

## Writing

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- Writing is interesting (here) for two general reasons
  - writing promotes knowledge, which promotes power
    - that is, it is one of Diamond's proximate causes that contributed to Eurasian domination of the rest of the globe
  - writing is an example of the diffusion of a technology
    - and is fairly easy to document
    - so Diamond can use it to demonstrate what he will claim are general patterns about the diffusion of all kinds of ideas and technologies
      - some of which are harder to document directly
    - his claim is (no surprise) that Eurasians had an advantage relative to the rest of the world in the speed and amount of diffusion of ideas
    - which in turn led to Eurasians developing many technologies (including guns, steel, etc.) faster and more than other societies
- Background on writing systems: there are three general types
  - logograms (logographic system): a symbol for each word
    - many thousands of symbols required
    - usually somewhat ambiguous
      - so many additional symbols are needed as determinatives, which specify which of the multiple meanings is meant
        - “this symbol refers to a woman”, or “...to cloth”, or “...to something that bends”
      - still often require guessing or virtually puzzle-solving to read
    - very hard to learn and use
  - syllabary (syllabic system): a symbol for each syllable or short multi-syllabic sound sequence (“mu”, “gi”, “ush”, “hetep”)
    - many tens to low hundreds of symbols
    - some syllabaries, like Egyptian, indicate only consonants, forcing the reader to infer the vowels, sometimes leading to ambiguity
    - still typically requires determinatives to resolve ambiguities
    - still hard to learn and use, albeit less so than logographic systems
  - alphabet (alphabetic system): a symbol for each sound (phoneme) (“a”, “e”, “m”)
    - several tens of symbols
    - still often ambiguous, but not too badly
      - require minimal or no determinatives
    - relatively easy to learn, especially when tricks are developed to aid in learning
      - like giving the symbols names of objects that resemble their sounds
      - and creating a standard order to aid in learning all the symbols and their names
- in fact, all systems have mixes of these
- Origins of writing
  - independently invented in very few places

- definite cases of independent invention of writing
  - Mesopotamia
    - Sumer: pre-cuneiform starting around 3400 BCE, developing into cuneiform in the centuries after 3000 BCE
      - initially used for
        - accounting records for tracking goods (mostly crops) flowing into and out of surplus storage facilities operated by an institutionalized religion,
        - and transformation of those goods into products such as different kinds of beer
  - Mesoamerica
    - Olmec ~900 BCE?
      - evidence is limited, may or may not be writing
      - none of the promising Olmec potential texts were excavated by archaeologists
        - some or all may be fakes
    - Zapotec ~400 BCE?
      - also very limited evidence, but pretty convincing
    - Maya ~300 BCE?
      - again, the earliest examples are debatable
    - probably initially used to
      - document political, military, or ritual events involving wealthy and powerful elites
      - but Olmec and Zapotec early examples cannot be read
      - general subject must be guessed from the imagery associated with the inscriptions, or the kinds of objects the texts are carved on
- possible independent inventions
  - Egypt: hieroglyphics starting around 3200 BCE
    - maybe inspired by Sumerian writing: the timing could hardly be coincidence
    - very shortly after Sumerian writing, not very far away
    - but very different in symbols, system, uses
      - initially used to
        - label objects buried with royalty,
        - probably to track shipments or donations of goods,
        - and other economic and ritual activities of the royal court
  - China: ancestral form of modern Chinese, starting around 1400 BCE
    - again, utterly different symbols, system, and use
    - Diamond doubts that Chinese writing was independent
      - it might have been somehow inspired by writing in the West
      - other Western innovations, like chariots, did diffuse to China around this time
    - but many scholars still think that Chinese writing arose independently
    - initially used to
      - label wealth goods such as bronze vessels with the owner/commissioner's name,
      - and in divining the future in rituals conducted by the king together with specialists
- all other writing systems derive from these
  - writing is apparently a difficult thing to invent
  - but easily adopted from others

