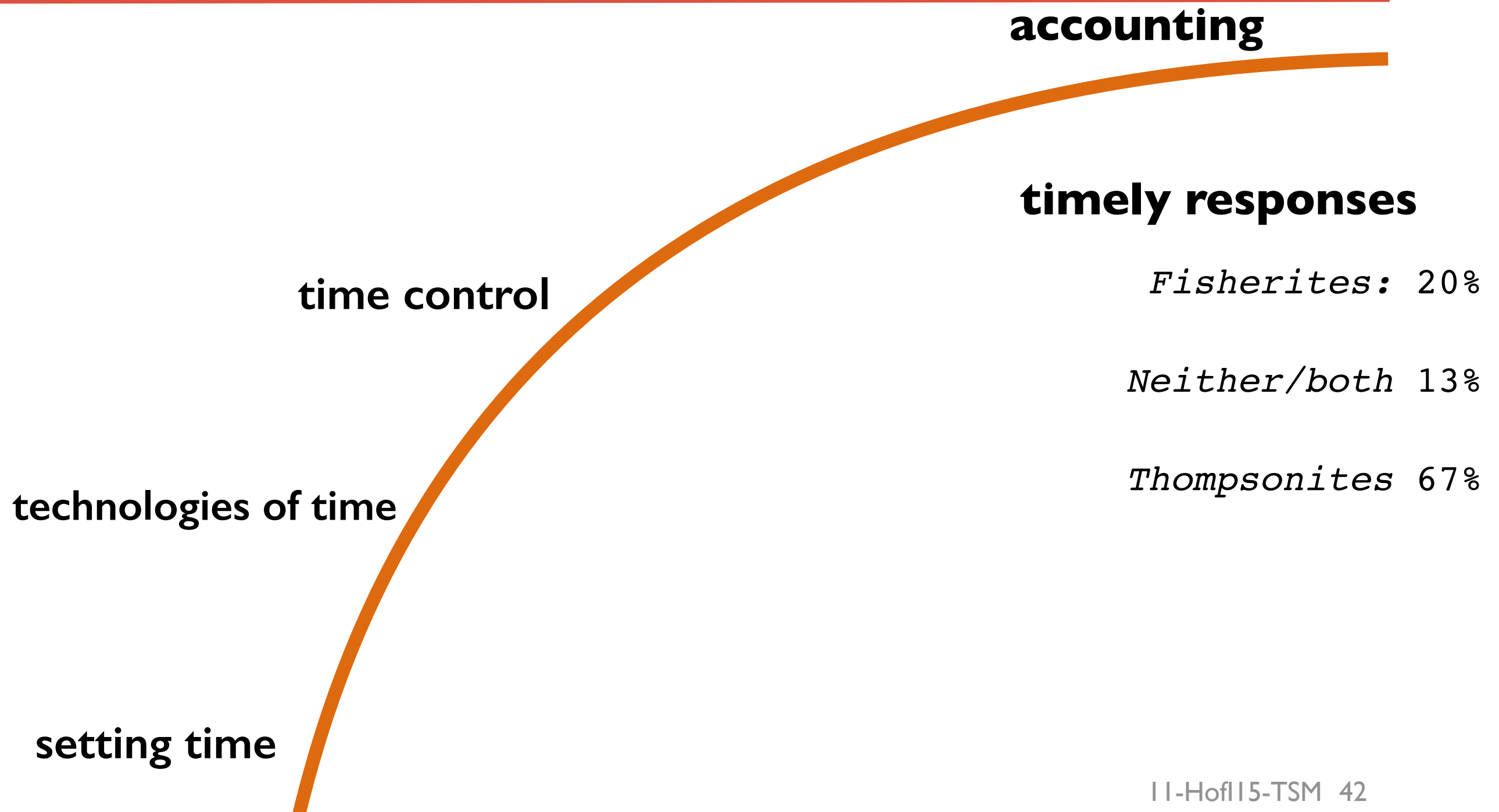
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where our time will be spent





determined responses

anti-determinism

labor exploitation has nothing to do with time measurement since correlation doesn't mean causation. In conclusion, it is important to use technologies to positively enrich our lives just as Fisher suggests and avoid thinking that technologies have a life of themselves and that they are the ones that change us, as Thompson seems to think. — Felix Canut Zea

pro determinism

Thompson's argument, which follows McLuhan's idea of technological determinism, holds more weight than Fisher's. — April Hishinuma



"I do not wish to argue how far the change was due to the spread of clocks from the fourteenth century onwards, how far this was itself a symptom of a new Puritan discipline and bourgeois exactitude. However we see it, the change is certainly there." —Thompson

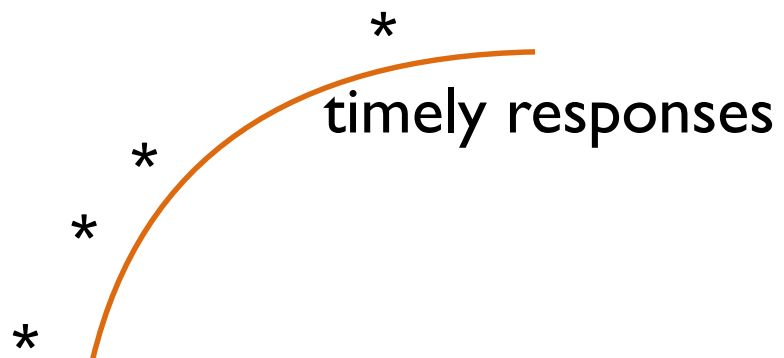
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Fisher folk

pro-accounting

Because our society is far from this framework, it makes the technology of accounting very important for people in this nation to control their lives.

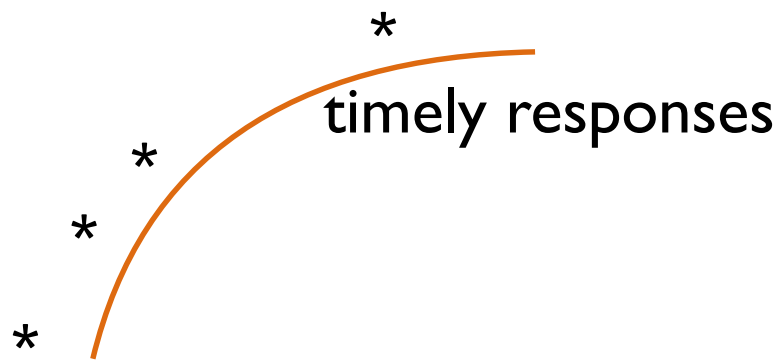
— Pippa Saunders



Fisher folk

There are still nations whom largely do not rely on exact times for minor everyday services and commitments. I personally experienced this in Kenya where I had to specify “mzungu time” to make clear I expected someone to be exactly on time (mzungu = European descent). While business men standing under shelters waiting for the rain to stop before continuing to work may be a more relaxed environment, it certainly hinders their economic power as a country; this is apparent in comparison with more developed countries. Fischer makes it clear that someone who works hard and focuses on saving rather than spending “will certainly become rich” (377). This is still a philosophy that many people have trouble with as most Americans live paycheck to paycheck.

