

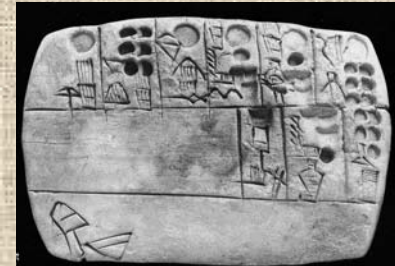
Chalcolithic Period in the Near East

Topic 7

Recording, accounting, and the invention of writing

Information storage technologies and “memory tools”

- Writing began in Late Uruk, but did not emerge out of nothing
- Long history of information storage technologies and memory tools in Near East
- Memory tools and information storage devices – refer to any means of keeping track of information outside the human mind
 - tokens
 - stamp seals
 - cylinder seals
 - bullae
 - numerical signs
 - writing



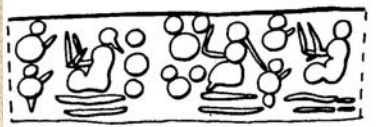
Schmandt-Besserat and origins of writing

- Earlier theories had suggested that writing was a rapid, sudden invention (I. Gelb)
- Schmandt-Besserat has devoted her lifework to arguing otherwise – that writing has antecedents that extend back to earliest tokens
 - Tokens refer to quantities of goods
 - Argues that the representations remain the same, but grow in complexity, from Late Neolithic to Uruk times
 - Suggests a direct, linear development from tokens to seals/sealings to bullae to numerical tablets and then written tablets
- Others have disputed her scheme
 - Absence of clear stratigraphic evidence for the development, especially from bullae to numerical tablets to written tablets
 - Unlikely that simple token shapes retained same content over thousands of years and thousands of kilometers

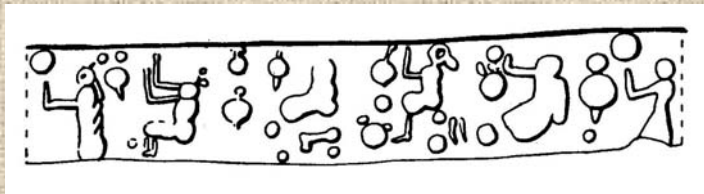
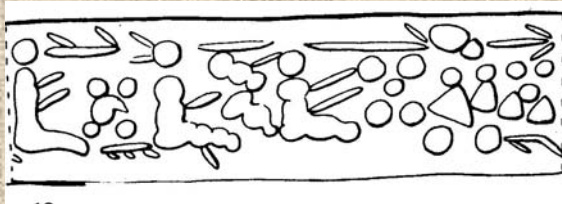
Recent theories

- Scholars such as Piotr Michalowski suggest that there were multiple, information-storage devices in use parallel to one another
 - He proposes that writing appeared rather suddenly, but in a context of proliferating recording technologies
- Hans Nissen has taken a similar position and argued that writing must have been invented to solve problems that could not be solved by existing technologies of information storage
 - Related to the greater complexity of the economic system
 - He cites as well the growing differentiation in Late Uruk seals between (1) schematic seals made quickly with mechanical drills, and (2) naturalistic seals finished with hand-held engraving tools
 - Lots of schematic seals but few sealings; lots of naturalistic sealings but few seals

Late Uruk seals and sealing: schematic vs. naturalistic



institutional vs. personal seals?

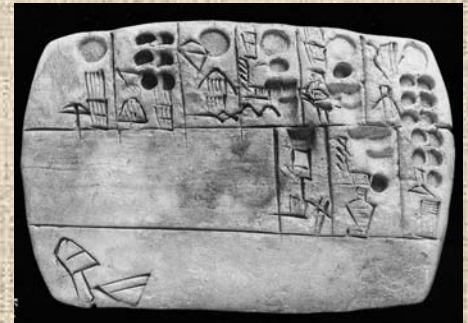


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- Writing itself continues to develop
 - not a static technology that, once invented, remains the same

Proto-cuneiform (“archaic”) writing: what was it, what was it used for?

