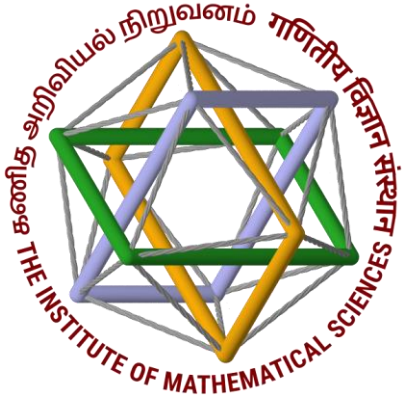
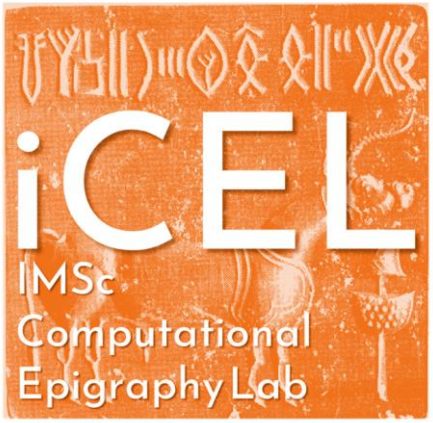


Bits & Scripts



What's this thing called

Writing

Part II

Sitabhra Sinha

IMSc, Chennai

Questions, Questions, Questions

- What ?
- Why?
- How?
- When?
- Who?

First Writing ?

Scripts that represent both sound (phonetic) and meaning (logographic) in a systematic manner

First Writing ?

Writing may have originated independently multiple (likely, four) times in history

> 3000 BCE

First Writing ?

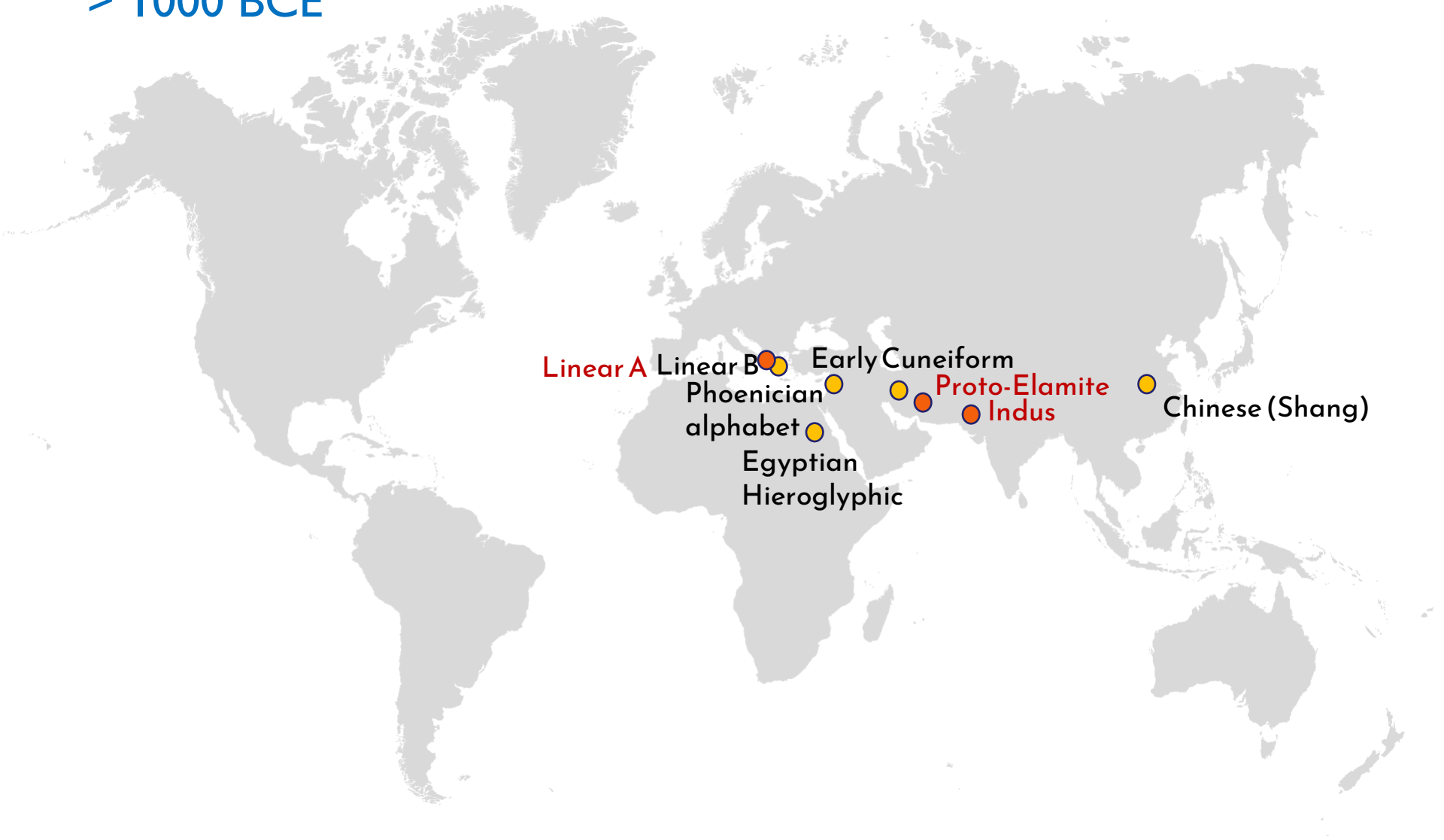
Writing may have originated independently multiple (likely, four) times in history

> 2000 BCE

First Writing ?

Writing may have originated independently multiple (likely, four) times in history

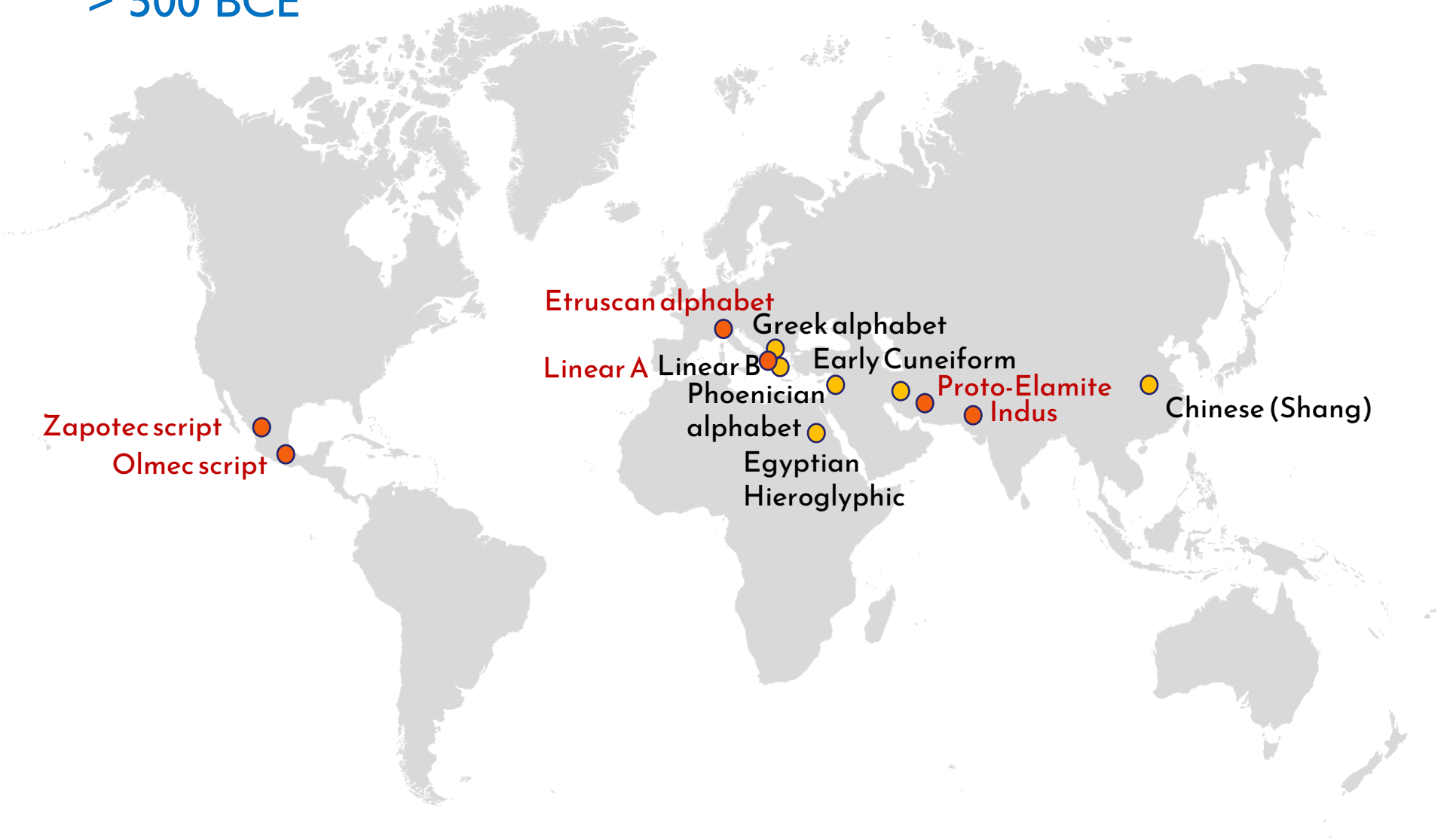
> 1000 BCE



First Writing ?