— Benjamin Vanderschelden



Thompsonians

M.K Ashby wrote that, " How few now know what it was ninety years ago to get in a harvest! Though the disinherited had no great part of the fruits, still they shared in the achievement, the deep involvement and joy of it" (Thompson, 63). Most people today still work for an hourly wage and with the assembly line technique utilized in these jobs, people have become more like machines governed by a clock.

— Rose Anne Fabillar



Thompsonians

For many of us, proper “time is money” managing skills may prove effective because we are already in a favorable position, future propagators of the system. However, for most people the hourly work filled day controls their lives. Unions, contracts and even salary paid workers are all concepts related to the appropriation of time that are present today.

— Rafael Soto

Time has regimented every part of a person’s life and has become inescapable and indisputable. The concept of time is amorphous, and people cannot truly grasp and control time as it can control us.

— Wendy Xue



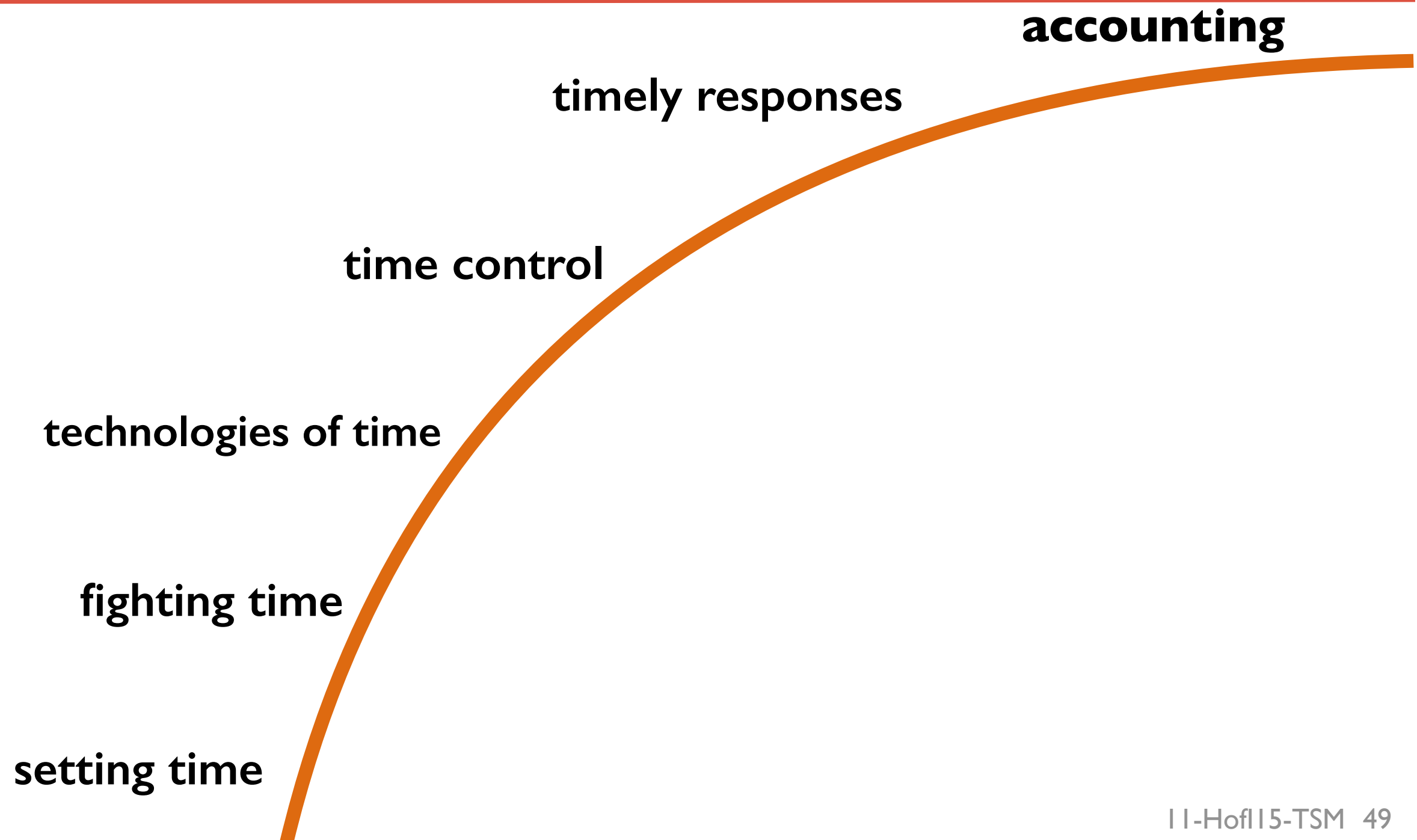
both?

I agree with Thompson that as time-telling technology and dependence on it grew, people's lives became more controlled, particularly by others, as they were held to a set schedule. However the ability to control your own life by taking initiative through accounting is more necessary today. So many rely on outside sources of organization like smartphone calendars and banking apps, rather than being personally responsible for their own time and money. The development of time technology has led significantly to the current social structure where "time is money" and every minute is scheduled. It led to Palm Pilots, Blackberries, and millions of smartphone apps designed to control and organize your life. Thus both ideas converged to create our society; people attempted to use accounting to be more reliable and invented new technology to do that for them, effectively removing many of the advantages of the method.

