

# Ancient Mesopotamia and their number system

(... bits of which we are still using)

"Mesopotamia" means (roughly) "The land between the rivers",

ie the Tigris & Euphrates. (Very roughly modern Iraq.)

While <sup>Egypt</sup> was pretty isolated geographically - mostly surrounded by a lot of desert and is accessible only from the north (ie the delta) & the south along the Nile valley.

Mesopotamia is accessible via mountains to the north & east, so it had repeated conquests & incursions.

## Completely sketchy outline of Mesopotamian civilization

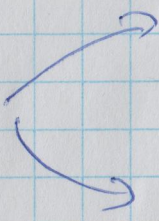
Ancient Sumer c. 4500 - 1900 BC. (writing invented by c. 3300 B.C.)

Akkadian Empire c. 2334 - 2154 BC. (spoke a semitic language that eventually replaced Sumerian in common use - Sumerian remained ~~was~~ a language of scholarship & religion.)

Babylonian Empires c. 1895 - 539 B.C.  
(Southern Mesopotamia)  
Hammurabi c. 1810 - 1750

Assyrian Empire c. 2500 - 609 BC.  
(Northern Mesopotamia)

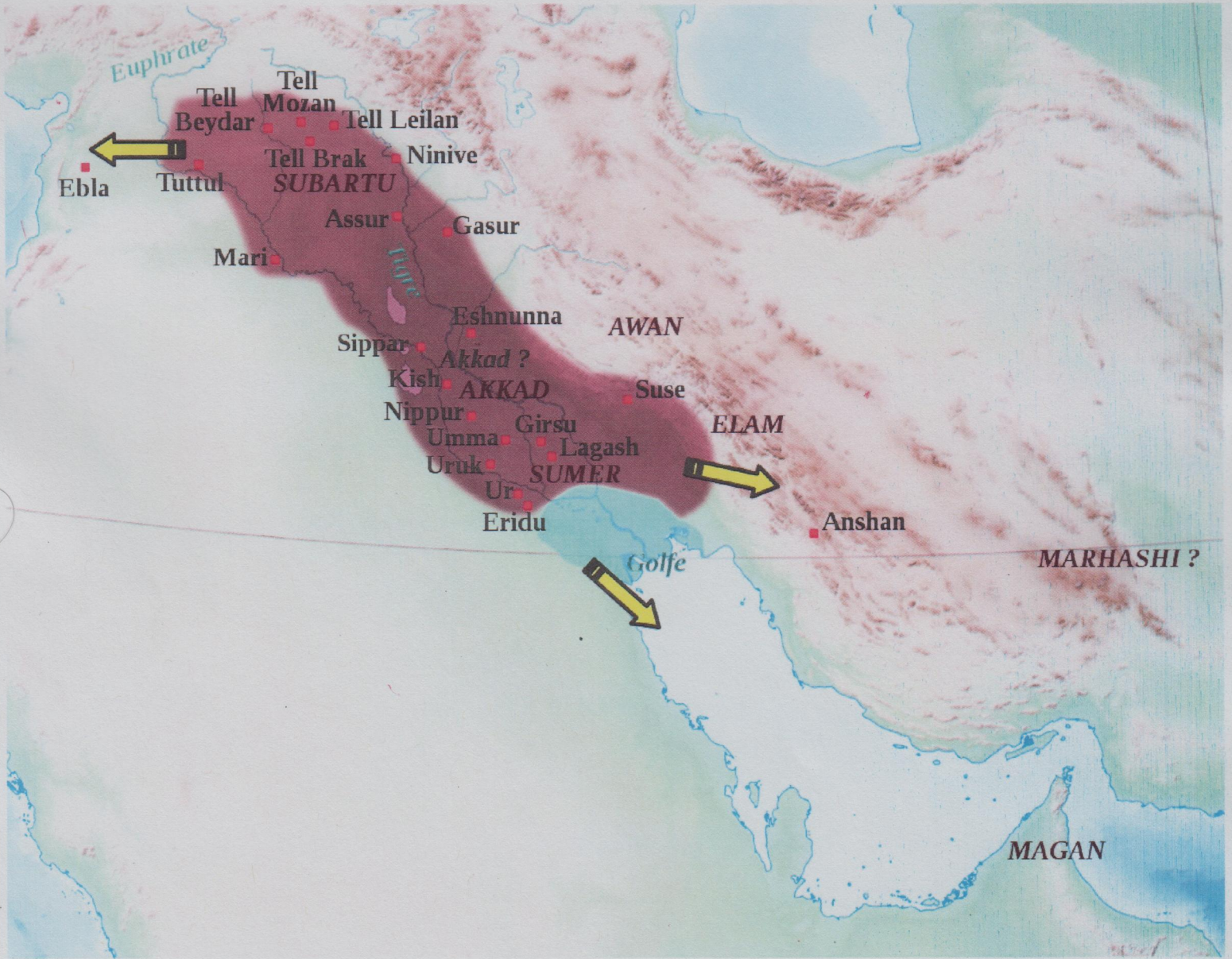
languages descended from Akkadian



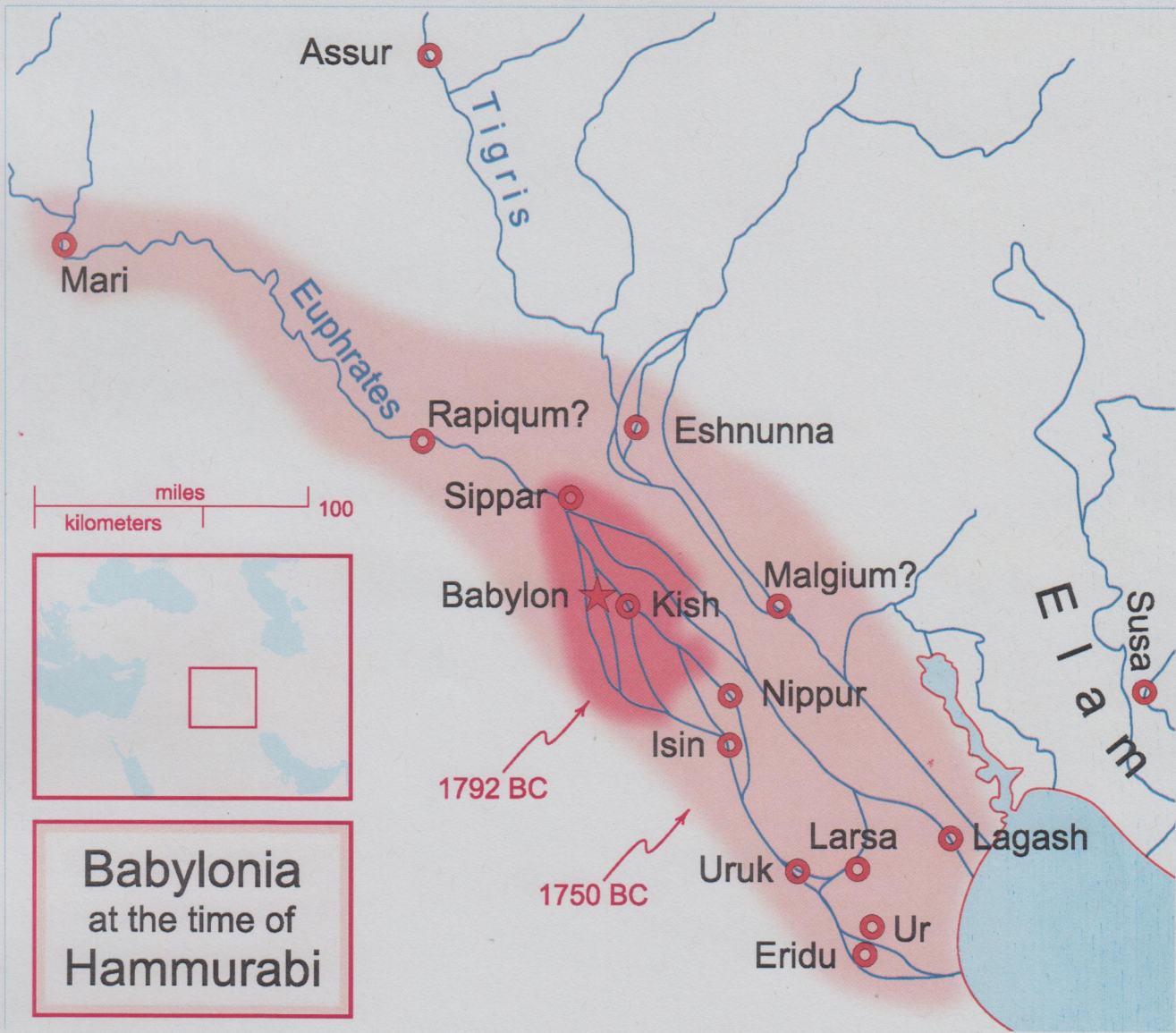


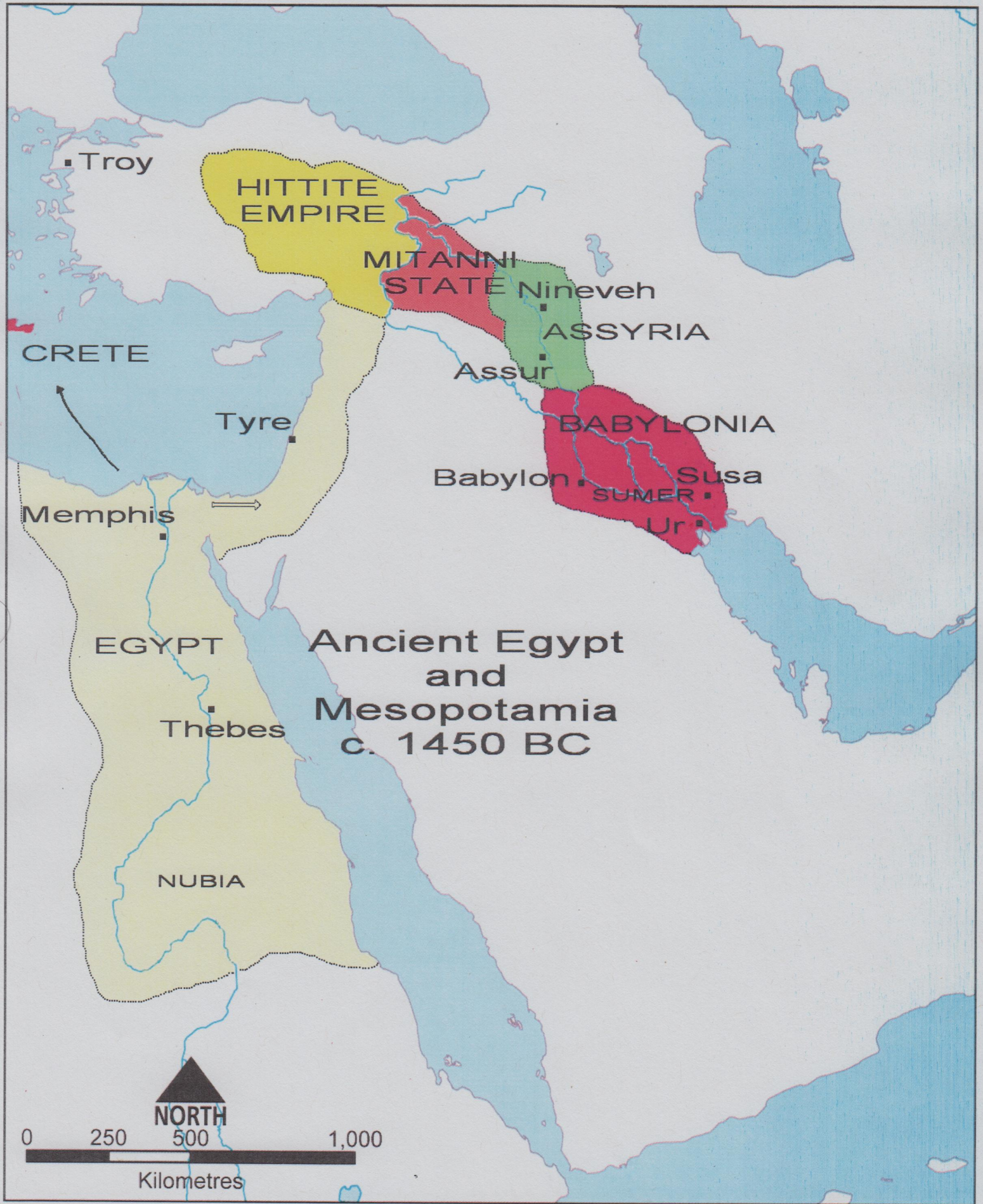
Ancient Sumer.