Writing may have originated independently multiple (likely, four) times in history

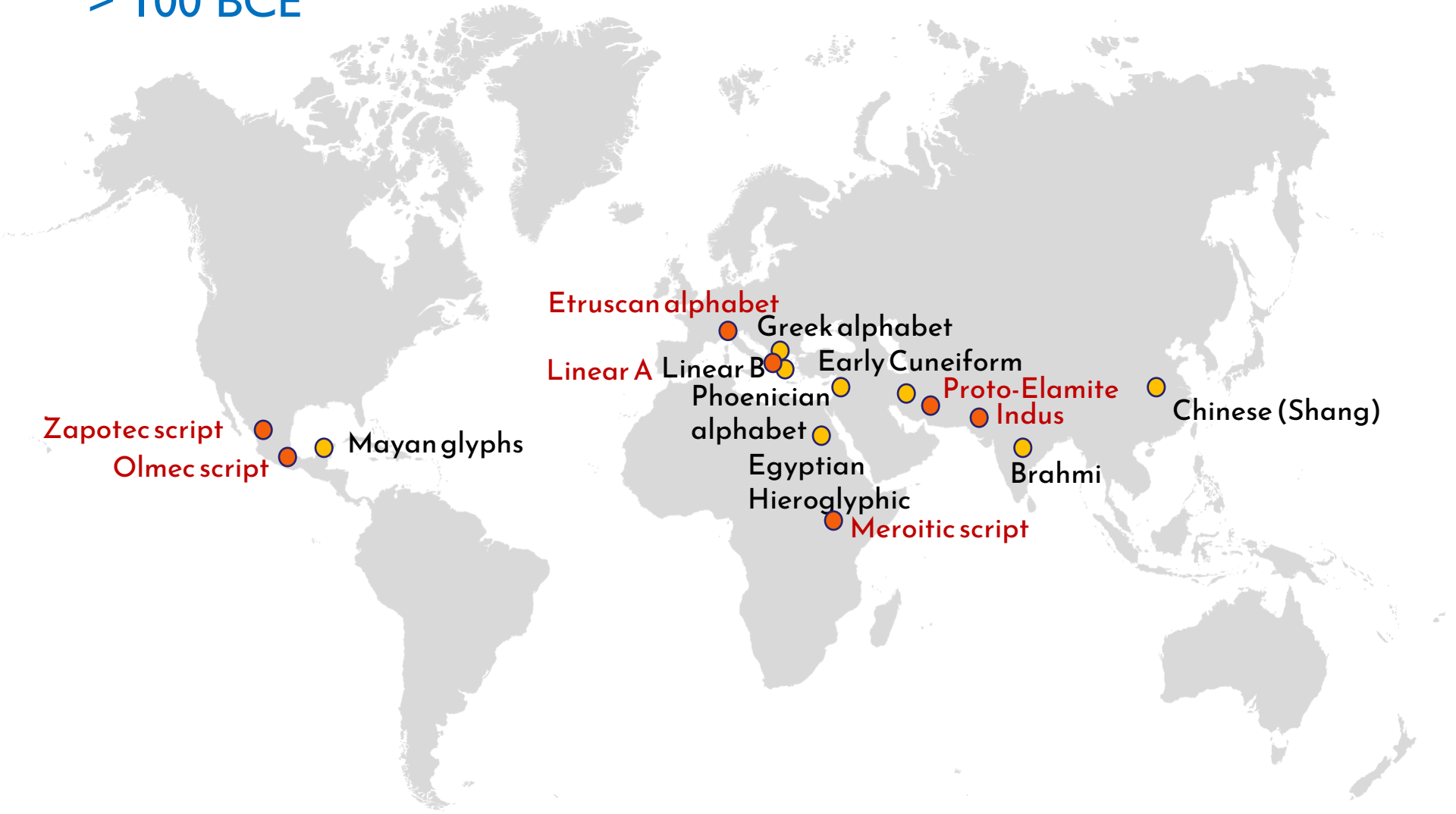
> 500 BCE



First Writing ?

Writing may have originated independently multiple (likely, four) times in history