—Arielle Spencer

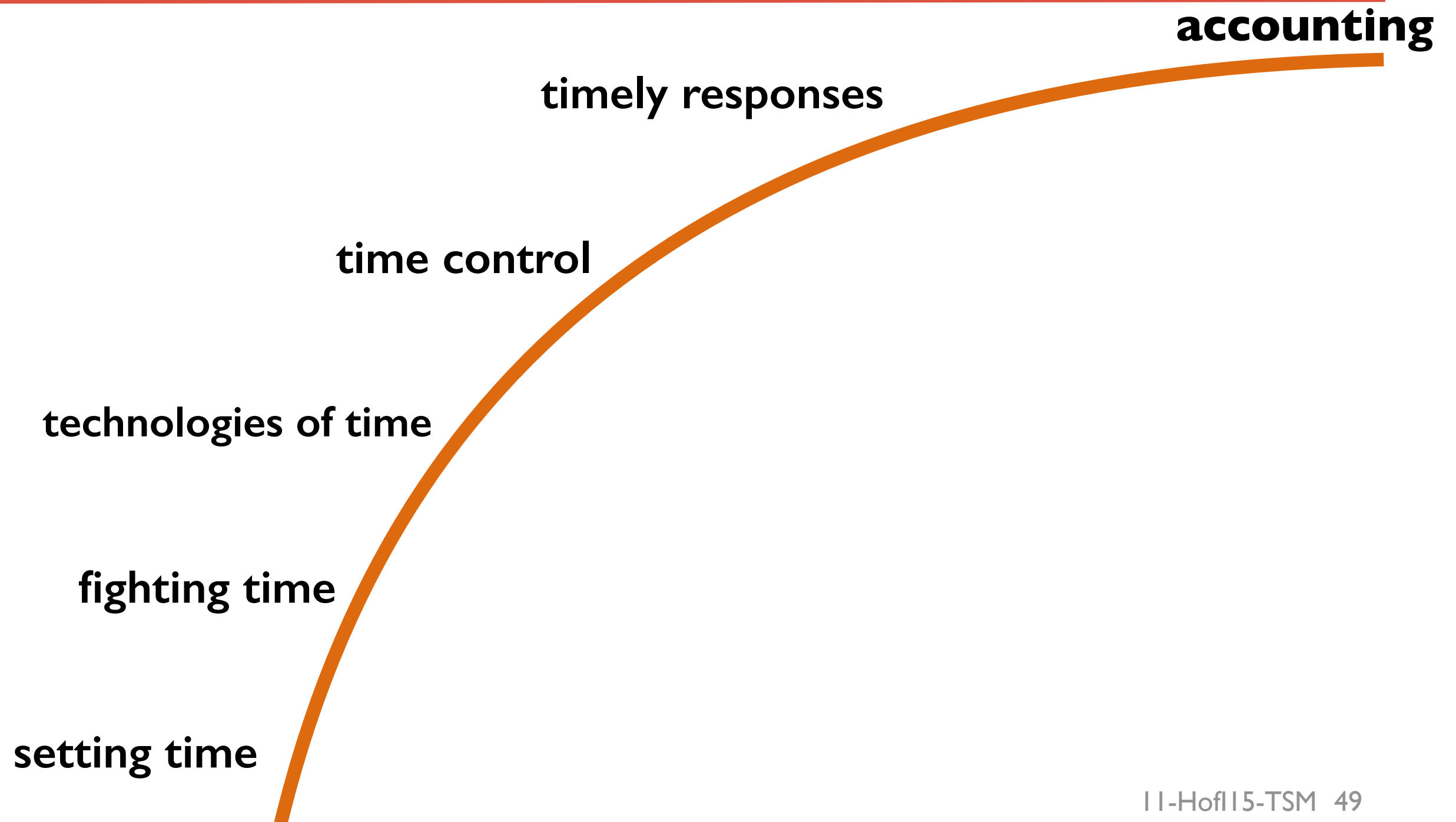


where our time will be spent





where our time will be spent



putting the other "Rs" in their place

"The Scientific Revolution outshines everything since the rise of Christianity and reduces the Renaissance and Reformation to the rank of mere episodes, mere internal displacements within the system of medieval Christianity."

— Herbert Butterfield,
The Origins of Modern Science, 1300-1800, 1948

really radical change



1827	Account	£	s	d
1	Wm. Farmer	1	0	0
4	Children's books	10	6	0
5	Placed in the 3 rd Gate 300			
	to the 3 rd Gate account	69	19	0
	debt for a house	1	1	0
8	Debt for Charities	4	1	6
	Hodgkinson's bill	22	16	0
	Stables d.	7	10	6
11	S. M.	5	0	0
12	D. to Masterman on			
	to Butler's acct. of 1826	42	0	0
16	Haughley Stationer	7	9	8
	House & James	16	6	0
	D. exp. for 1710. House	3	17	0
	Cherry	0	12	0
	Arnould (T. M.)	3	6	0
		48	4	11

1827	Carried up	£	s	d
21	to Butler's acct. to the	48	4	11
	to the 3 rd Gate account	1	0	0
24	Paul's (F. M.)	15	0	0
	Brown (amended 3 rd exp.)	2	12	0
	Rufus & Prigg (lab.)	2	10	0
26	House & James	2	17	6
30	Croft's bill	28	15	4
	D. Black with	4	15	10
	Randolph & Fitzgibbon	3	0	0
Feb 15	to the 3 rd Gate account	25	6	0
	to the 3 rd Gate account	4	0	0
	to the 3 rd Gate account	10	2	0
9	to the 3 rd Gate account	5	0	0
	to the 3 rd Gate account	2	10	0
	to the 3 rd Gate account	11	1	10
23	to the 3 rd Gate account	10	1	6
25	to the 3 rd Gate account	22	16	6
	to the 3 rd Gate account	62	7	8

"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

*
*
*
*
accounting

accounting for time

"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.
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.

The true Effigies of John Gutenberg Delinced from the Original Painting at Mentz in Germany.



accounting

"Hear it not, Duncan, for it is a knell
That summons thee to Heaven or to Hell"
—Macbeth

a western indulgence

time, money, and eternity

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

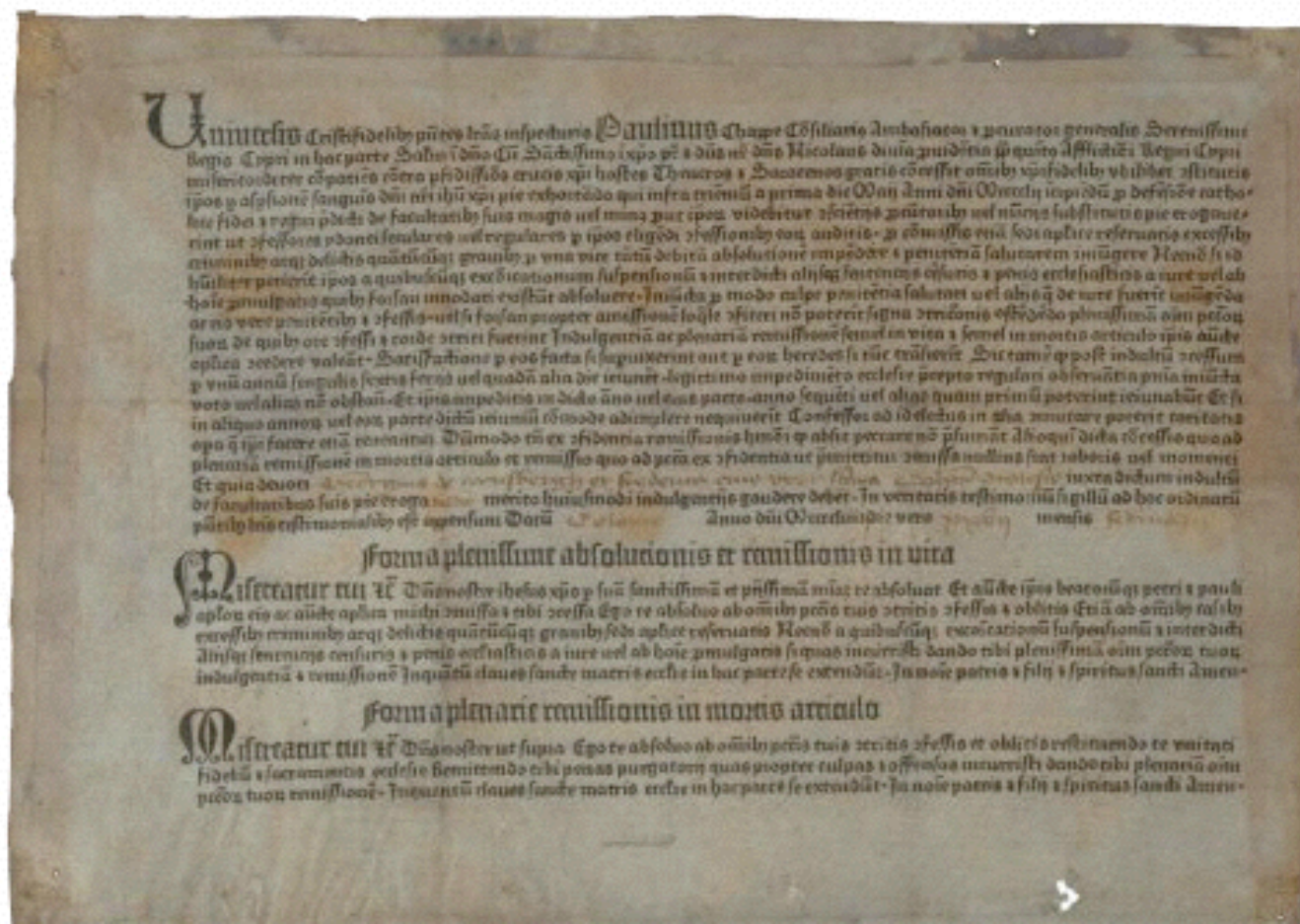
"when I call
in my
labourers to
pay them, it
often brings
to my mind the
great and
general day of
account"