- pre-empting other societies from inventing it themselves
  - similar to the idea of “preemptive domestication”
- Origin of Mesopotamian writing
  - Denise Schmandt-Besserat: The token theory of the origin of writing
  - the only one of the independent invention cases that we have a decent story about
  - This explanation has its critics, but it is probably at least partially right
  - Clay tokens found at many neolithic sites around SW Asia
    - starting around the time of initial use of agriculture
    - cones, disks, spheres, partial spheres, etc.
    - variable size, average around 2 cm (1 inch) high
  - example: Jarmo, 8,500 BCE: a modest early agricultural village
    - 1,153 clay spheres, 206 disks, 106 cones found in excavations (1465 tokens total)
    - generally found in clusters of 15 or more
    - generally found in storage areas in houses
    - i.e. counters representing stored goods, herds, etc.?
  - similar tokens continued in use for thousands of years, up to a bit after 2000 BC – that is, some 6,500 years!
    - very stable for close to 5000 years until the 3000’s BCE (Uruk period), with only minor additions to 20-28 shapes and variants
    - In the early and middle 3000’s BCE, many new complex shapes were added, also more incisions, appliqués, etc.
      - May indicate increasing number of types of goods to record, due to imports, craft specialization, etc.
        - many of the new, more complex variants resemble later precuneiform symbols for manufactured goods
        - like bread, oil, beer, perfume, metal, spun fibers, garments
        - so the expansion of the token system probably reflected the increasing variety of goods made by craft specialists that had to be kept track of
      - The new, complex tokens were apparently limited to cities, not found in small hamlets
        - another hint that they may relate to things produced by specialized craftspeople who lived in the larger towns
    - also, at some point the tokens seem to have been extended to stand for numbers
      - this is suggested because some tokens seem to correspond to known precuneiform symbols for numbers
        - small cone=1, sphere=10, larger cone=60, etc.
        - so the token system was already more complex than just one token standing for one item
  - In the early and middle 3000s BCE, two means of keeping groups of tokens together appeared
    - pierced tokens
      - apparently to keep on strings
      - the knot of the string was covered with clay, which had one or more seal impressions pressed into it
    - unpierced tokens were encased in a clay “envelope” (“bulla”, plural "bullae")

- most had two different seal impressions, suggesting transactions or contracts between two people
- both kinds of grouping were presumably to record a transaction or contract
  - such as giving a shipment of goods to someone to transport
    - the set of tokens would make it difficult to divert any items without being discovered
  - both plain and complex tokens were pierced and put in bullae; both grouping systems were used for both simple and complex tokens
    - although most bullae contained mostly plain tokens
- problem with bullae: you had to break them open to verify the contents, and once opened, they were no longer sealed and tamperproof
- so they began marking the bullae on the outside by pressing the tokens (or similar ones) into the clay
  - in some examples, the tokens inside fit the impressions outside perfectly
  - but most examples have representations of the tokens made with a finger or stylus (probably a cut reed or wooden stick)
- with the outside marked, the tokens inside the bullae were not really necessary
- so they gradually stopped bothering with the tokens at all, using just the impressions on small clay slabs, or "tablets", to record the information
- the symbols became more complex, and writing emerged
- so the emergence of a complex economy drove the development of writing
- Earliest “writing” appeared around 3400 BCE
  - written on clay tablets
- signs were initially made by scratching lines into the damp clay: “pre-cuneiform”
  - pre-cuneiform used at least 1,500 different signs
  - only some can be read, by extrapolating back from later, better understood cuneiform
  - fewer than half were clearly pictographic: hand, head, barley, etc.
  - from the beginning, more than half were totally abstract
  - from the earliest examples, precuneiform already some phonetic signs, based on monosyllabic words
- Over the next 500 years, the pictographic system was simplified
  - by the early 2000’s BEC, the writing had developed into cuneiform
  - cuneiform symbols are modifications of the symbols, made by pressing a pointed stylus, rather than dragging it; the impressions give a "cuneiform" (wedge-shaped) look
  - it was faster to write by pressing cuneiform symbols than scratching pictographic symbols
  - but the pictographic quality of the signs was lost; they became very abstract
  - the number of signs declined to around 700 signs
  - read left to right, top to bottom, in columns
  - a much later version of cuneiform was “cracked” by intense study of a tri-lingual inscription of the Persian king Darius I, in 516 BC
    - Old Persian, Elamite, Babylonian
    - this allowed epigraphers (writing experts) to work backwards to decipher the earlier forms of cuneiform, and some of the precuneiform symbols
- the symbols were initially for numbers, nouns, and a few adjectives
  - they were for accounting records