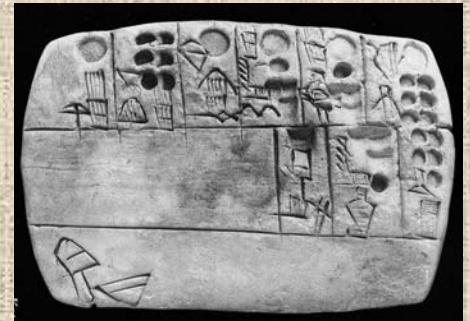
- Approximately 5000 tablets known; vast majority are from Uruk
 - From Eanna precinct – in layers of rubbish used to level the area
- Contain approximately 1200 signs
 - ideographic, rather than pictographic



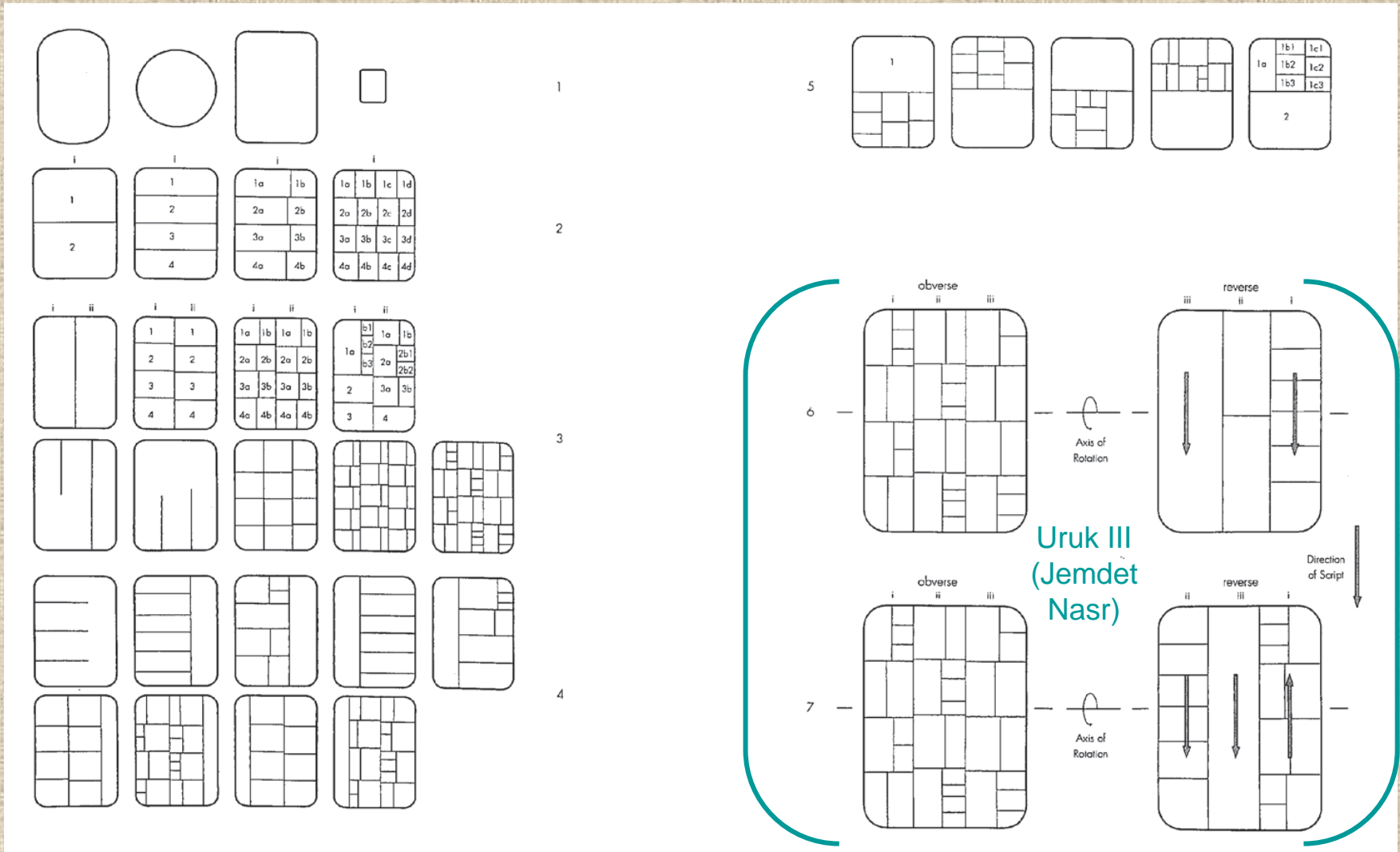
	Uruk IV		Uruk III		Uruk IV		Uruk III
DUG _b							
DUG _a		Pots				Chief Administrators	
DUG _c							
KAS _a						Exchequers	
AB _a		Sea?					
GU ₁		Oxen		3		Gods?	
AMAR		Calves				Workmen	
SAH ₂		Pigs				Inanna	
BU _a		Snakes					
SAG		Men					
TUR		Children				Nights	
				4		Stars	

Proto-cuneiform (“archaic”) writing: what was it, what was it used for?