— Hannah More
Two Wealthy Farmers,
1830 [in Thompson]

-Hofl I 5-TSM 52



Pope Clement V
1260–1314





accounting



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*

more reliable history

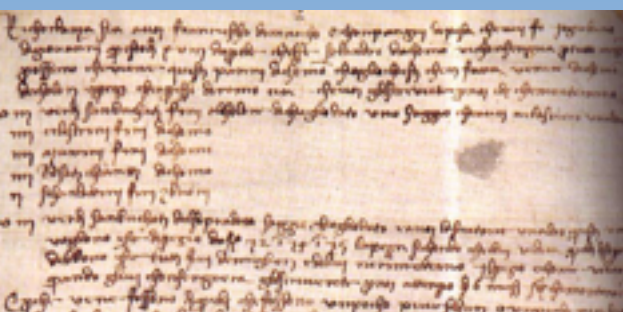
1211: proto double entry, Florence
 "Arabic" numerals, via al-Khwarizmi

c 1340: double entry in Genoa

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



Luca Pacioli
 c 1445– 1517



accounting

popular item

James O. The American
INSTRUCTOR:
James O. R. James
Young Man's Best Companion.
CONTAINING,
Spelling, Reading, Writing, and Arithmetick,
in an easier Way than any yet published; and how to qua-
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To which is added,
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accounting

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OR,
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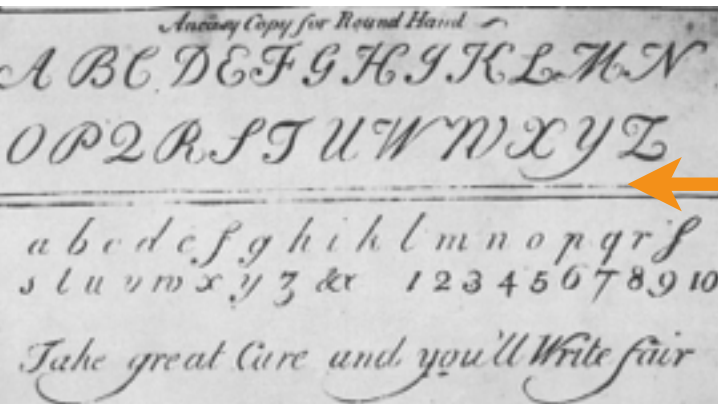
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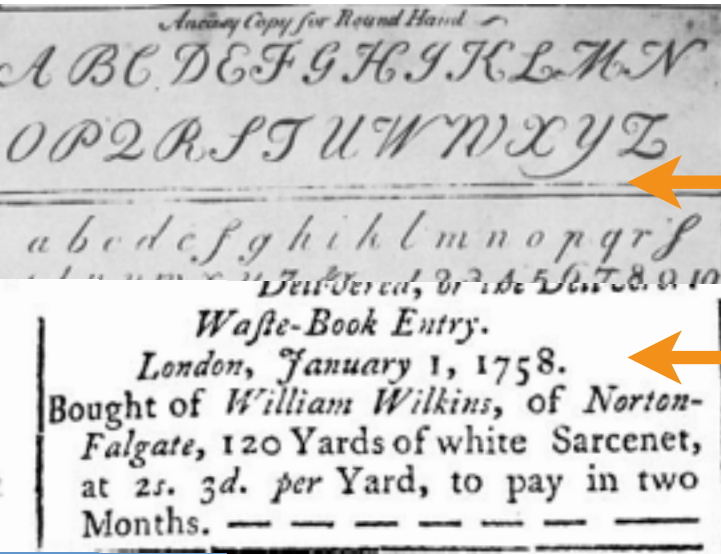
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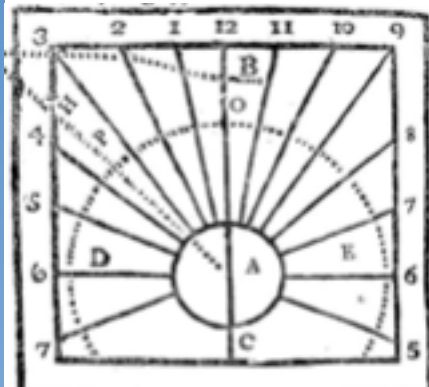
accounting



popular item

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. — — — — —

l.	s.	d.
13	10	—



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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, Leases, 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-
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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.

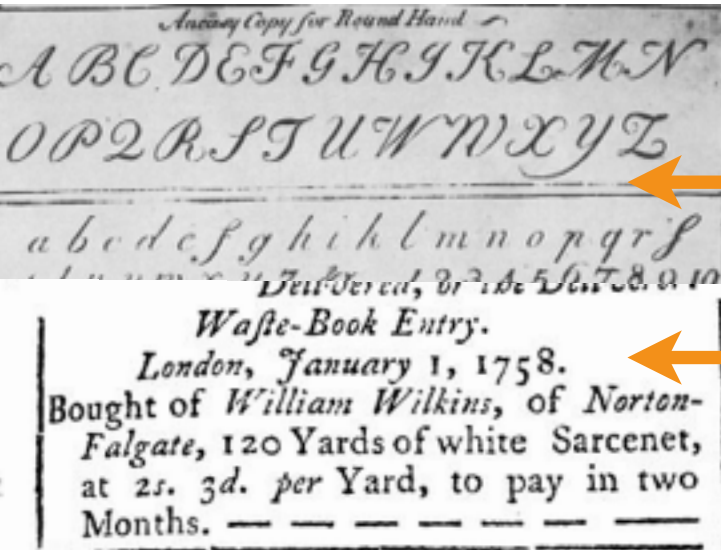
The whole better adapted to these American Colonies, than
any other Book of the like Kind.

By GEORGE FISHER, Accomptant.