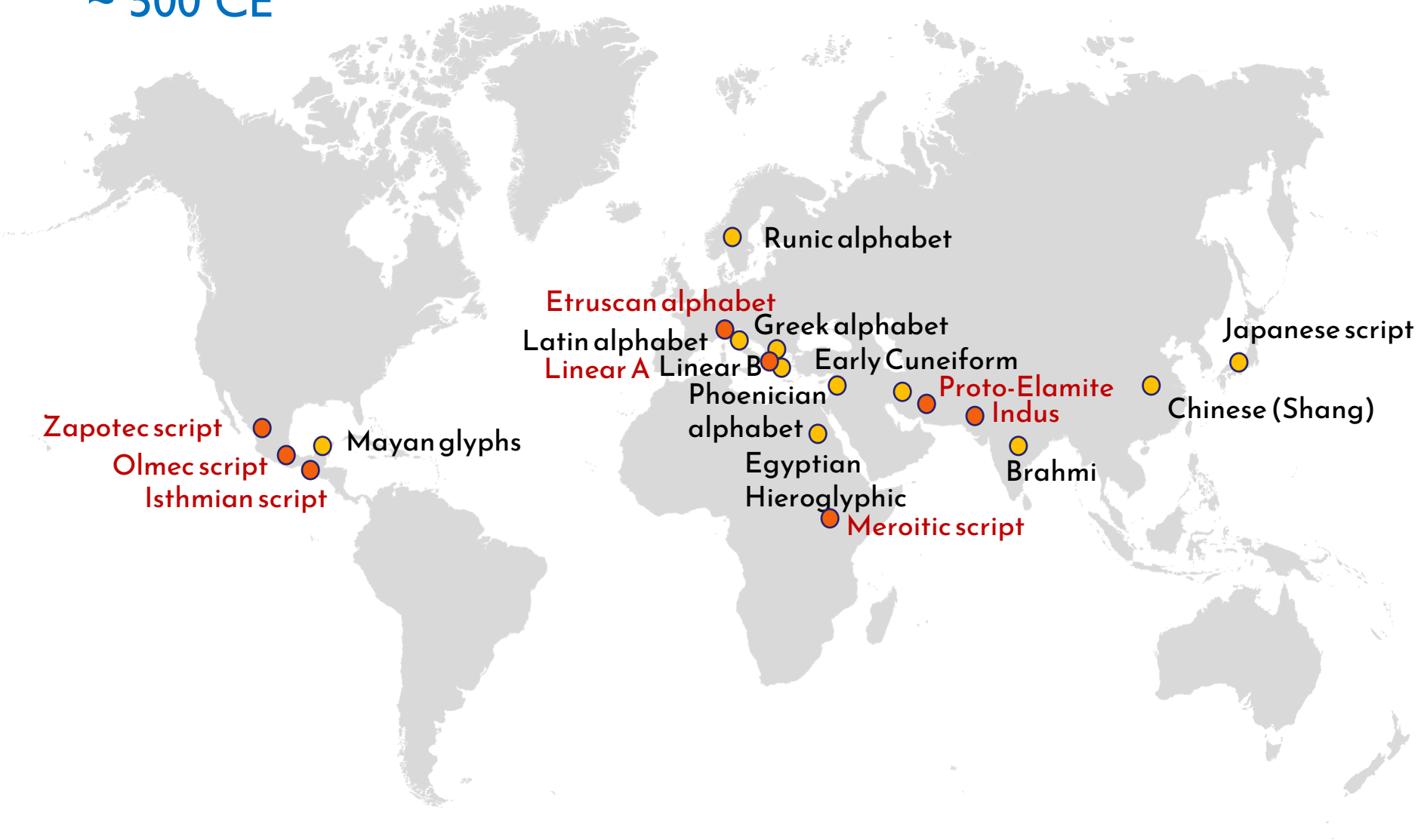
> 100 BCE



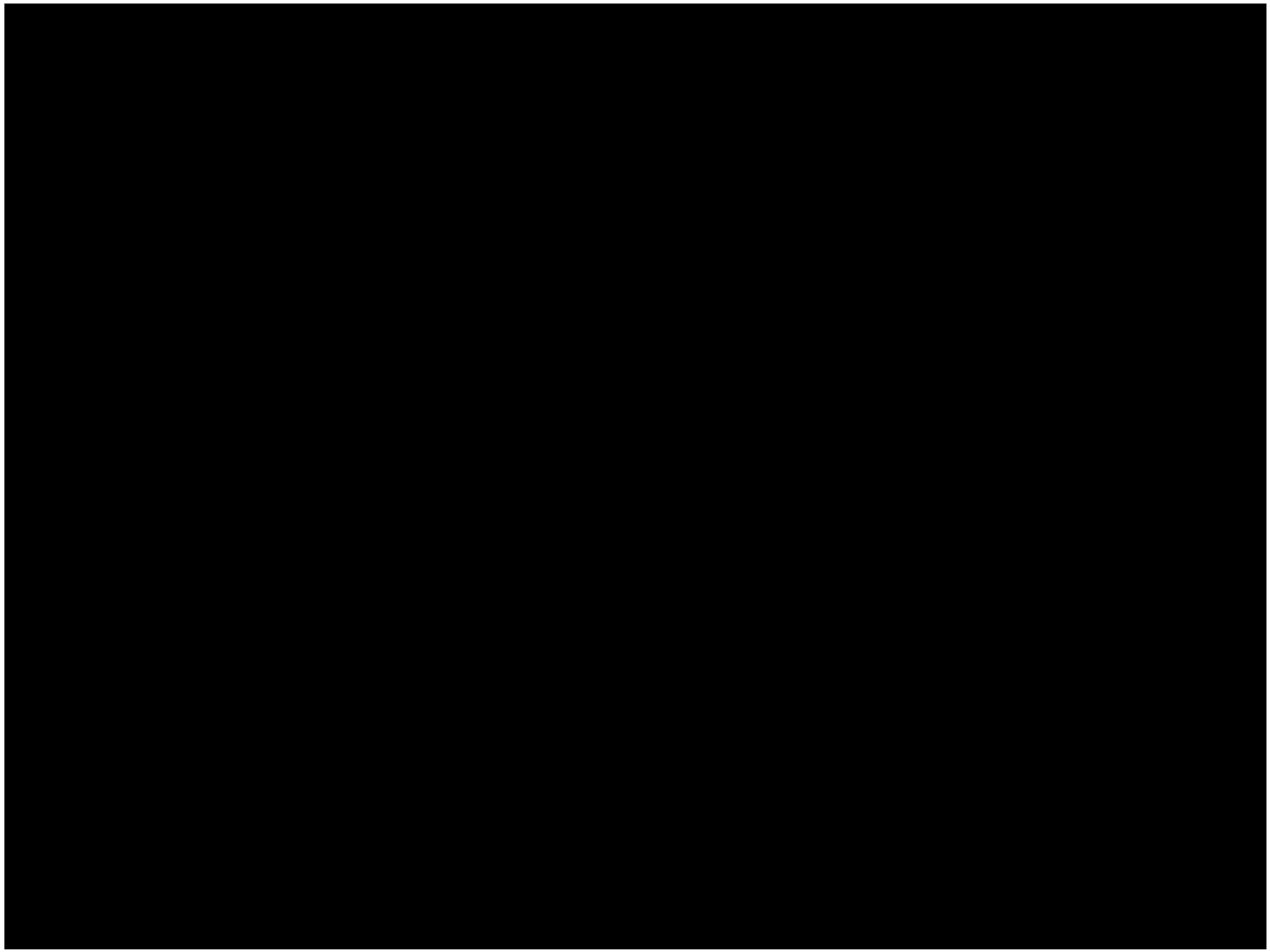
Secondary inventions!

Writing systems derived or adapted from pre-existing models

~ 500 CE



The Spread of Writing : Animated Video



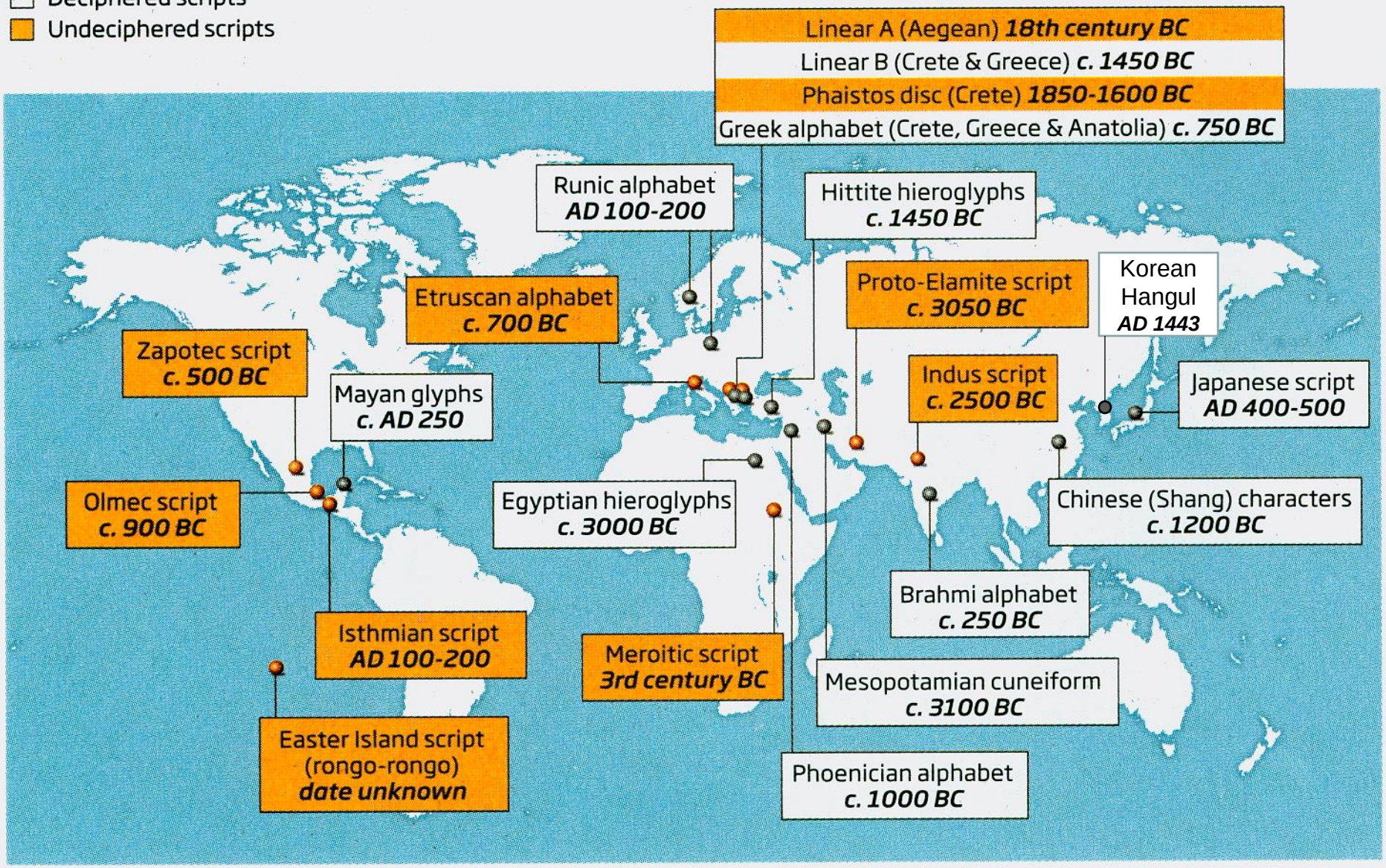
https://www.youtube.com/watch?v=eUpJ4yVCNrI

Ollie Bye

The ancient scripts

Dates are approximate earliest use

- Deciphered scripts
- Undeciphered scripts



https://www.newscientist.com/article/mg20227106-000-decoding-antiquity-eight-scripts-that-still-cant-be-read/

Writing: The Social Context

Writing does not appear in vacuo – it has to arise in an appropriate context

- requiring administrative complexity, e.g., hierarchy where instructions need to be obtained and commands need to be given, or communication across large distances
- Saving information for posterity
- Ritual display
- Statement of existence – communicating to unknown future generations

Writing allows information to be protected against distortion through noise omnipresent in the communication channel

Distortion of orally transmitted information

The game of "Chinese whispers"/"Telephone"

Image: berationable.com

- Players line up in an array and whisper a message to their immediate neighbors,
- the player at the beginning of the line comes up with a phrase and says it as quietly as possible to her neighbor without being heard by any player farther away,
- the neighbor then passes in the message to the next player and so on…
- … until it reaches the player at the end of the line who calls out the message

The final message bears little resemblance to the original because of cumulative mistakes along the line

"Finally the rumors grew more fabulous than the real thing"
– John Ashberry, *Chinese Whispers*