- Approximately 5000 tablets known; vast majority are from Uruk
 - From Eanna precinct – in layers of rubbish used to level the area
- Contain approximately 1200 signs
 - ideographic, rather than pictographic
- Early writing extremely laconic – impossible to say for sure what language was behind it
- Early writing an accounting/economic device
 - Not used to write literature or history: these first appear c. 2600/2500 BCE
 - 85% are economic texts
 - 15% are lexical texts



Text formats

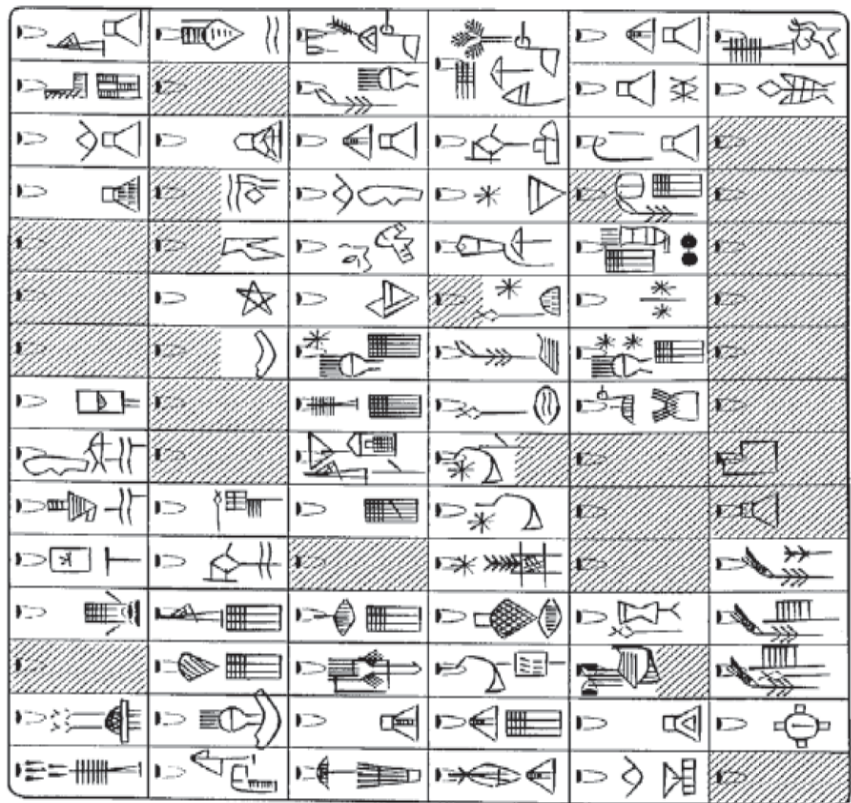


Text types

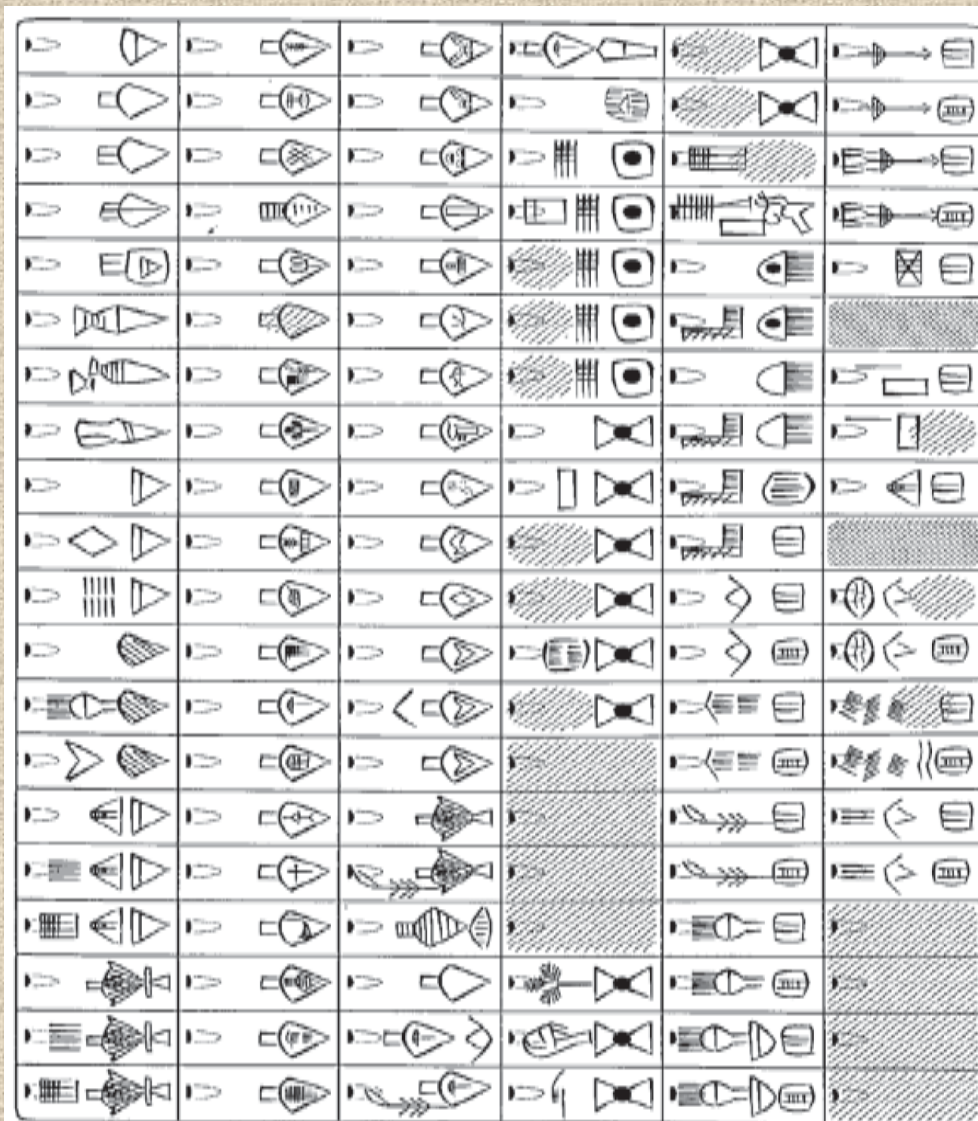
- Economic texts
 - record quantities of goods moving in and out: note that which way they move is not always clear
 - not much concerned with production but rather with collection and distribution (movement)
- Lexical lists
 - relatively small proportion of the texts (15%): many (Jemdet Nasr period)
 - thought to be school texts
 - simple tablet formats
 - lists of things by categories:
 - places
 - animals (for example, cattle, fish [including fishing gear])
 - trees and wooden objects
 - vessels, prepared foods and textiles
 - professions list