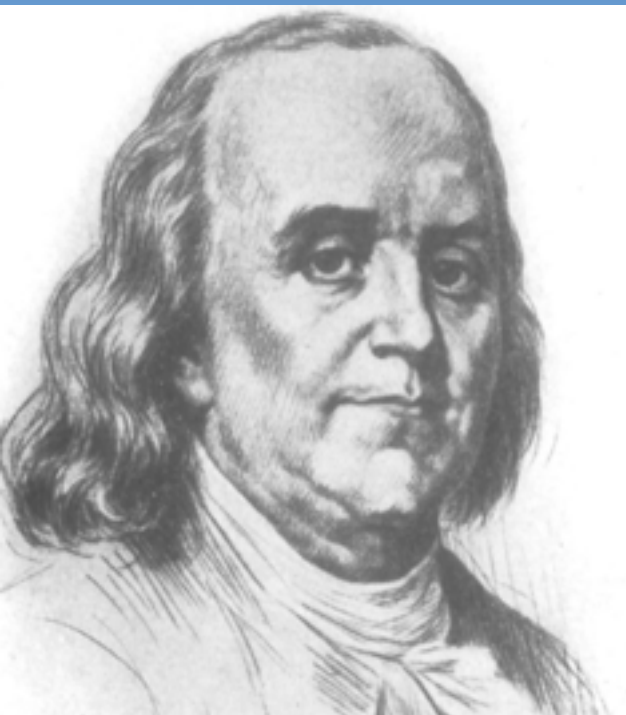
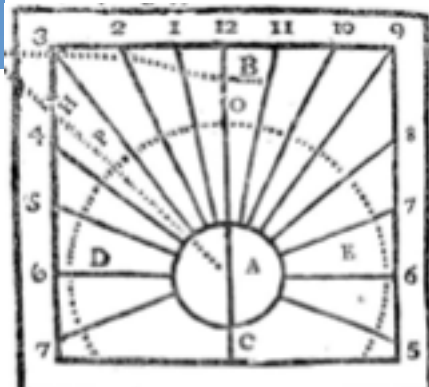
The Ninth Edition Revised and Corrected.

PHILADELPHIA: Printed by B. FRANKLIN and
D. HALL, at the New-Printing-Office, in Market-Street, 1748.

accounting



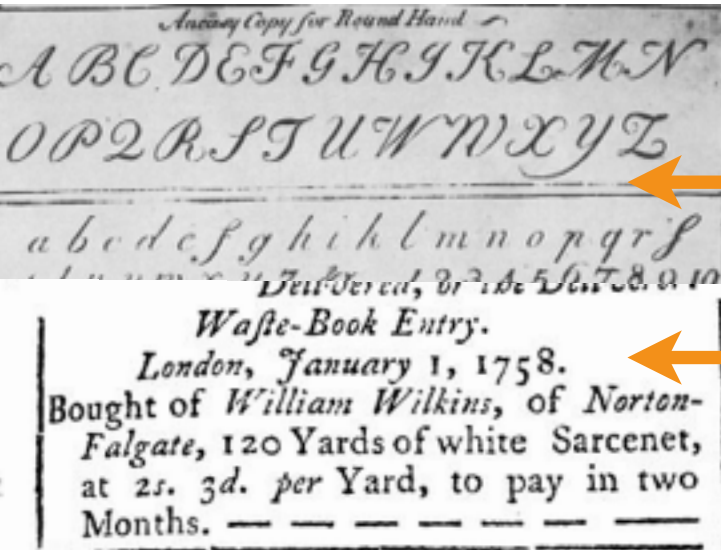
popular item



Old Tradesman
1706-1790

James O. R.
The American Boy's
INSTRUCTOR:
James O. R.
Young Man's Best Companion.
CONTAINING,
Spelling, Reading, Writing, and Arithmetick,
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accounting



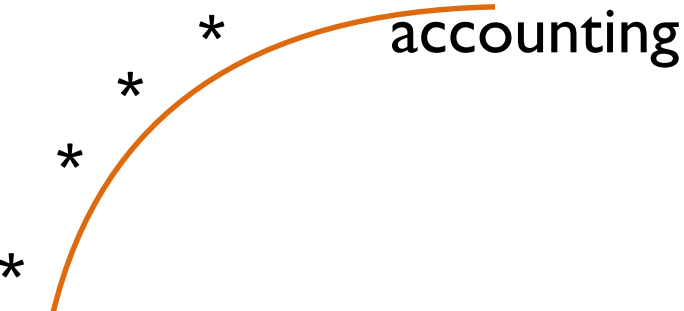
popular item



Old Tradesman
1706–1790

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James The American Artisan
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accounting

enduring advice

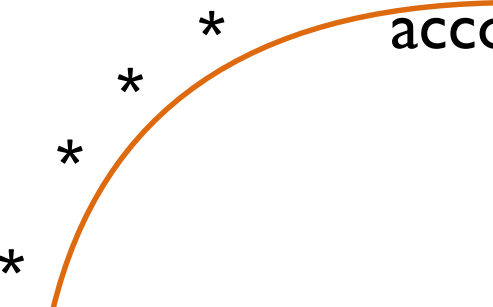
Advice to a young Tradesman, written by an old One.

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.



accounting

enduring advice

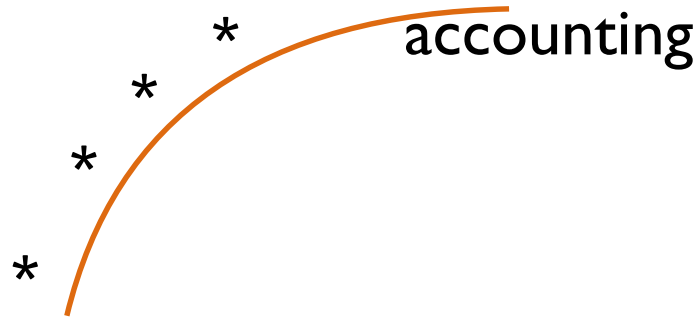
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the next thing

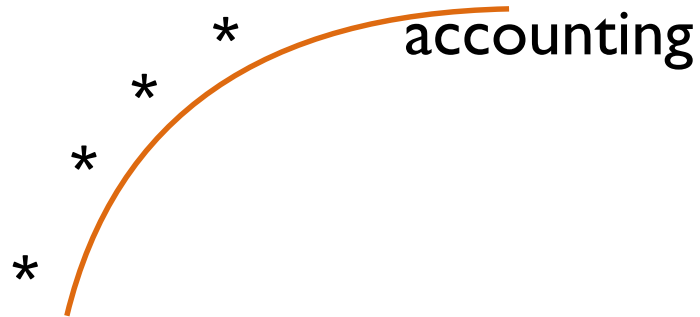
"spelling
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... how to
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business ...
write
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Merchants
Accompts ...
the several
American
Colonies"

"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."