Modern coastline.



Akkadian Empire at the time of Sargon I,  
c. 2334-2279 B.C.





Incorporated into Persian Empire c. 539 B.C.

(2)

followed by Macedonian conquest

Persian reconquest

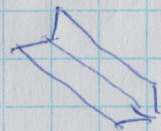
Roman conquest

Persian reconquest

Islamic conquest  
& so on.

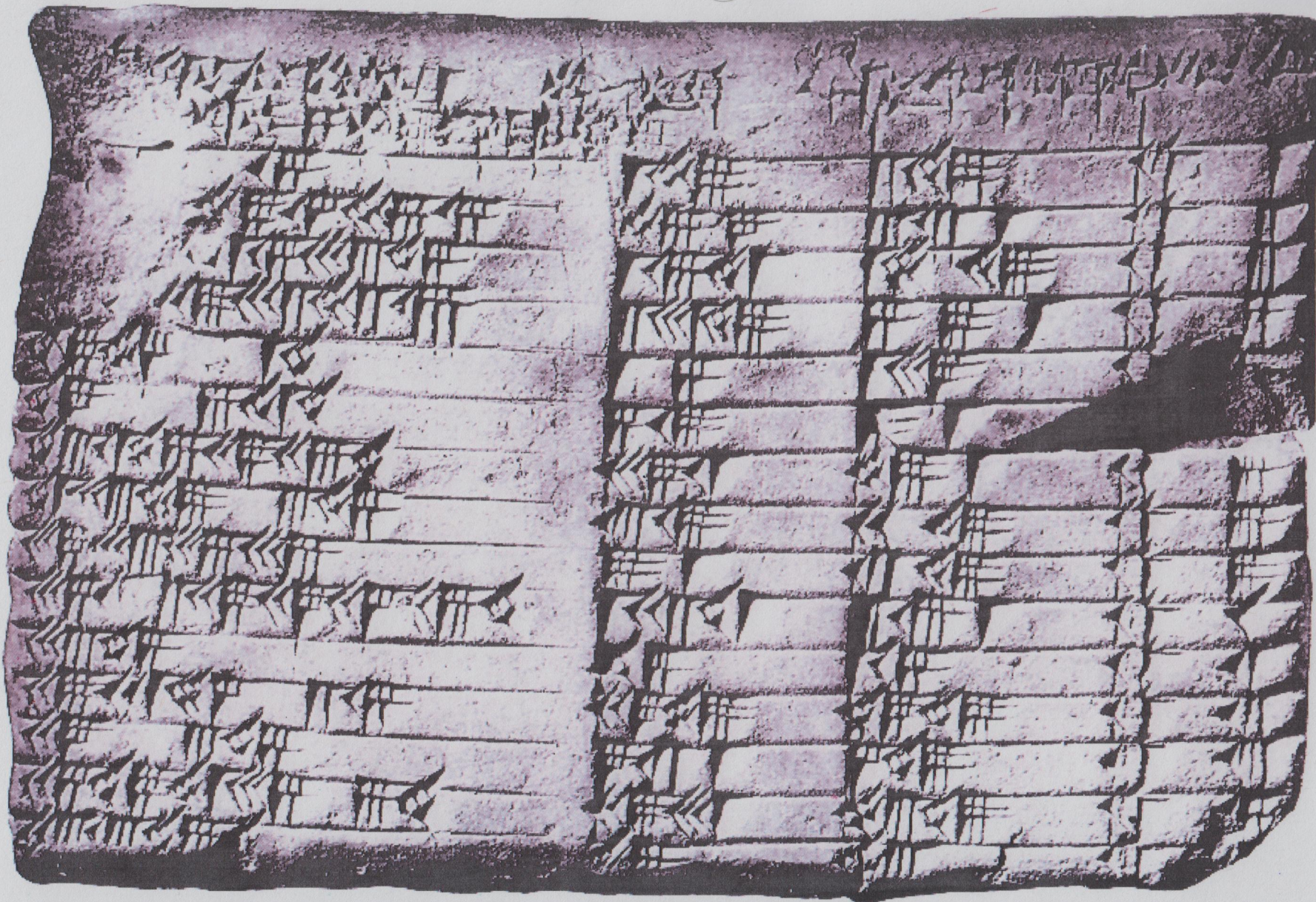
The writing system invented early in Ancient Sumer ("cuneiform") seems to have lasted throughout Mesopotamian history until at least the 1st century A.D. (most recent cuneiform tablet dates to c. 75 A.D. and there is evidence of people reading these tablets up to about 300 A.D.).