Lexical lists



Cities list



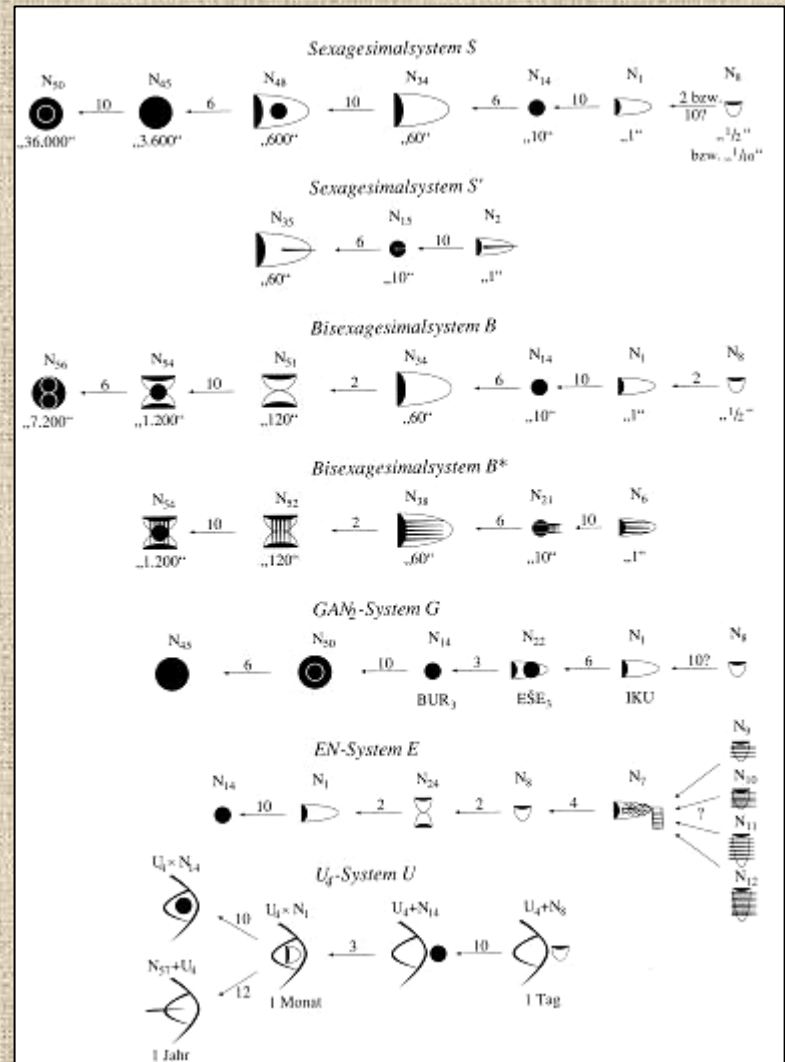
Vessels list

What was important? most frequently occurring signs (other than numbers)

sign	meaning	frequency	sign	meaning	frequency
EN _o	"chief administrator"	996	ME _o	"a textile?"	223
ŠE _o	"barley"	496	GU ₇	"ration"	220
BA	"distribution"	495	MUŠ _{3o}	"Inanna?"	219
AN	"An?"	485	GAR	"grain ration"	212
NUN _o	"Enki?"	456	NAM ₂	"official qualification"	209
PAP _o	"overseer?"	409	AB ₂	"cow"	202
SAL	"female slave"	388	TUR	"small (person)"	197
GI	"delivery?"	368	DUG _c	"dairy oil jug"	196
SANGA _o	"accountant"	365	IB _o	"household?"	195
GAL _o	"large (person)"	353	UNUG _o	"Uruk"	190
E _{2o}	"household"	335	NE _o	"red?"	186
UDU _o	"small cattle"	330	SI	"? (horn)"	183
ŠU	"hand, receipt"	298	DUG _o	"beer jug"	181
U ₄	"day"	286	HI	"egg?"	180
TUG _{2o}	"bolt of cloth"	268	SUHUR	"dried fish"	179
BAR	"?"	265	KU _{oo}	"fresh fish"	176
BU _o	"? (snake)"	265	TE	"an official"	162
ŠITA _{o1}	"an official"	252	GA _o	"milk bucket"	155
A	"water"	250	ERIM _o	"prisoner?"	153
AB _o	"large household"	242	MA	"string (of fruit)"	151
ŠU ₂	"cap?"	238	KU _{3o}	"half measure of oil"	146
DU	"? (foot)"	237	ZATU ₇₅₃	"?"	132
PA _o	"supervisor?"	236	SU _o	"leather"	131
KI _o	"place"	229	APIN _o	"plow"	115
SAG	"human"	224	MAŠ	"mole kid"	115

Numerical systems

- Large number of different numerical systems for different purposes
- Most are sexagesimal or bisexagesimal
- Follow the system we assume was used with tokens
 - no abstract numbers
 - counts and quantities tied to specific kinds of things



Example of a deciphered proto-cuneiform economic text

Legend:

- 10 (recorded in the bisexagesimal system)
- 20 (recorded in the bisexagesimal system)
- 30 (recorded in the bisexagesimal system)
- 40 (recorded in the bisexagesimal system)
- 50 (recorded in the bisexagesimal system)
- 60 (recorded in the bisexagesimal system)
- 70 (recorded in the bisexagesimal system)
- 80 (recorded in the bisexagesimal system)
- 90 (recorded in the bisexagesimal system)
- 100 (recorded in the bisexagesimal system)
- 110 (recorded in the bisexagesimal system)
- 120 (recorded in the bisexagesimal system)
- 130 (recorded in the bisexagesimal system)
- 140 (recorded in the bisexagesimal system)
- 150 (recorded in the bisexagesimal system)
- 160 (recorded in the bisexagesimal system)
- 170 (recorded in the bisexagesimal system)
- 180 (recorded in the bisexagesimal system)
- 190 (recorded in the bisexagesimal system)
- 200 (recorded in the bisexagesimal system)