- later, additional syllabic signs were invented to add other elements of language
- context and content of precuneiform writing in the late 3000s BCE
  - tablets are found in temples
  - and in some private houses, associated with seals and sealings
    - suggesting that it was mostly related to storage and trade
  - the most common signs are bread, beer, sheep, cattle, clothing
    - again, suggestive of storage and transaction records
  - the vast bulk of pre-cuneiform and cuneiform writing is on tablets
    - which record accounts, records, letters, and practice work by scribes in training
- So: Mesopotamian writing developed out of recordkeeping and contracts for storage, transportation, and exchange of goods
  - and continued to be used mostly for that
  - these tablets with accounts and administrative records are mostly found in archive rooms
    - initially archives were only in temples
    - later, as palaces arose, they too had archives
  - as time passed, it was gradually extended to other uses like
    - diplomacy (such as letters between kings)
    - law (such as land ownership agreements, codes of crimes and punishments)
    - recording myths, poetry, etc. (the Gilgamesh epic and others)
  - it remained a highly specialized skill that was formally taught with standardized exercises and practice texts
    - this formal training implies a close control of esoteric knowledge (the method of reading and writing)
- Egyptian writing: hieroglyphics
  - “cracked” using the Rosetta stone, which recorded a decree by Ptolemy V (196 BC), written in Greek (which could be read), hieroglyphic, and demotic (a late, vernacular form of Egyptian writing used for daily, secular purposes)
  - First writing in Egypt appeared in Upper Egypt, shortly before the unification of Upper and Lower Egypt
    - earliest, very simple examples around 3200 BC, maybe as early as 3300 BC
    - vs. about 3400 BCE in Mesopotamia
  - Very early examples
    - The names of various kings were inked on offering jars in their tombs
      - some are labeled as produce from Upper or Lower Egypt
    - Scorpion’s name on a mace head
    - A German team re-excavating the tomb of a different, earlier king also named Scorpion in 1998 found lots of very early Egyptian writing
      - some 300 items with very simple hieroglyphs, including:
        - jars with hieroglyphs written in ink
        - postage-stamp sized clay tablets with holes (labels) with scratched-on hieroglyphs
      - 2/3 identified offerings of oil and linen, sometimes including numbers
      - almost all seem to identify the source of the offering, either as a geographic region, an institution, or an official