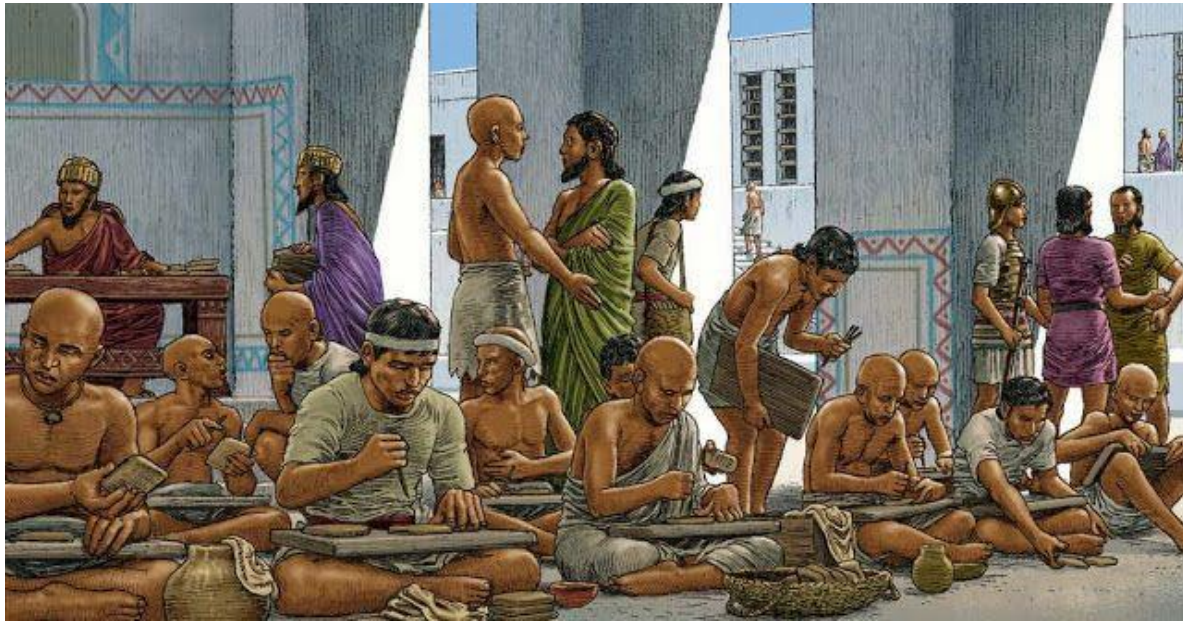
Taking out the Dam scene from *Madagascar: Escape 2 Africa*

https://www.youtube.com/watch?v=p2zDdb_Mqml

Writing : a product of social practices within particular cultural settings & power structures

Ensuring that a writing system is comprehensible across generations requires teaching and apprenticeship

Given the cost for maintaining a elite hyperspecialized class of scribes trained to read and write (early writing systems were notoriously difficult to learn, requiring years of training) there must be a significant benefit that knowing writing must provide to a society if it has to arise in that society



Writing allows robust maintenance of large amount of records (such as land ownership, tax levied, etc.) and relatively error-free communication across large distances – suggests writing will arise once states have formed spanning a relatively large geographic extent

Punctuated equilibrium

Much evidence indicates that scripts developed not so much gradually as in discontinuous step-like fashion in rapid bursts… as in evolution of biological species

A single logogram, or a few syllabic symbols or half an alphabet is not of much use!

PUNCTUATED EQUILIBRIUM

Niles Eldredge and Stephen Jay Gould (1972)

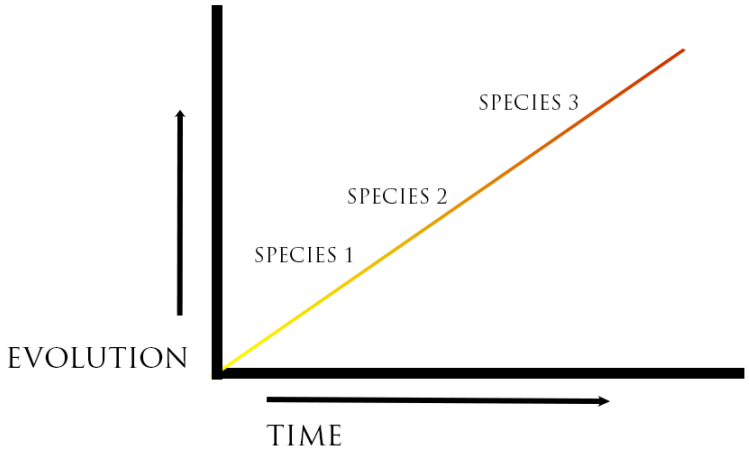
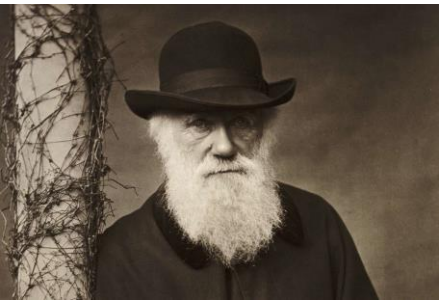


Image: www.extinctblog.org

Analogy in biological evolution: the eye

('half an eye is not much use, so how can it evolve gradually?')

The evolution of vision



"To suppose that the eye, with all its inimitable contrivances for adjusting the focus to different distances, for admitting different amounts of light, and for the correction of spherical and chromatic aberration, could have been formed by natural selection, seems, I freely confess, absurd in the highest degree."

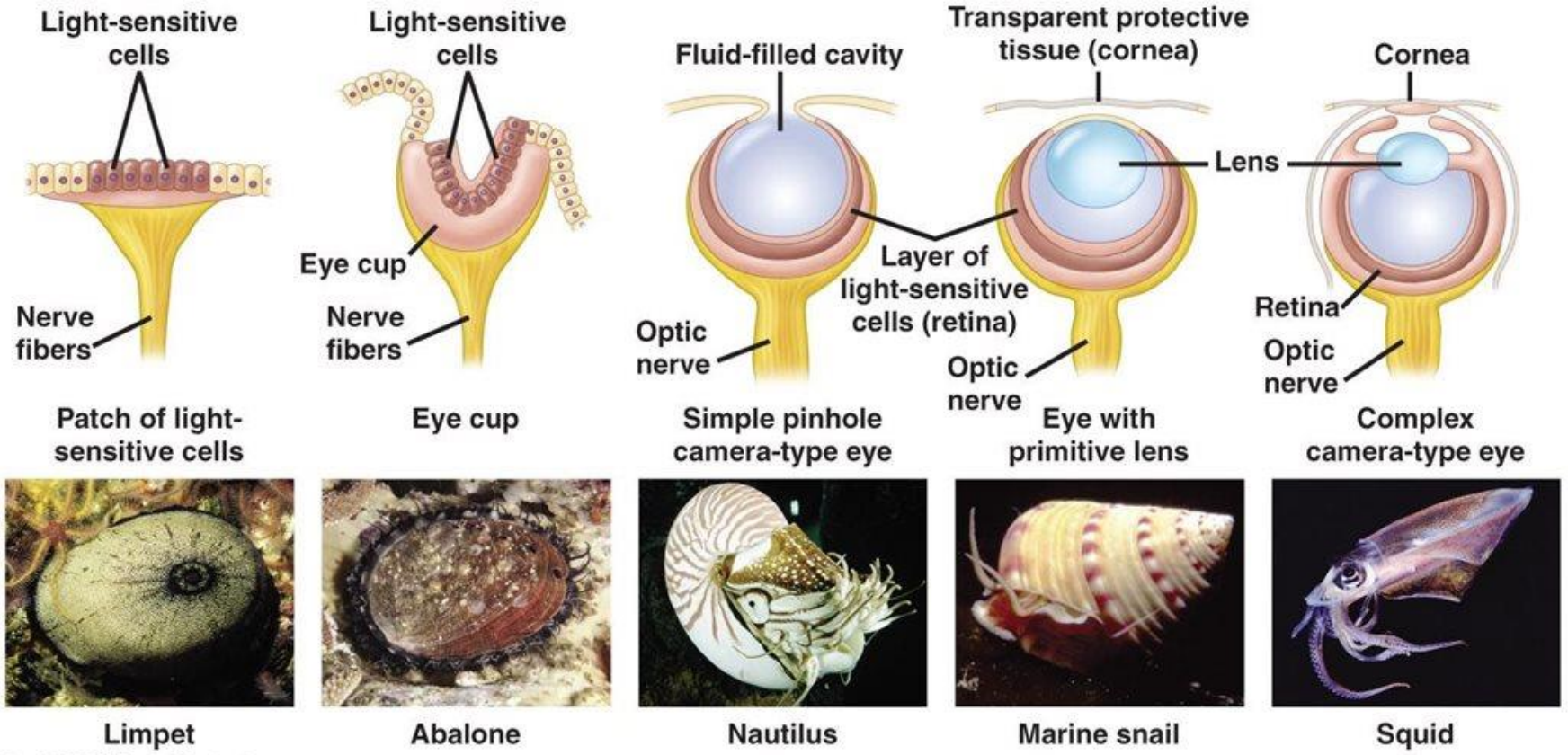
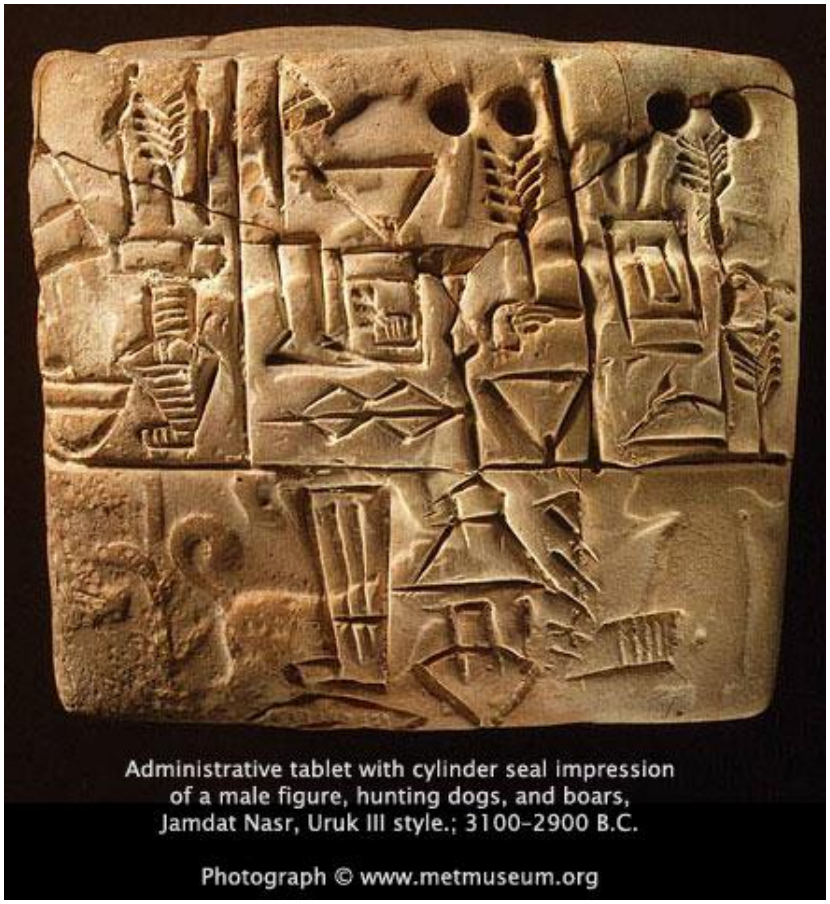


