1

THE ORIGINS OF WRITING

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A man has departed: his corpse is in the ground.
His contemporaries have passed from the land.
But writing will preserve his memory
In the mouth of a person who speaks it.
A book is better than a built house,
Better than the tombs constructed in the West.
It is more beautiful than a well-built villa,
More beautiful than a stela in a temple.

(Lines from an ancient Egyptian papyrus of the Nineteenth Dynasty [that of Ramesses II], c.1190 BC, exhorting the reader to become a scribe.)[1]

Without writing, there would have been no permanent recording, no history and, of course, no books. The creation of writing permitted the command of a ruler and his seal to extend far beyond his sight and voice and even to survive his death. If the Rosetta Stone did not exist, for example, the world would be virtually unaware of the nondescript Egyptian king, Ptolemy V Epiphanes (reigned 205–180 BC), whose priests promulgated his decree upon the Stone on 27 March 196 BC in three different scripts: hieroglyphic, demotic and (Greek) alphabetic.

How did writing begin? The favoured explanation, until the Enlightenment in the eighteenth century, was divine origin. Today many – probably most – scholars accept that the earliest writing evolved from accountancy. Inventories and calculations are certainly crucial in the written records of ancient Mesopotamia and also ancient Crete, although they are puzzlingly little to be seen in the surviving writing of ancient Egypt, India, China and Meso-America (which does not preclude the possible earlier existence of commercial record-keeping on perishable materials, such as bamboo, in these early civilisations). In other words, some time in the late fourth millennium BC, in the cities of Sumer in Mesopotamia – the 'cradle of civilisation' – the complexity of trade and administration reached a point where it outstripped the power of memory among the governing elite. To record transactions in an indisputable, permanent form became essential.

Some scholars believe that a conscious search for a solution to this problem by an unknown Sumerian individual in the city of Uruk (biblical Erech), *c.*3300 BC, produced writing. Others posit that writing was the work of a group, presumably of clever administrators and merchants. Still others think it was not an invention at all, but an accidental discovery. Many regard it as the result of evolution over a long period, rather than a flash of inspiration. One particularly well-aired theory (championed by the archaeologist Denise Schmandt-Besserat) holds that writing grew out of a long-standing counting system of clay 'tokens'. Such 'tokens' – varying from simple, plain discs to more complex, incised shapes whose exact purpose is unknown – have been found in many Middle Eastern archaeological sites, and have been dated to 8000–1500 BC. The substitution of two-dimensional symbols in clay for these three-dimensional tokens was a first step towards writing, according to this theory. One major difficulty is that the 'tokens' continued to exist long after the emergence of Sumerian cuneiform writing (for almost two millennia); another is that a two-dimensional symbol on a clay tablet might be thought to be a less, not a more, advanced concept than a three-dimensional clay 'token'. It seems probable that 'tokens' accompanied the emergence of writing, like tallies, rather than giving rise to writing.

Apart from the 'tokens', numerous examples of what might be termed 'proto-writing' exist. They include the Ice Age symbols found in caves in southern France, which are probably 20,000 years old. A cave at Pech Merle, in the Lot, contains a lively Ice Age graffito showing a stencilled hand and a pattern of red dots. This may simply mean 'I was here, with my animals', or perhaps the symbolism is deeper. Other prehistoric

PREVIOUS PAGE Early Chinese characters. Inscribed oracle bones, Late Shang Dynasty. Animal bone. China, 1300–1050 BC. British Library: Or.7694/1535

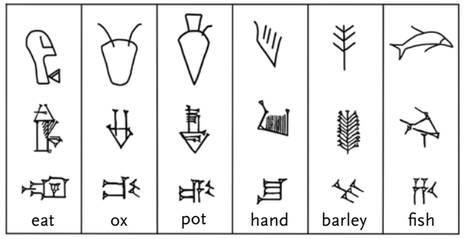
OPPOSITE Handprint and dots. Red ochre. Pech Merle cave (France), 20,000–16,000 BC

images show animals such as horses, bison and a stag's head, overlaid with signs; and notched bones have been found that apparently served as lunar calendars.

'Proto-writing' is not writing in the full sense of the word. A scholar of writing, the sinologist John DeFrancis identified 'full' writing as a 'system of graphic symbols that can be used to convey any and all thought': a concise and influential definition.[2] According to it, 'proto-writing' would include not only Ice Age cave symbols and Middle Eastern clay 'tokens', the Pictish symbol stones of Scotland and tallies like the fascinating knotted Inca *quipus* of Andean South America, but also contemporary sign systems such as international transportation symbols, highway code signs, computer icons, emojis, and mathematical and musical notation. None of these ancient or modern systems is capable of expressing 'any and all thought', but each is good at specialised communication.