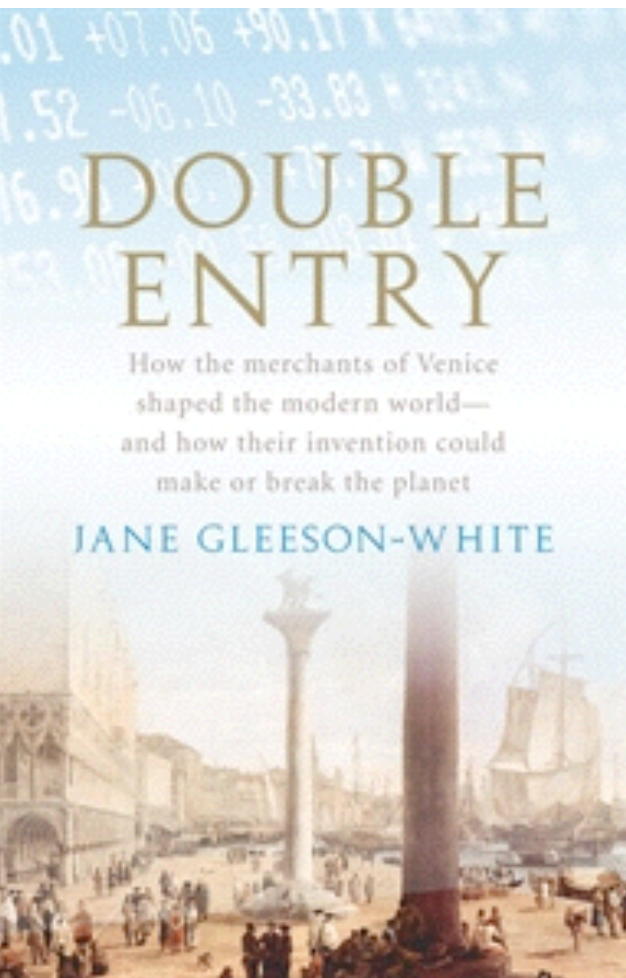
Waste-Book (Memorial)

Journal

Leidger



real determinism?



Max Weber (1864-1920)

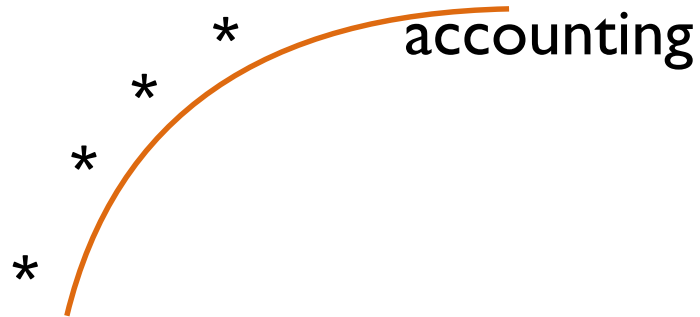
'Protestant ethic'

rational capitalist accounting

'desacralization' (cp Darnton)

Werner Sombart (1863-1941)

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



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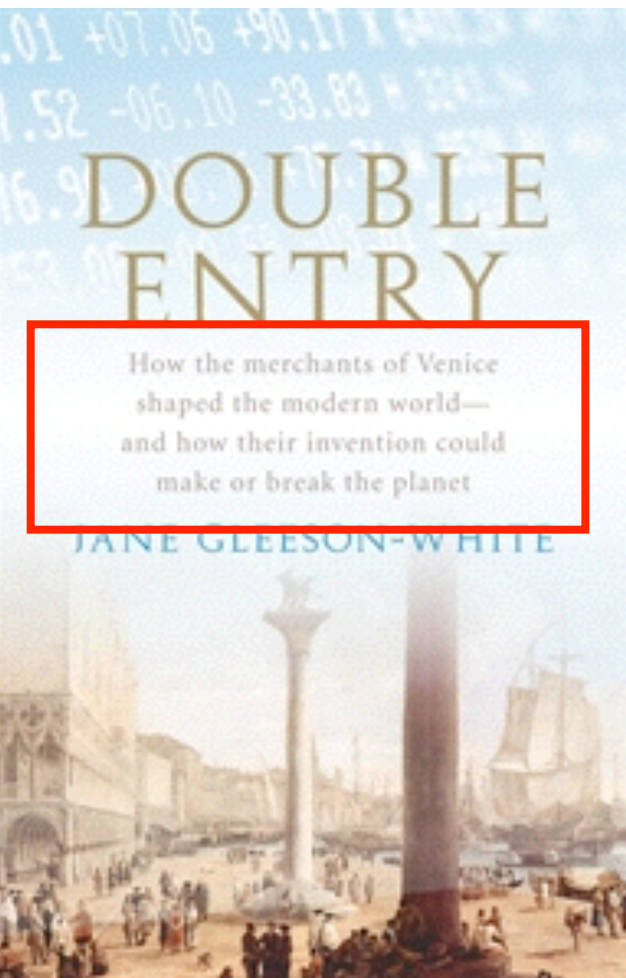
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Werner Sombart (1863-1941)

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





" 'Merchant's time' which Jacques Le Goff ...
opposed to the time of the medieval church."

—Thompson

accounting shift

"ceci tuera
cela"

"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



1708	February 12 To Goods for 119 dozens	3	215 12
1707	May 25 To do for 115 dozens	187	190 6
		256	64 -
1706	Sept 7 To Shiffs for 20 Bundles Knips	.	96 6 -
Decem	18 To do for 30 Bundles do		100 6
		269	135 10 4
1705	April 29 To Goods for 58 dozens	275	53 8 4
May	15 To Shiffs for 20 Bundles Knips	255	206 6 -
1704	July 12 To do 15 do 20 dozens of Linings		395 4 8
		296	112 3 -
1703	July 2 To Goods for 60 dozens	298	58 4
Septem	13 To Shiffs for 20 Bundles Knips	299	166 15
	30 To Goods for 110 dozens	302	264 8 -
1702	April 25 To Goods for 192 dozens	187	1815 8
October	22 To W. Madden from Alst. advised by him to pay them		283 3 8

H. J. Cox & Nottingham

1709	Decem 31 To Cash	173	3 -
1708	Aug 21 To W. Madden for diff. in 1st do London	154	100 -
Septem	24 To Cash	169	65 -
Decem	31 To Abatement for diff. in 1st	164	4 13 -
		223	107 11 -
1707	Nov 30 To Cash paid them	256	9 3 6
Decem	31 To do for 77 do do	272	44 5
1706	July 20 To Cash paid them		12 14 -
Aug	31 To do do		33 7
October	31 To do do		36 16
Decem	31 To do do		27 5
		272	46 10 -
1705	Aug 31 To Cash paid them		144 7 -
Septem	31 To do do		22 5
Decem	31 To do do	247	17 14 10
	To Abatement for 1st do do		230 16 10
1704	May 31 To Cash paid them	272	80 6 -
July	31 To do do		149 11
	To Sundries & diff. in 1st do London	244	78 13 -
Aug	30 To Cash paid them	272	13 11 -
Decem	31 To do do		103 9 4
	To Abatement for 1st do do	307	48 18 5
			466 8 9

1708	October 15 By Sundries for 213 do London & doct £8 12 0	754	215 12 -
1707	June 14 By J. Wright for diff. in 1st do London and by J. W. B. London	137	135 -
1706	Decem 31 By Abatement for diff. in 1st do London	164	5 6 -
			190 6 -
1705	Nov 30 By Cash & diff. in 1st do London & 30 do do	223	60 3 3
Decem	31 By Abatement for diff. in 1st do London	148	3 16 9
1704	March 31 By Sundries & diff. in 1st do London & 10 do do	172 7 5	96 6
			100 6
1703	Aug 31 By Cash & diff. in 1st do London	272	150 -
Decem	30 By do do do		26 12 -
	To Abatement for diff. in 1st do London	276	11 6 7
1702	May 31 By Sundries & diff. in 1st do London & 10 do do	244	207 6
			305 4 8
1701	October 15 By Sundries & diff. in 1st do London & 10 do do	113 5 11 3	712 3 -
1700	March 31 By Sundries & diff. in 1st do London & 10 do do	113 5 11 3	213 10
	April 30 By Cash & diff. in 1st do London	272	11 9 -
1707	Oct 22 By Sundries & 20 do London & 10 do do	234	283 3 8