Image: www.phos.co.uk

Does early writing systems resemble what we mean by "language" ?



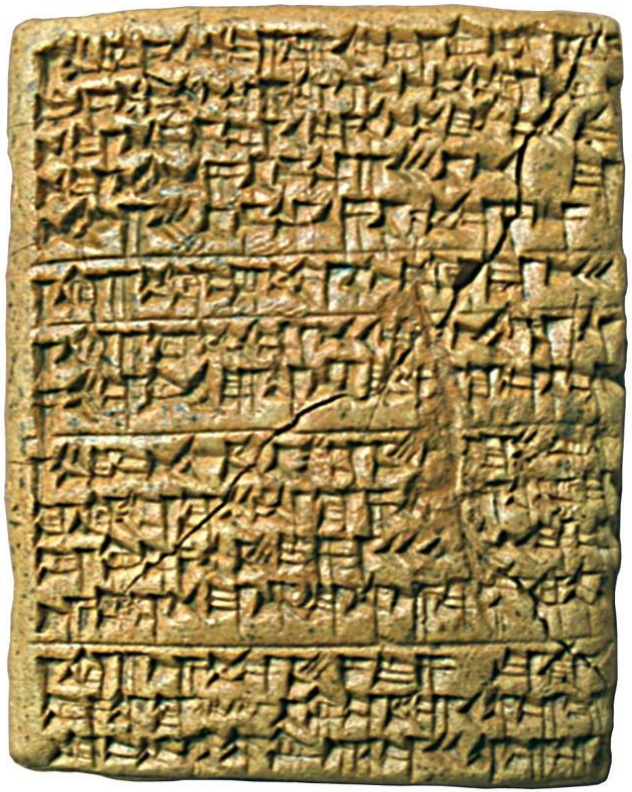
Trigger (2004): Early writing systems were not the full systems that they later became, with the gradual addition of grammar and syntactic capability over centuries as languages like Sumerian cuneiform and Egyptian developed.

Cooper (2004): Early Sumerian and Egyptian were probably no more versatile than Inka khipu, perhaps even less so ….The early systems express language [only] in highly restricted applications

All early writing depend to some extent on non-linguistic features:

- ❑ Tablet format (Uruk III tablets)
- ❑ String placement
- ❑ Figural representation
- ❑ Institutional context

Proto-writing is more useful for things other than encoding "language"



MS 4575
Medical text; the scribe's exemplar is broken.
Uruk, ca. 300 BC

Trigger (2004): Early writing systems were only able to fully express spoken language after centuries of development.

Cooper (2004): No writing system was invented (or used early on) to mimic spoken language or to perform spoken language's function.

The following have no oral counterparts:

- ❑ Livestock or ration accounts
- ❑ Land management records
- ❑ Lexical texts (word lists, thematically arranged)
- ❑ Labels identifying funerary offerings
- ❑ Divination records
- ❑ Commemorative stelae

Proto-writing systems represent the extension of language into areas where spoken language does not work.

Some possible non-syntactic interpretation for the "inscriptions" (such as those of the Indus Civilization)

I. Accounting tokens

II. Heraldic devices

IIa. Tagmas

III. "Dabbawala" symbols

IV. Ritual/Religious symbols

V. Mnemonic devices

Hypothesis 1: Accounting tokens

Schmandt-Besserat's scheme of how tokens and their impressed signs gave rise to Sumerian pictograph writing (*Science*, 1981)

Tokens						
impressed signs						
Proposed translation	10 animals	Unit of grain measure	Unit of grain measure	Unit of land measure	Unit of land measure	100 animals
Pictograph IIIrd mill.						
ATU	753	892	899	905		918
Translation after Falkenstein	Slab, total circle	1	60	600		Fraction

Hypothesis 1: Accounting tokens

based on Schmandt-Besserat's idea for the origin of Mesopotamian writing

Administrative clay tablet of c. 3000 BCE (Uruk)
Simple enumeration scheme of accounting:
Deep circles & crescents: numbers.
Other symbols: pictographs representing jars etc.
[Not until 2600 BCE do we see tablets that are truly written forms of language having grammar.]

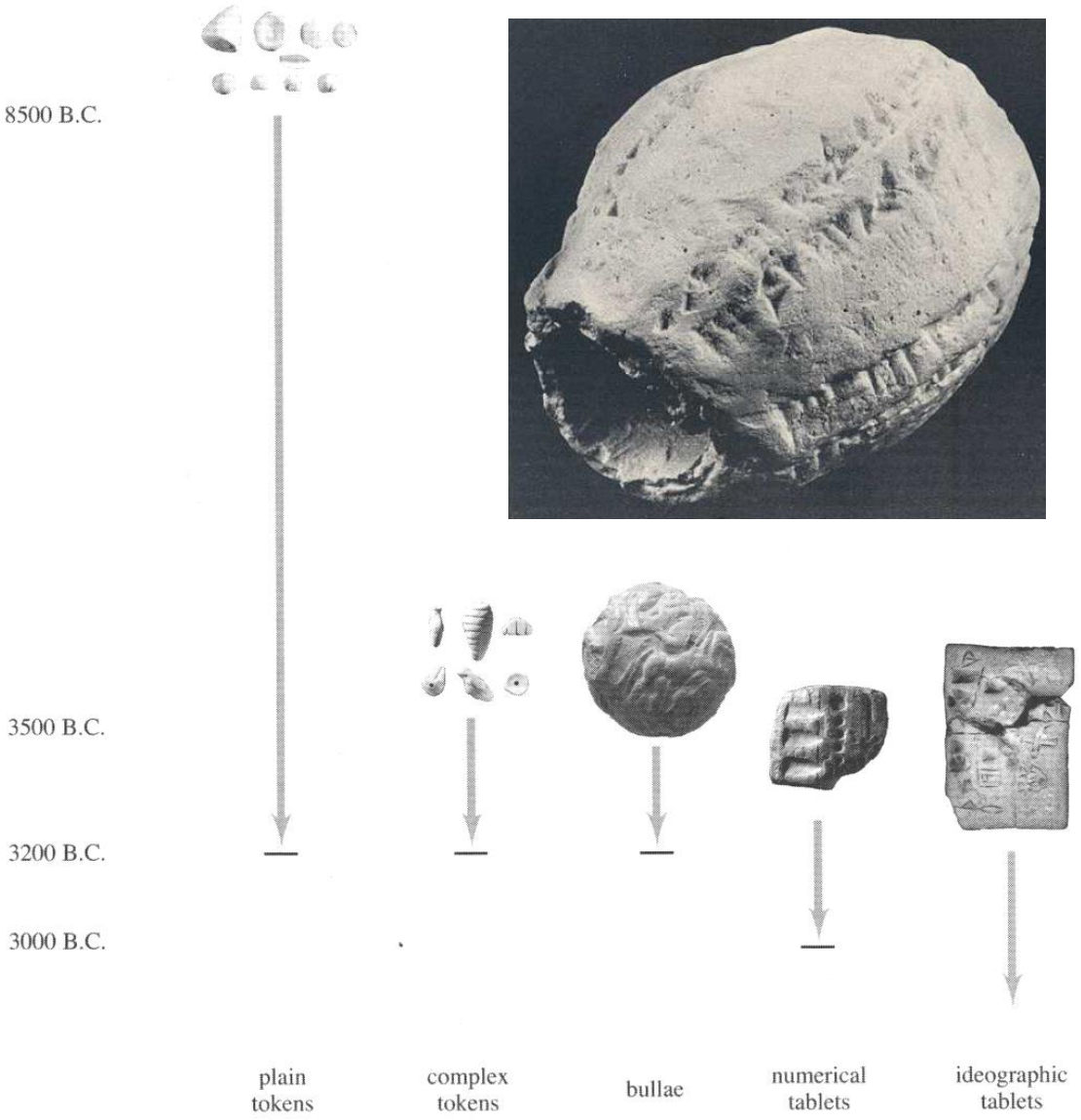
Schmandt-Besserat (1978):
Long before Sumerians invented writing, accounts were kept with clay tokens of various shapes.
Such accounting tokens evolved into writing