To express the full range of human thought requires a writing system intimately linked with spoken language. For, as the founder of modern linguistics, Ferdinand de Saussure, wrote in 1983, language may

ABOVE Early cuneiform writing. Administrative record, Late Uruk Period. Clay tablet. Mesopotamia, 3300–3100 BC. British Museum: 1989,0130.3



be compared to a sheet of paper: 'Thought is on one side of the sheet and sound on the reverse side. Just as it is impossible to take a pair of scissors and cut one side of the paper without at the same time cutting the other, so it is impossible in a language to isolate sound from thought, or thought from sound.'[3]

The symbols of what may have become the first 'full' writing system are generally thought to have been pictograms: iconic drawings of, say, a pot, a fish or a head with an open jaw (representing the concept of eating). These have been found in Mesopotamia and Egypt dating to the mid-fourth millennium BC, in the Indus Valley (Pakistan/India) dating to the third millennium and in China dating to as early as the fifth millennium, according to the claims of some Chinese archaeologists. In many cases, their iconicity soon became so abstract that it is barely perceptible to us. The chart above shows how Sumerian pictograms developed into the cuneiform signs inscribed on clay tablets that went on to dominate Middle Eastern writing for some 3,000 years.

Yet pictograms were insufficient to express the kinds of words, and their constituent parts, that cannot be depicted. Essential to the development of 'full' writing, as opposed to limited, purely pictographic, 'proto-writing', was the discovery of the 'rebus principle'. This radical idea, from the Latin word *rebus* meaning 'by things', enables phonetic values to be represented by pictographic symbols. Thus in English, a picture of a bee beside the number four might (if one were so minded) represent 'before', and a bee with a picture of a tray might stand for 'betray', while an ant next to a buzzing bee hive might (less obviously) represent the personal name 'Anthony'. Egyptian hieroglyphs are full of rebuses; for instance the 'sun' sign, pronounced /R(a)/ or /R(e)/, is the first symbol in the hieroglyphic spelling of the pharaonic name Ramesses. In an early Sumerian accounting tablet the abstract word 'reimburse' is represented by a picture of a reed, because 'reimburse' and 'reed' shared the same phonetic value, *gi*, in the Sumerian language.

Once writing of this 'full' kind, capable of expressing the complete range of speech and thought, was invented, accidentally discovered or evolved, did it then diffuse throughout the globe from Mesopotamia? It appears that the earliest such writing in Egypt dates from 3100 BC, that in the Indus civilisation (undeciphered sealstones) from 2500 BC, that in Crete (the undeciphered Linear A script) from 1750 BC, that in China (the oracle bones) from 1200 BC, and that in Mexico (the undeciphered Olmec script) from 900 BC: all dates are approximate and subject to new archaeological discoveries. On this basis, it seems reasonable that the idea of writing, but not the signs of a particular script, could have spread gradually from culture to distant culture. After all, 600 or 700 years were required for the idea of printing to reach Europe from