- radiocarbon dates fall from 3300 to 3200 BCE
- a bit later, the palette of Narmer has pictures of vanquished foes with a single glyph next to each: presumably a personal or place name
- but notice that all these early examples are simple identifications and counts of things, not anything like a spoken phrase or sentence, or even accounting, as in Mesopotamia
- was Egyptian writing caused by Mesopotamian influence?
  - the timing is awfully close to be just coincidental
    - Egyptian hieroglyphics appeared only a century or two after pre-cuneiform appeared in Sumer
      - with the dates are this close, it is possible that future finds could prove that both appeared at the same time, or even that Egyptian writing was earlier
  - coincided with known trade with Mesopotamia, and Mesopotamian influence in art styles, architecture, cylinder sealing, etc.
- but the Egyptian writing system is so different that it cannot have developed from precuneiform
  - hieroglyphs normally read right to left, opposite of precuneiform
    - also can be read left to right, with signs reversed!
    - if the logic of design calls for it
    - precuneiform and cuneiform were never reversed in this way
  - Egyptian logograms are far more representational (picture-like) than precuneiform ones
  - Egyptian writing recorded only consonants, not vowels, unlike precuneiform
  - Egyptian writing had a very different context of use from precuneiform
    - hieroglyphs were initially and principally used together with pictures, as labels that identified pictures of people or places, or as explanations of a scene
      - as on the macehead of Scorpion or the palette of Narmer
      - Precuneiform was very rarely used with pictures
    - the other major context of early hieroglyphs was as labels for objects, like the tags in Scorpion's tomb
      - again, this was rarely if ever done with precuneiform, which was usually written on tablets that were stored in archives
  - the two systems were used for very different purposes
    - Sumerian pre-cuneiform was initially used for accounting or transaction records
      - initially used by the temple, but for secular, not ritual or political purposes
    - while early Egyptian hieroglyphic writing was used for royal and ritual activities
      - royal names and propaganda, activities of the royal court, royal burial inventory labels
      - relatively few, special transactions (like providing offerings for a royal burial) that involved luxury goods and high-status people
      - inscriptions on pottery or stone vessels, usually identifying the owner and/or contents and/or place of origin
      - markers for the tombs of kings, queens, nobles, and their pet dogs (!)
      - personal identification seals of kings, queens, and nobles
        - or offices, like “the sealer of the shipyard” and “the sealing of everything of gold”
      - ceremonial objects like the palette of Narmer
      - recordkeeping, but of a royal or ritual nature:

- lists of booty from war
- lists of Nile flooding levels in successive years (which later kings could supposedly forecast and influence)
- lists of royal activities by year: festivals, erecting statues of gods, founding and conquering towns
- Very fragmentary evidence of early writing in ink on papyrus, unlike Sumerian, which had no inked version
  - this also suggests that we have lost a great deal of the early content and development of Egyptian writing
  - maybe we would have a different impression if the early writing on papyrus were available
- From the very beginning, there were two different styles of writing
  - Hieroglyphs ("sacred signs")
  - cursive, inked handwriting that represented the same symbols ("hieratic")
    - which changed relatively rapidly, while hieroglyphs did not
- little evidence of early development; even in the earliest examples, the basic symbol system was already pretty well developed
  - although the early uses were apparently just identifying a person or place
  - suggestion (by no means certain) that hieroglyphics may have been invented by a single individual, maybe after encountering Mesopotamian writing
  - there are historical examples of this happening in other languages
    - Sequoyia (c. 1765-1843), invented a syllabic writing system for Cherokee, inspired by European writing systems, even though he never spoke or read any other language
- Cuneiform was used to write many different languages and contributed to our own writing system, but hieroglyphic writing was only ever used for Egyptian, and had little effect on the rest of the world or other writing systems
- Origins and context of writing in China
  - earliest evidence of Chinese writing dates to the later Shang dynasty, around 1400 BCE; well established by 1200 BCE
    - many of the characters can be read, since modern Chinese can be traced directly back through earlier historical forms to the writing from Anyang
    - written on oracle bones and bronze vessels
      - the early examples, especially on bronzes, are generally just one or two characters, probably the name of the person who had the piece made
  - The major early use of writing *that we know of* was scapulamancy (cattle scapulae) and plastramancy (on turtle plastron (shell))
    - continuation of the scapulamancy tradition of the Longshan horizon
      - a method of foretelling the future, or asking questions like "is it a good time to move the royal court to another town" or "is it a good idea to attack such-and-such an enemy"?
    - using scapulae (shoulder blades) of oxen or other large animals
    - the bones were cracked by applying heat to the back of a hollow bored in the piece
    - the cracks were numbered, then read in unknown manner
    - In Shang times, they began to write the question and the answer next to each crack