Cooper (2004): Syntax was scarce or non-existent in early Sumerian
No evidence of grammar until 4 centuries after invention of proto-cuneiform … but this does not impair their utility

"Even today, grammar has little or no role to play in ledgers"

The Economic Nature of Indus Inscriptions ?

Do the Indus inscriptions represent inventories or invoices ?



Brevity is a common feature of most early writing – were used mainly to record economic transactions and maintain accounts

E.g.,Only 15% of early Sumerian inscriptions have non-economic subjects

Note that Susa had close contacts with Indus Valley

Very short sequences may suggest the application of a writing system in a specialized or restricted context, most possibly economic

Independently suggested by evidence that many of the seals were used to impress inscriptions upon clay-tag sealings that were affixed to packages

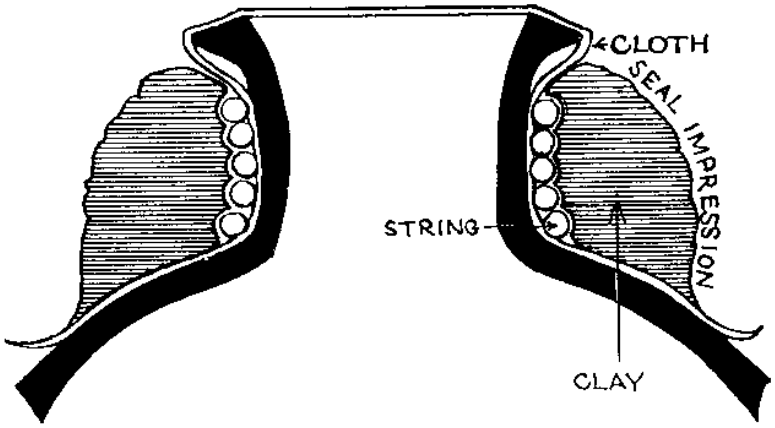


Fig. 7.18. The method of securing the integrity of a commodity container in third millennium Mesopotamia. After Frankfort 1939: 2, text-fig. 1.

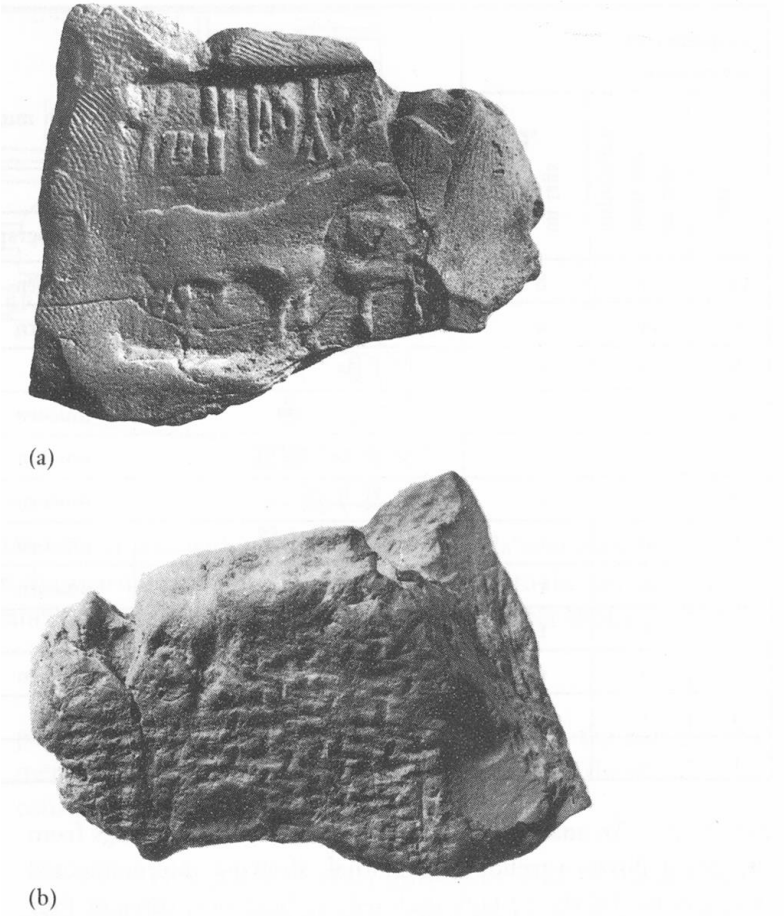
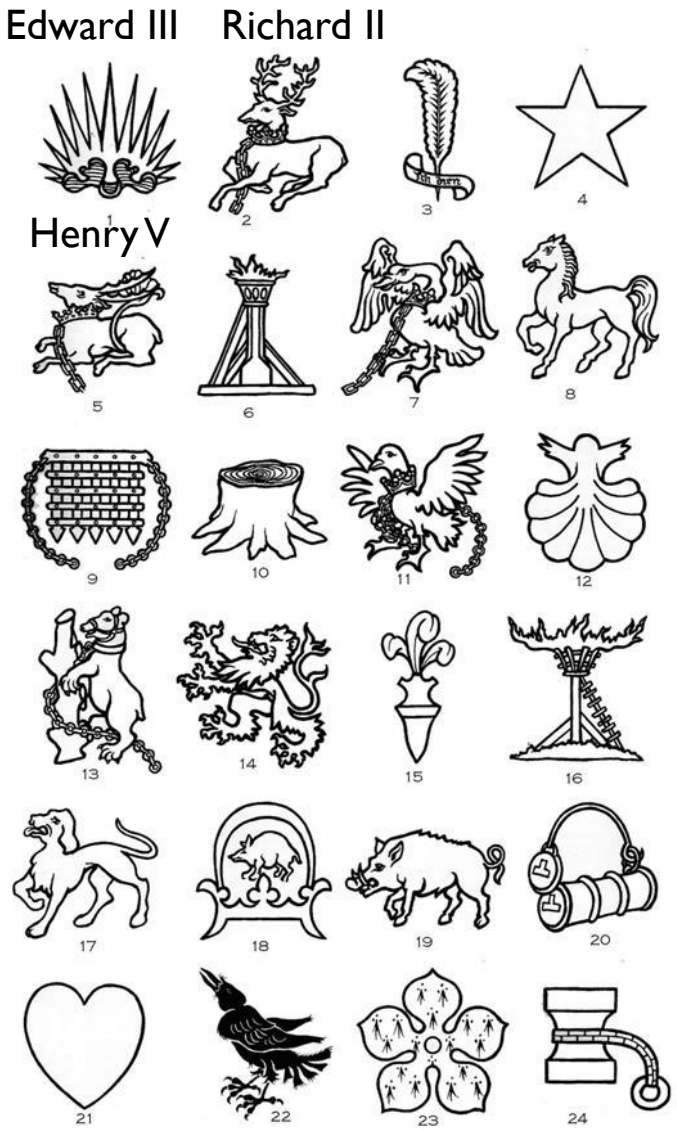


Fig. 7.16. A clay tag from Umma, Iraq. (a) Obverse bearing an impression of a typically Harappan square stamp seal with Indus script and the 'unicorn' bull. (b) Reverse with an impression of cloth. Department of the Ancient Near East (accession no. 1931.120), Ashmolean Museum, Oxford.