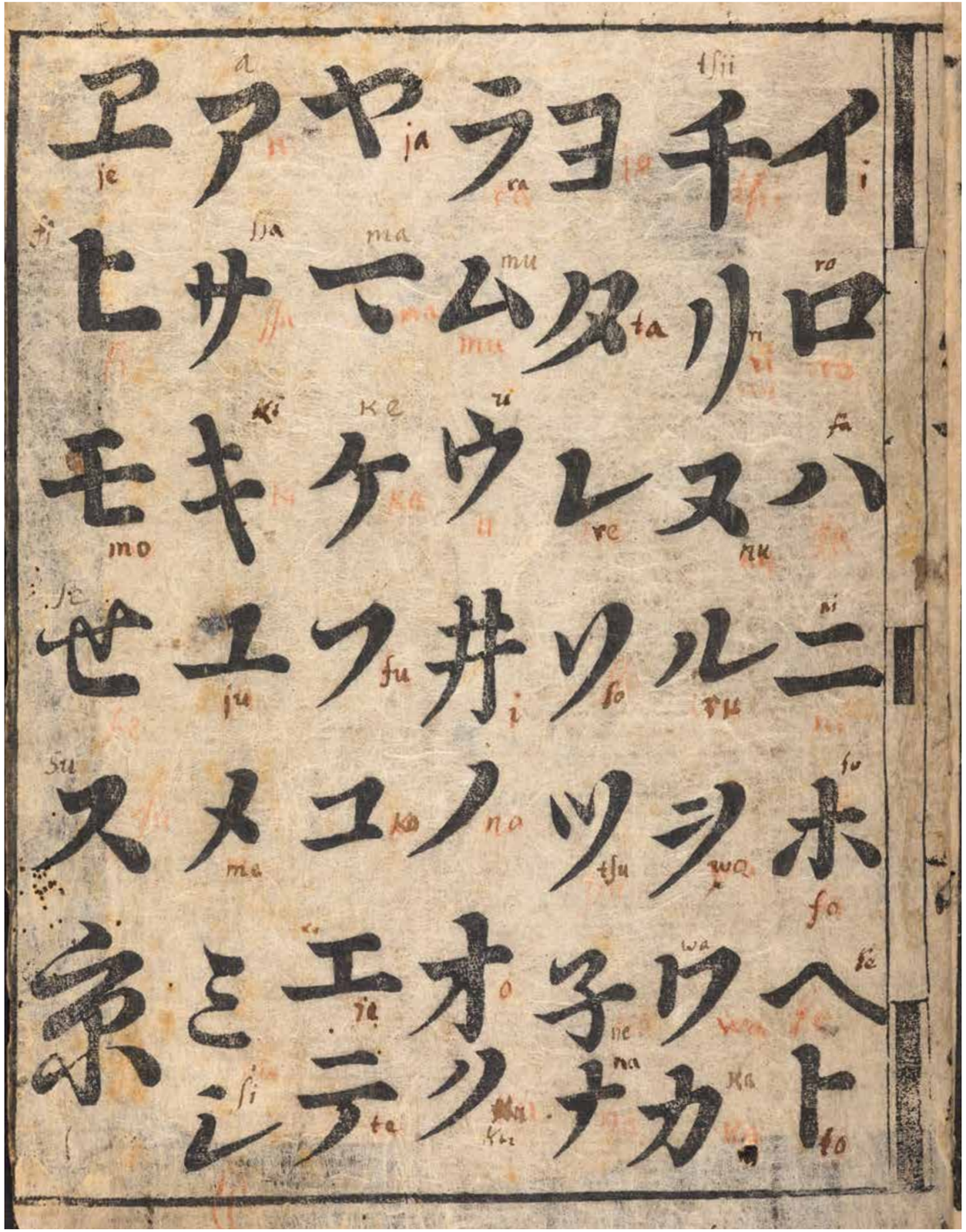
ABOVE The development of Sumerian pictograms (top row), *c.*3000 BC, into wedge-shaped cuneiform signs.
RIGHT Indus script. Engraved burnt steatite seal. Indus river valley, 2600–1900 BC. Metropolitan Museum of Art: 49.40.1

China (if we discount the isolated and enigmatic Phaistos Disc of *c.*1700 BC, found in Crete in 1908, which appears to be 'printed'), and even longer for the idea of paper to spread to Europe: why should writing not have reached China from Mesopotamia over an even longer period?

Nevertheless, in the absence of solid evidence for transmission of the idea (even in the case of the physically much more proximate civilisations of Mesopotamia and Egypt), most scholars prefer to think that writing developed independently in the major civilisations of the ancient world. The optimist, or at any rate the anti-imperialist, will emphasise the intelligence and inventiveness of human societies; the pessimist, who takes a more conservative view of history, will tend to assume that humans prefer to copy what already exists, as faithfully as they can, restricting their innovations to cases of absolute necessity. The latter is the favoured explanation for how the ancient Greeks (near the beginning of the first millennium BC) borrowed the alphabet from the Phoenician culture of the eastern Mediterranean, adding in the process signs for the vowels not written in the Phoenician script. Another well-known example of script borrowing is the Japanese taking of Chinese characters in the first millennium AD and incorporating them into a highly complex writing system that mixes several thousand Chinese characters (known in Japan as *kanji*) with slightly fewer than 100, much simpler, syllabic symbols of Japanese origin (*hiragana* and *katakana*). If ever the Rongorongo script of Rapa Nui (Easter Island) in the south-eastern Pacific Ocean – the most isolated inhabited spot on earth – is deciphered, it may shed light on the intriguing question of whether the Rapa Nui people borrowed it from Europeans who first visited Rapa Nui in the eighteenth century, brought the idea of writing from Polynesia in their canoes or invented Rongorongo independently. If Rongorongo, once deciphered, could be proved to have been created unaided on Rapa Nui, this would at last guarantee that writing must have had multiple origins, rather than radiating from a single source (presumably in Mesopotamia).