- turtle shells were added in late Shang times
- content
  - they record prophecies relating to the royal court, so they provide a lot of history
  - writing was later used for political activities, gifts, mortuary activities, edicts...
  - oracle bones are labeled with the question; prophecy; verification
    - often the king made the prophecy
    - surprisingly, the verification almost always shows him to have been correct...
  - Shang oracle bone c. 1200 - 1180 BC (from Keightley, in Senner 1989)
    - “Crack-making on chia-shen (day 21), Ch’ueh divined:” Charge: “Fu Hao’s childbearing will be good.” Prognostication: “The king, reading the cracks, said: ‘If it be a *ting* day childbearing, it will be good. If it be a *keng* day childbearing, it will be extremely auspicious.’”
    - *ting* and *keng* are analogous to days of the week (Tuesday, Wednesday)
    - Verification: “On the 31st day, she gave birth. It was not good. It was a girl.”
    - The baby was born on a *chia* day, thus the prophecy was correct.
    - Note: Fu Hao is the name of the “consort” in the unlooted large tomb at Anyang; the dates are right for this to refer to the same person!
  - other royal divinations involved military and economic tasks
- bureaucratic approach to scapulamancy
  - regular placement of holes
  - cracks numbered
  - divinations paired in positive and negative forms
  - divinations were dated and followed up with a verification later
  - certain bones and shells were reserved for repeated use on the same subject, up to 170 days apart, suggesting a filing system of some sort
  - bones are often found in neat stacks, as if they had been archived in tied bundles or resting on shelves
    - implying specialist recordkeepers and some bureaucracy
- NOT associated with business or record-keeping (at least what is preserved is not)
- nature of the Chinese writing system
  - mostly logographic: one character means a whole word
    - similar sounding words could be indicated by the same symbol
    - ambiguities were resolved by adding determinatives, that is, marks that provided clues to which of several possible words was meant
    - the earliest oracle bones already have half their symbols marked with a determinative
      - this suggests that the system was already well developed by that time
      - so we really may be missing the early part of the development sequence
- according to an early surviving text (but long after Shang dynasty), a lot was written on bamboo strips and silk – which would not survive in the ground
  - also, the character that looks like and refers to bound “books” of bamboo strips is found in late Shang inscriptions on bronzes and oracle bones,
    - so these bamboo strip books were probably already in use in Shang times
  - unfortunately, the founding emperor of the Ch’in Dynasty, around 100 BC, had all old books except those on medicine, divination, and agriculture burned



- fortunately, a handful of books escaped
- so there may have been a lot of early development of writing that has just not survived
- Mesoamerican writing
  - Olmecs: Veracruz coast of the Caribbean Ocean, about 1400 – 300 BCE
    - apparently medium-sized chiefdoms
    - built monumental centers that involved large pyramids or mounds of soil fill with some carved stone details
      - most famous for giant “Olmec heads” carved from basalt, each 3 to 9 feet tall
    - also famous for portable jade carvings
    - very roughly 900 BCE, Cascajal block and several other jade carvings in Olmec style have incised marks that may be glyphs
    - but may also be recent forgeries
    - they are not directly related to the later, definite Maya writing
    - it is possible that most of the writing was on bark paper, like the Maya used
      - so it has all long since rotted away
    - there is a lot of debate about this very thin evidence
  - Zapotecs: Oaxaca region of south central highlands of Mexico, down to the west coast, about 550 BCE – 450 CE
    - probably the first state in Mesoamerica
    - centered at the site of Monte Albán, a city surrounding a flat mountain peak with many impressive stone-faced, flat-topped pyramids
    - some buildings dating to roughly 400 BCE have flat stones with life-sized low reliefs of people called “danzantes” (“dancers”) because of their odd positions
    - on closer inspection, these are pretty clearly dead victims
      - the oldest, actually at a different, slightly earlier site, was placed as the threshold of a doorway, so that people would step on his image as they came in the main entrance
    - many have a few symbols next to them
    - apparently identifying who they were, or the towns or kin groups they came from
    - a few others have symbols that resemble Maya calendrical dates
    - but no longer, more complex Zapotec inscriptions are known
    - so this is probably too limited to call it a full writing system
      - but again, we might be simply missing the evidence of more complex uses if they were written on wood, skins, bark paper, etc.
  - Maya: Petén lowlands of the Yucatán peninsula
    - Preclassic period about 2500 BCE – 250 CE
    - Classic Maya 250 – 900 CE
    - Postclassic 900 CE to 1546, when the Spanish finally conquered the last of the Yucatán
    - city-states with kings
    - often at war, raiding for wealth, prisoners, prestige
    - built impressive, ornate stone stepped pyramids with temples on top
    - and stone palaces for the elite