Contra

1709	Decem 31 By Shiffs for 39 4 11 Silk bought this year	161	120 7 5
1708	Decem 31 By Sundries 12 10 do & 7 2 do Silk bought	125	46 5 7
			175 13
1707	Decem 31 By Shiffs for 58 do Silk	256	164 13 6
1706	Decem 30 By do for 43 12 do	285	106 7
			271 6 6
1705	Decem 31 By Shiffs for 104 14 9 Silk bought	297	230 16 10
1704	Decem 31 By Shiffs for 198 do Silk bought	305	466 8 9



5/23/06	WITHD	Good Earth Groceries	27.36	Deposit	1,669.04
		Groceries	44.56 PURCHASE	Open Split	
5/23/06	EFT	Sun State Credit Cards (Sun State)	250.00		1,419.04
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			

still going

the books & the bottom line



intuit
Quicken

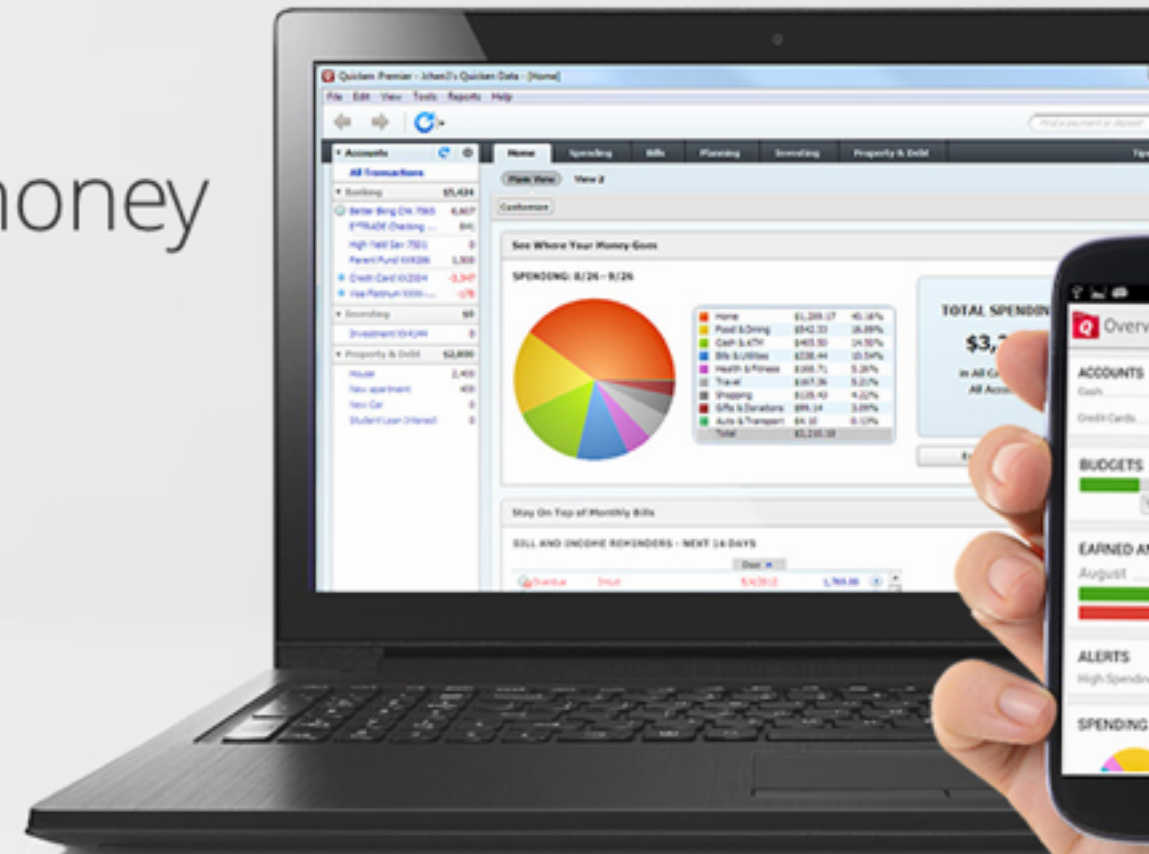
Personal Finance and Money Management Software

Organize your money
Simplify your life

New Quicken 2015

QUICKEN FOR WINDOWS

QUICKEN FOR MAC





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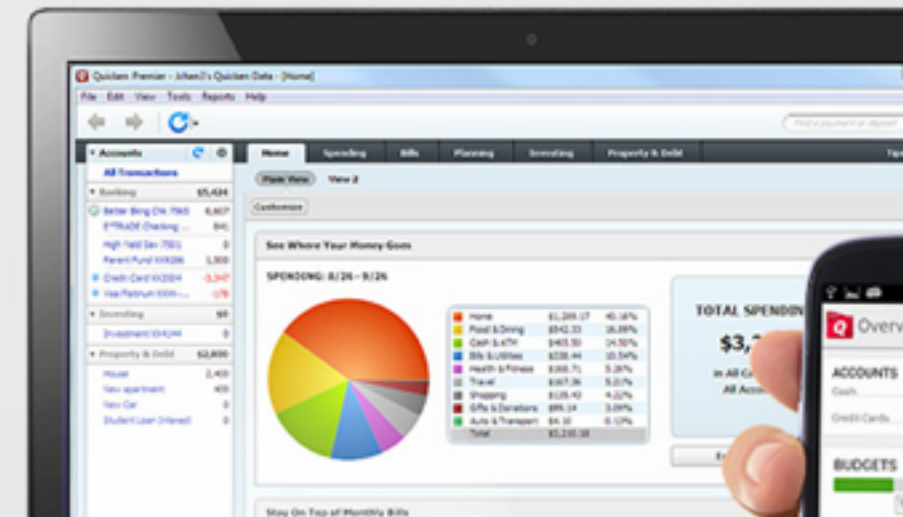
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GNUCASH

Free Accounting Software



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still going

the books & the bottom line



Personal Finance and Money Management Software

Organize your money

Feature Highlights

- ✓ Double-Entry Accounting
- ✓ Stock/Bond/Mutual Fund Accounts
- ✓ Small-Business Accounting
- ✓ Reports, Graphs
- ✓ QIF/OFX/HBCI Import, Transaction Matching

See Where Your Money Goes

SPENDING: 8/26 - 8/26

TOTAL SPENDING: \$3,700.00

ACCOUNTS: Cash, Credit Cards, BUDGETS

GNU CASH

Free Accounting Software



5/23/06	WITHD	Good Earth Groceries	27.36	Deposit	1,669.04
		Groceries	44.56 PURCHASE	Open Split	
5/23/06	EFT	Sun State Credit Cards (Sun State)	250.00		1,419.04
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still going

the books & the bottom line



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"The Symptoms of a Bankrupt Nation are easily discerned"

*
*
*
*
accounting

balancing acts



David Hume
1711–1776

personal and public debt

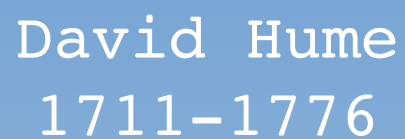
"Annual income twenty pounds, annual expenditure nineteen nineteen six, result happiness. Annual income twenty pounds, annual expenditure twenty pounds ought and six, result misery."