The most common medium were clay tablets into which the symbols were impressed using a stylus made (usually) from reeds with a roughly (triangular cross-section (c. 500,000 of these are in museums nowadays)





Sumerian cuneiform on a stone tablet, c. 2600 B.C., recording a sale of farm land.



Plimpton 322 (Actual dimensions approximately  $13 \times 9 \times 2$  cm.)  
Probably written c. 1800 B.C. near the city of Larsa.



The writing system was used by a lot of different people over time and has been difficult in many cases to fully decipher. (3)

eg The cuneiform sign \* is

- the word "dingir" in Sumerian, meaning god or goddess
- the syllable "il" in Akkadian
- the Hittite syllable "an"
- a silent sign indicating that what follows is the name of a deity.

If you saw this in a Hittite tablet you would have to work out from context which of these meanings was intended.

We have deciphered - often tentatively - ancient Sumerian by learning bilingual & trilingual texts ~~from~~ in several steps from languages we know.

The number system, however, was comparatively simple and stable. (4)

Two symbols:  $\Upsilon$  units  
 $\leftarrow$  tens  $\Rightarrow 37 \lll \begin{matrix} \Upsilon \Upsilon \Upsilon \\ \Upsilon \Upsilon \Upsilon \\ \Upsilon \end{matrix}$

~~These were used as the~~

The numbers 1 to 59 written in this way are used as the digits of a base 60, "sexagesimal", number system. It's an incomplete place-value system.

$\Rightarrow \Upsilon \Upsilon \lll \Upsilon \Upsilon$  could be  $143 = 2 \times 60 + 23$   
or it could be  $7223 = 2 \times 60^2 + 23$   
or it could be  $2 \frac{23}{60} = 2 + 23 \times \frac{1}{60}$   
or it could be  $\frac{143}{3600} = \frac{2}{60} + \frac{23}{60^2}$

we don't know (except from context) if there are places missing [no zeros!]

0  
0  
0

Also, no "sexagesimal" point.

Next time: Mesopotamian arithmetic!