- starting roughly 300 BCE (Late Preclassic period), erected stone monuments with pictures of rulers and writing commemorating victories, religious rituals, strategic marriages, claiming credit for building temples, etc.
  - this writing system could express pretty much anything the spoken language could
- also painted glyphs on ceramic vessels
- also wrote many books on folded bark paper
  - but almost all of these that survived to the time of contact were burned by the Spanish, who assumed that they were all religious works
- Regardless of which group had the first true writing system, and when, somewhere in this sequence writing definitely arose
  - completely independently of the Old World
- Diamond suggests that there are two forms of diffusion
  - blueprint copying: adopters acquire or modify an idea or practice in its full detail, like copying a blueprint
  - example: the Romans adopting a modified version of the Greek alphabet to write their own language with
    - which was a modified Phoenician alphabet, etc.
  - idea diffusion: adopters learn of the general concept and are inspired to reinvent the details for themselves
    - example: Sequoyah inventing a syllabary for writing Cherokee
      - he had an English spelling book
      - but knew nothing of spoken English or writing in any language
      - so he had to invent his writing system from scratch, basically knowing only that such a thing was possible
- in fact, there is presumably a range of processes, from exact copying to vague inspiration
  - but all are variants of picking up an idea from somewhere else
- Diffusion of writing was initially slow
  - early writing had limited uses
    - Specific narrow purposes for which early writing was used:
      - Sumer: accounting for goods stored and used by the temple
      - Egypt: labeling donations to royal burials, royal activities
      - China: predicting the future by kings and diviners
      - Mesoamerica: monuments to military, diplomatic, royal events
  - early writing may have been so limited in use because early writing systems were incomplete and ambiguous
    - so they were suited only for narrow subjects where guessing could help to resolve ambiguities
  - only small numbers of scribes learned these writing systems
    - because they were so hard to learn
    - and because there was very limited demand or use for them
  - only later, with the invention of simpler alphabetic scripts, was writing used by many people for many different things

- All early writing arose in, or was adopted by, complex, hierarchical societies
  - to serve the needs of emerging elites
    - elites depend on food production and surplus
      - and so need to keep track of taxes, production, expenditures
    - elites need to establish the legitimacy of a hierarchy of power in general, and of their personal positions in particular
      - and so may find it useful to document things such as
        - their descent from recognized important ancestors or deities
        - their successes in warfare, or the success of their ancestors
        - their successes in providing public works like town walls, canals, temples, etc.
        - their performance of rituals that assure the well-being of the populace, etc.
  - So writing developed first where complex societies appeared first
    - and complex societies appeared first where food production was adopted first
  - writing spread to other complex societies with similar needs for it
    - after food production had spread and made these additional complex societies possible
    - so the spread of writing was associated with
      - the spread of food production
      - and the ideas and practices of complex society that arose with food production
  - that is, writing spread in much the same pattern as food production did
    - so the diffusion of writing was influenced by the same geographic factors that affected the spread of food production
    - so (Diamond argues), the same geographic circumstances that gave Eurasia a lead in the diffusion of food production
    - also gave Eurasia a lead in the diffusion of writing and other ideas and technologies