Hypothesis 11: Heraldic devices



Use as a heraldic badge

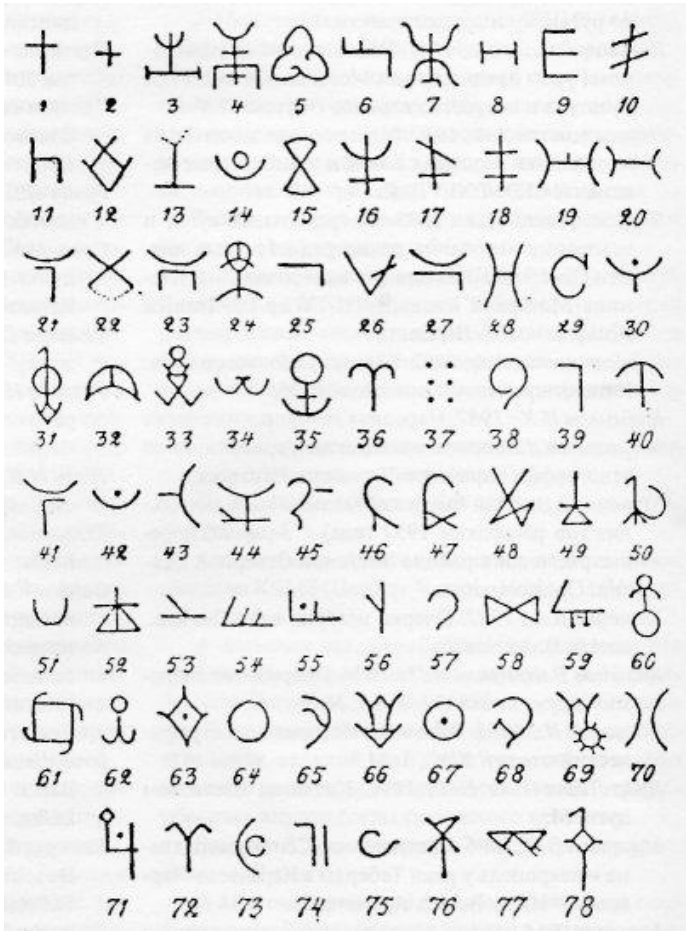
"…a distinctive device or emblem assumed as a mark of recognition by an individual or family and often worn as a symbol of loyalty and allegiance."
http://www.sca.org.au/st_florians/university/library/articles-howtos/heraldry/HeraldicBadges.htm

Fairservis (1971): "seal writing is not necessary writing derived from the oral language. It has its own meanings and in effect need not have verb, adjective or adverb. Rather it may be simply a kind of label specifying the individual or his god, house, or belongings, much as a heraldic device"
[Echoed by Farmer (2003)]

Possible support from the use of seals in Mesopotamia during the Uruk period

"To some extent the [seal motifs] were like heraldic devices, with the semiotics of the design being secondary to the purpose of identifying the bearer and destination." (Leick, 2001)

Hypothesis 11a: Tagmas



Old Turkic Tagmas

Clan symbol

Abstract seal or device used by Eurasian nomadic people …normally the emblem of a particular clan, tribe or family ….

Used to allow identification of property … usually as a cattle brand or stamp"

http://en.wikipedia.org/wiki/Tamga

Witzel (2007): "Even if Indus signs do not encode … a spoken language, [they] may (like heraldic signs, Mongolian tamghas and similar nonlinguistic symbol systems) contain occasional puns even without systematically encoding language"

How to test this ?

Simple tagma/heraldic elements will have little correlation in occurrence of various sign combinations – more complex sign combination less likely to appear

If heraldic devices have a recursive structure, then the symbol system is syntactic even though not "language"

Hypothesis III: "Dabbawala" symbols

- Initial Coding system used colored threads to mark 7 islands.
- Then utilized thrown away cotton waste from tailors.
- Now using colour markers.

E :: Code for Dabbawala/Street at residential station.

VLP :: Residential station Vile Parle.

3:: Code for destination Station
eg. Churchgate Station.

9:: Code for Dabbawalas at Destination

EX:: Express Towers (building name)

12:: Floor no in the building.

Kurush Dalal (2008): What if the Indus seals serve the same purpose as markings used by Mumbai "dabbawalas" to enable efficient point-to-point delivery of packages

Possible Support

Some sealings appear to have been attached to fabric – indication of use as origin-destination markers ?

Mesopotamian seals were used to mark sender identification & receiver acknowledgment (Leick)

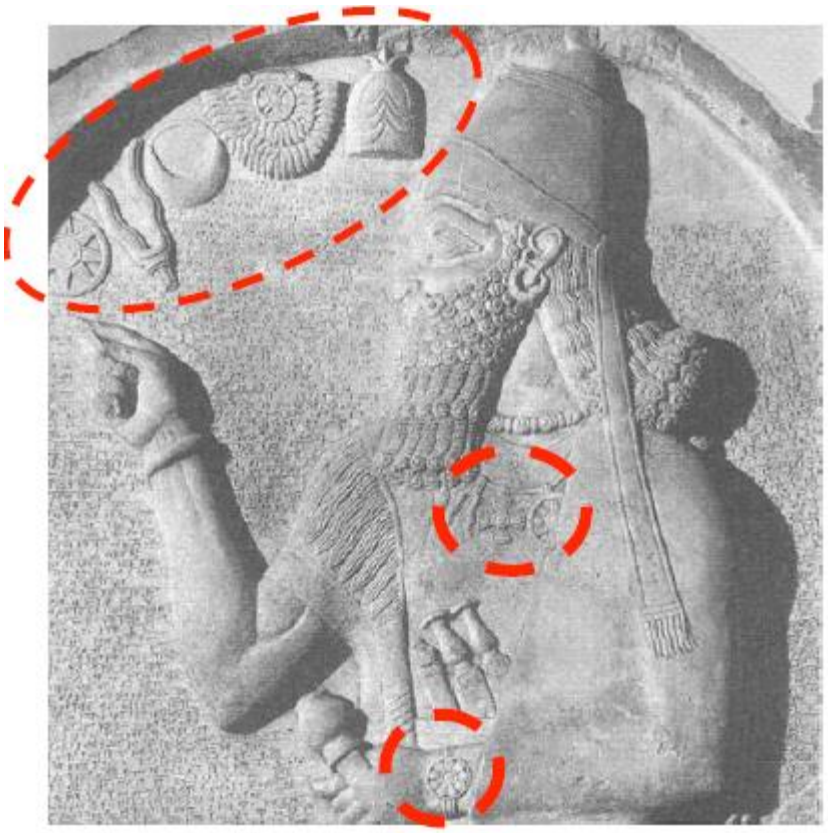
How to test this ?

- ❑ **Positional sign frequency variation**

Signs/sign groups occurring at certain positions will occur very commonly, more variation at other positions

- ❑ **Correlation of sign occurrence with physical locations**

Hypothesis IV: Ritual/Religious symbols



Stela found at entrance to temple of Ninurta, Nippur showing Assurnasirpal II (884-859 BCE)
Note the 5-sign emblem representing major gods (Istar, Adad, Sin, Samas, Assur)

Farmer (2004): "Indus symbols were … nonlinguistic symbol systems… that served key religious, political and social functions without encoding speech or serving as formal memory aids"

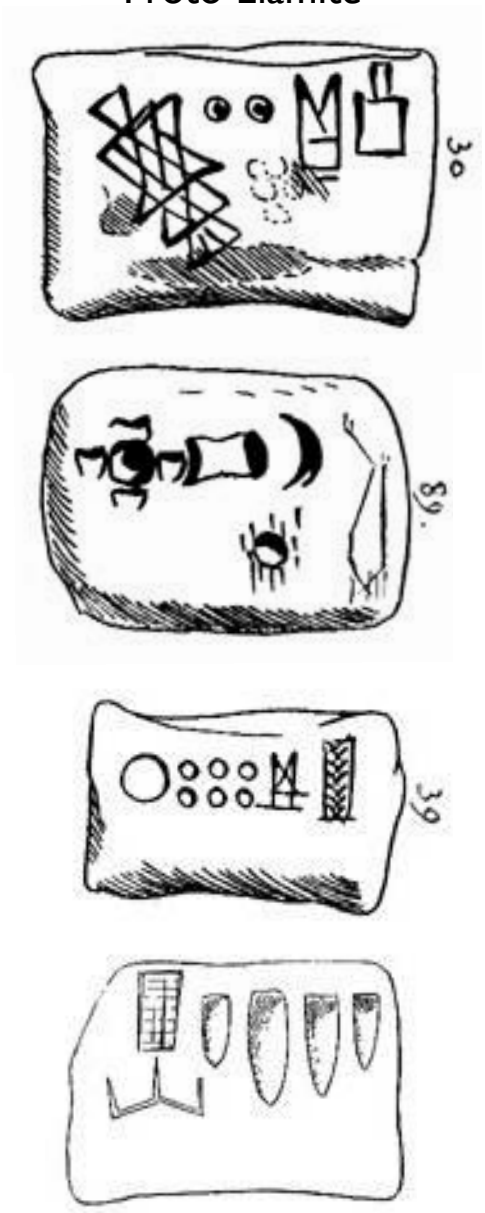
Parallels with Indus sign system:

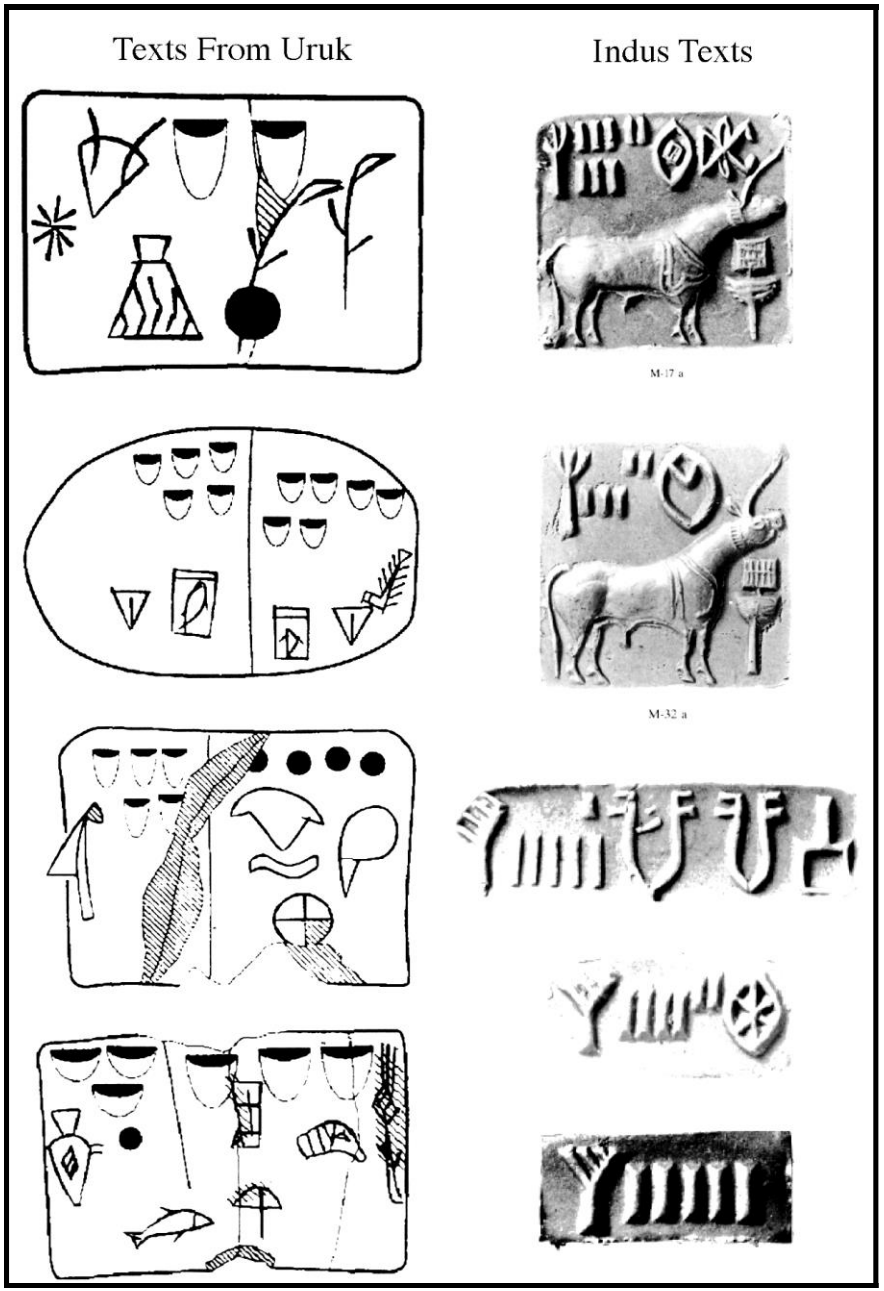
- ❑ A small number of high-frequency signs dominate the inscriptions, supplemented by hundreds of rare signs
- ❑ Length of inscriptions are relatively short
- ❑ Some evidence of sign clustering and positional regularities

Could there be plasticity of meaning associated with the signs?

But most early seals have short inscriptions

Proto-Elamite





Figures: Bryan Wells

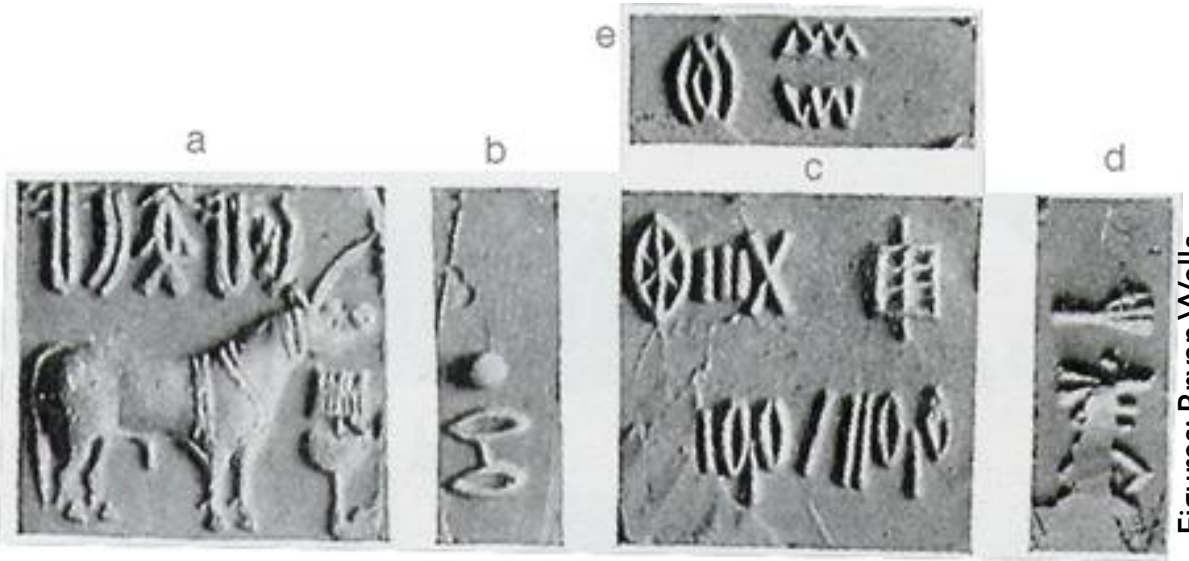
Short Seal Texts from various civilizations

Chinese Seal

Anau Seal

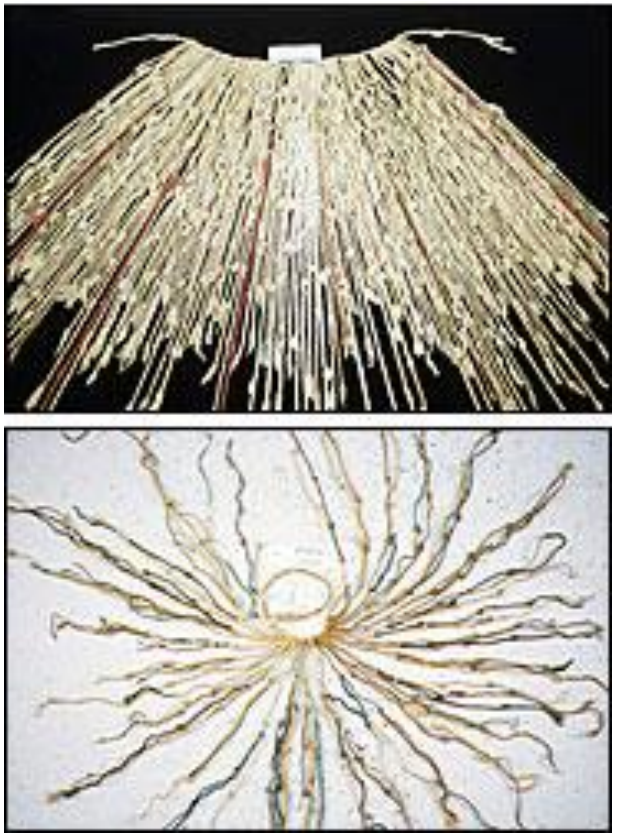
Egyptian Seals

J'lem Seal



Figures: Bryan Wells

Hypothesis V: Mnemonic devices



An Inca quipu/khipu and a khipu at the American Museum of Natural History. Arranged as knotted strings hanging from horizontal cords … to represent numbers for bookkeeping & census purposes. …Presumably textile abacuses

Hardest to distinguish from a writing system encoding spoken language

McEvilley (2002):

The Indus Valley script … does not seem ever to have developed to that stage [the ability "not only of bringing to mind known things (i.e., mnemonic) but also of teaching the unknown]"
"…It is not certain that the Indus script represents writing in the full sense - writing beyond the mnemonic device."

"As at Susa, writing may have arisen by stimulus diffusion rather than by the needs of a genuine state-level organization."
"A second such sign is the fact that in the Indus Valley the archeological data fail 'to confirm a three or four-tiered hierarchy usually associated with ancient states'."

The problems of decipherment

- No multilingual text
- Language unknown
- Type of writing system unknown
- How many signs ?
- Direction of writing ?
- Is there a core signary ?
- What is the grammar ?