Barley product and calculations:

- Barley product denoted by the amount of barley necessary for its production
- Calculated amount of barley groats for 10
- Calculated amount of barley groats for 20
- Calculated amount of barley groats for 30
- Calculated amount of barley groats for 10 and 10
- Calculated amount of barley groats for 60
- Calculated amount of barley for 1.800 rations

Other symbols and values:

- $\frac{1}{3}$
- $\frac{1}{4} = \frac{1}{20}$
- $\frac{1}{5} = \frac{1}{25}$
- $\frac{1}{5}$ (with implicit value)
- $\frac{1}{5}$ (with implicit value)
- 5
- Big
- $2 \times 60 = 120$ (recorded in the sexagesimal system)
- $1,200 + 5 \times 120 = 1,800$ (recorded in the bisexagesimal system)

Notes:

- Error by the scribe: correct would be:
- Vessel denoting another type of beer
- Vessel denoting a special type of beer
- Ration bowl denoting the daily barley ration of a worker

Social context of writing

- Probably very small group of people who could read and write: scribes
 - rulers / leaders were probably *not* able to write
 - scribes probably worked for major institutions
- Essentially an “oral society” in which a small proportion of people were literate
 - how was information that was *not* written down stored and transmitted?
 - oral traditions, storytelling: see early examples of Mesopotamian literature with its frequent repetitions

Example of (later) Sumerian literature

Inanna's Descent to the Netherworld

From the great heaven she set her mind on the great below. From the great heaven the goddess set her mind on the great below. From the great heaven Inana set her mind on the great below. My mistress abandoned heaven, abandoned earth, and descended to the underworld. Inana abandoned heaven, abandoned earth, and descended to the underworld.

She abandoned the office of *en*, abandoned the office of *lagar*, and descended to the underworld. She abandoned the E-ana in Unug, and descended to the underworld. She abandoned the E-muc-kalama in Bad-tibira, and descended to the underworld. ...

She took the seven divine powers. She collected the divine powers and grasped them in her hand. With the good divine powers, she went on her way. She put a turban, headgear for the open country, on her head. She took a wig for her forehead. She hung small lapis-lazuli beads around her neck.

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 - how was information that was *not* written down stored and transmitted?
 - oral traditions, storytelling: see early examples of Mesopotamian literature with its frequent repetitions
- What does it mean not to be able to read and write in a society with writing?

Decipherment of cuneiform

- Cuneiform inscriptions first (re-)discovered in late 18th century
 - No one knew what language(s) were written in this script
 - Carsten Niebuhr copied inscriptions from Persepolis and published them when back in Europe
- German schoolteacher, Georg Grotefend, made first significant progress in decipherment (in 1802)
- Worked on a trilingual inscription from Persepolis
- He guessed that one of the languages would be Old Persian
 - Knew that it was common practice to put the most important inscription in the middle
- He knew the names of Persian kings from Classical sources
- He guessed that a recurrent set of signs would mean 'king'
- Also that the inscriptions would contain a similar opening formula to later Persian monarchs:
 - X king, son of Y
 - X, great King, King of Kings, Son of Y

History of decipherment (continued)

- Grotefend received little acknowledgment



History of decipherment – and jealousy

- Rawlinson worked on decipherment back in Britain
 - Like Grotefend, he began with the inscription he assumed (correctly) to be in Old Persian
 - By 1837 able to translate two paragraphs of the Old Persian inscription
- From there, tried to decipher the other two languages (in Elamite and Babylonian/Akkadian)
 - Elamite written syllabically and contained 123 different signs
 - The Akkadian inscription used almost 600 signs – some syllabic, some representing whole words
 - Akkadian completely unknown as a language at that time
- In late 1840s, Edward Hincks, an Irish parson, guessed that this third language might belong to the family of Semitic languages
 - He also figured out that many of the signs were syllabic
- Much jealousy between Rawlinson and Hincks
 - Rawlinson tried to keep Hincks and others from getting access to additional materials that might help them in their translation efforts
- Today Rawlinson typically receives the primary credit for decipherment