—Charles Dickens, *David Copperfield*

"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

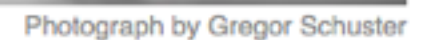
A graph illustrating a concave curve, labeled "accounting". The curve starts at the bottom left and curves upwards and to the right. Four asterisks (*) are marked along the curve, indicating specific points of interest.



"Annual inc
nineteen ni
twenty poun
and six, re

"apprehensi
such a natu
out of humo

FAQ: Reinhart, Rogoff, and the Excel Error That Changed History

SEND TO **kindle**

Harvard University economists Carmen Reinhart and Kenneth Rogoff have acknowledged making a spreadsheet calculation mistake in a 2010 research paper, “[Growth in a Time of Debt](#)” (PDF), which has been widely cited to justify budget-cutting. But the authors stand by their conclusion that higher government debt is associated with slower economic growth. Here’s what you need to know.



Greece Still Has A Vast Problem It Doesn't Have A Primary Budget Surplus

+ Comment Now + Follow Comments

apprehension

Greece readies reform plans to first sign of leftist unrest

BY ANGELIKI KOUTANTOU AND KAROLINA TAGARIS

ATHENS | Mon Feb 23, 2015 1:43pm EST

MARKETS

More: [Cumberland Advisors](#) |

Things were finally looking up for Greece after 6 years of recession, and now it's falling apart again

■ BILL WITHERELL, CUMBERLAND ADVISORS



FEB. 22, 2015, 12:04 PM | 🔥 1,170 | 💬 3

12:12 pm ET
Feb 23, 2015

BANKS

A Greek 'Deal' Does Not Solve Eurozone's Woes

The Observer view on Greece, bailouts
and the euro

Without the single currency and bailouts, Greek, Irish and Portuguese banking
systems would have collapsed. Anti-Europeans should acknowledge this



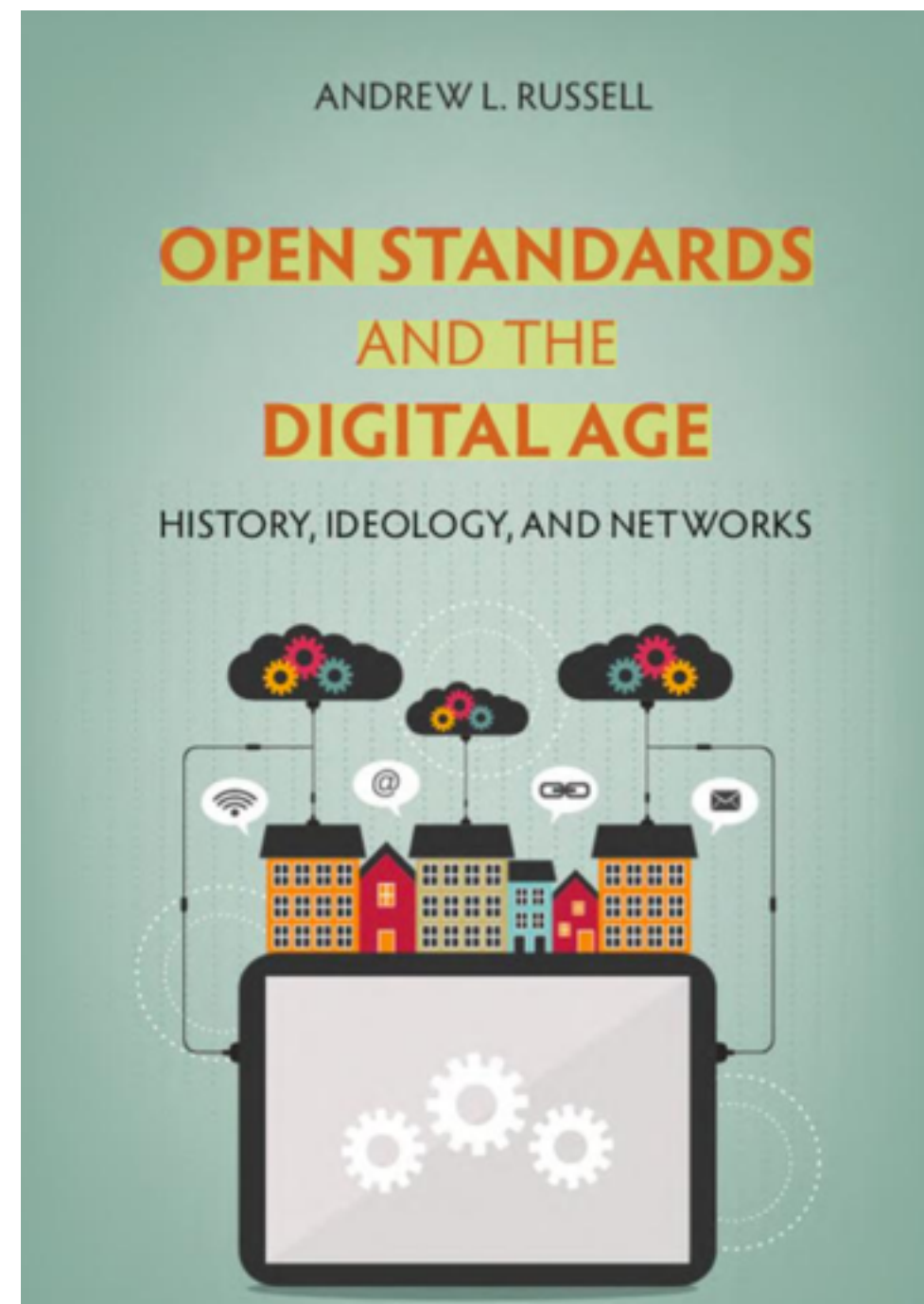
in sum

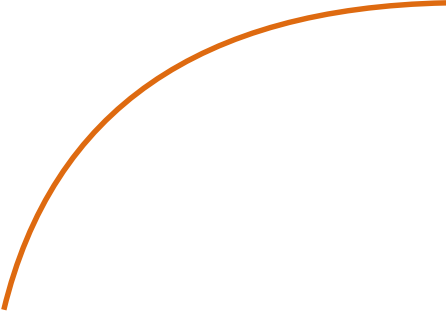
**coordination demands
standards, and
setting standards is hard**

**it's often easier to go to
war**

- **standards war**
- **or real war**

coming up:
Communications
“revolution”





coming up

26 Feb: Reference Books and the Organization of Knowledge

Required Readings

McArthur, Tom. 1986. "Reference and Revolution" & "Thematic Lexicography," chapters 13 & 14 in *Worlds of Reference*. Cambridge: Cambridge University Press.

Source: Course reader.

Additional Reading

Nunberg, Geoffrey. 2013. "Noted." *The Chronicle of Higher Education*, Jan. 7.

Source: CHE [[hyperlink](#)
(Links to an external site.)