Decipherment has, of course, always been key to the understanding of ancient writing systems – hence the worldwide fame of the Rosetta Stone. The term was first used by an Englishman, Thomas Herbert, in 1677, with reference to the cuneiform inscriptions of the Persian king Darius engraved *c.*500 BC at Persepolis, a wonder of the world that was then almost entirely mysterious. Herbert called them 'well worthy the scrutiny of those ingenious persons that delight themselves in the dark and difficult Art or Exercise of deciphering'.[4]

In ordinary conversation, to decipher someone's 'indecipherable' handwriting is to make sense of the meaning; it does not imply that one can read every single word. More technically, as applied to ancient scripts, 'deciphered' means different things to different scholars. At one extreme, everyone acknowledges that the Egyptian hieroglyphs have been deciphered, because all trained Egyptologists would make the same sense of virtually every word of a given hieroglyphic inscription (although their individual translations would still differ, as do all independent translations of the same work from one language into another). At the other extreme, scholars generally agree that the script of the Indus civilisation, exquisitely engraved on steatite sealstones, is undeciphered, because no one can make sense of its seals and other inscriptions to the satisfaction of anyone else. Between these extremes lies a vast spectrum of opinion. In the case of the Mayan hieroglyphic writing of Meso-America, for example, most scholars concur that a high proportion, as much as 85 per cent, of the inscriptions can be meaningfully read, and yet there remain large numbers of individual Mayan glyphs that are contentious or obscure. No shibboleth exists by which a script can be judged to be either deciphered or



OPPOSITE Japanese *katakana* syllabary. *Nanatsu iroha*. Printed book. Kyōtō (Japan): Hon'ya Kyūbē, 1688. British Library: Or.75.h.4.(1.), fol. 10v

undeciphered; we should instead speak of degrees of decipherment. The most useful criterion is that a proposed decipherment can generate consistent readings from new samples of the script, preferably produced by persons other than the original decipherer.

In this sense, the Egyptian hieroglyphs were deciphered in the 1820s by Jean-François Champollion and others; Babylonian cuneiform in the 1850s by Henry Creswicke Rawlinson and others; Mycenaean Linear B in 1952–3 by Michael Ventris; and the Mayan hieroglyphs by Yuri Knorosov and others in the 1950s and after – to name only the most important of the successful decipherments. This leaves a number of significant undeciphered scripts, such as the Etruscan script from Italy, the Indus script from Pakistan/India, Linear A from Crete, the Meroitic script from Sudan, the Proto-Elamite script from Iran/Iraq, Rongorongo from Rapa Nui, and the Olmec, Zapotec and Isthmian scripts from Mexico. These may be resolved into three basic categories: an unknown script writing a known language, a known script writing an unknown language and an unknown script writing an unknown language. The Mayan hieroglyphs were until their late-twentieth-century decipherment an example of the first category, since the Mayan languages are still spoken, and the Zapotec script may be, too, if it writes a language related to modern Zapotec; Etruscan writing is an example of the second category, since the Etruscan script is basically the same as the Greek alphabet, but the unknown Etruscan language is not related to Indo-European languages such as Greek and Latin; and the Indus script is an example of the last category, since the script bears no resemblance to any other script and the language of the Indus civilisation does not appear to have survived (unless, as some scholars speculate, the now-extinct Indus language was related to the Dravidian languages of south India, such as Tamil).

In each undeciphered case, the techniques used in successful decipherments have been applied, with varying results. Ventris – perhaps the most ingenious of all the decipherers, since he alone had no help from a bilingual aid like the Rosetta Stone – gave a masterly summary of the science and art of decipherment just after announcing his decipherment of Linear B as writing an ancient form of classical Greek, in 1952–3:

> Each operation needs to be planned in three phases: an exhaustive analysis of the signs, words, and contexts in all the available inscriptions, designed to extract every possible clue as to the spelling system, meaning and language structure; an experimental substitution of phonetic values to give possible words and inflections in a known or postulated language; and a decisive check, preferably with the aid of virgin material, to ensure that the apparent results are not due to fantasy, coincidence or circular reasoning.[5]

As Ventris's collaborator, classicist John Chadwick, reflected in 1983:

> The achievement of the decipherment ... required painstaking analysis and sound judgement, but at the same time an element of genius, the ability to take a leap in the dark, but then to find firm ground on the other side. Few discoveries are made solely by processes of logical deduction. At some point the researcher is obliged to chance a guess, to venture an unlikely hypothesis; what matters is whether he can control the leap of the imagination, and have the honesty to evaluate the results soberly. Only after the leap has been made is it possible to go back over the working and discover the logical basis which provided the necessary springboard.[6]

Linear B, which was used from 1450 to 1200 BC, turned out to be a syllabic writing system, unlike the later writing system of classical Greece, an alphabet invented *c.*800 BC, in which the signs stand for vowels

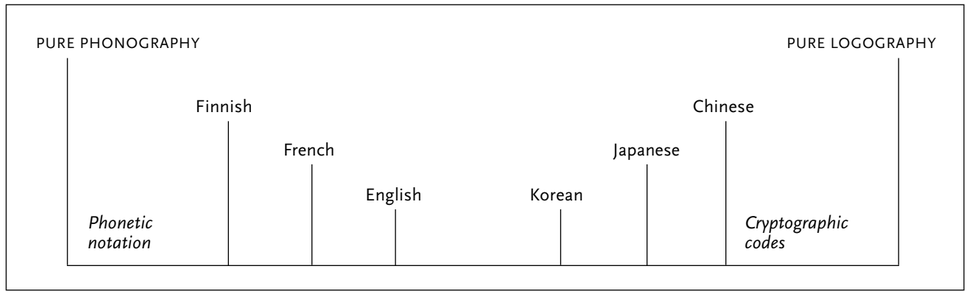
OPPOSITE Mayan glyphs. Carved limestone lintel. Yaxchilan (Mexico), AD 725. British Museum: Am1923,Maud.5

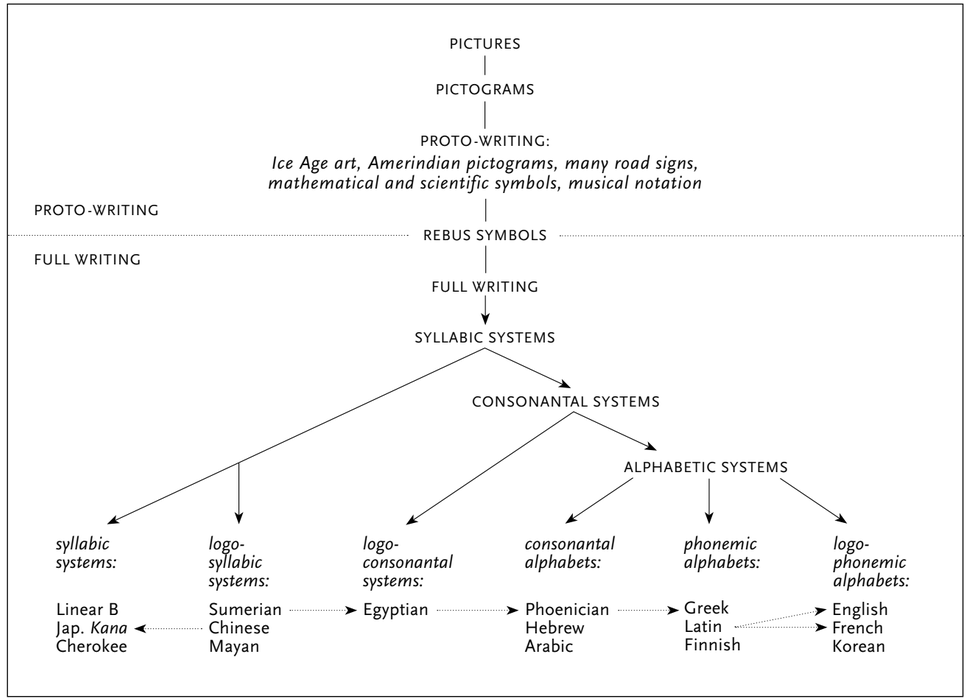
and consonants, not syllables. How are writing systems classified? Europeans and Americans of ordinary literacy must recognise and write around fifty-two alphabetic signs (twenty-six capital letters and their lower-case equivalents) and sundry other signs, such as numerals, punctuation marks and 'whole-word' semantic signs, for example +, =, &, %, £ and $, which are generally called logograms. Japanese readers, by contrast, are supposed to know and be able to write some 2,000 signs, and, if they are highly educated, must recognise 5,000 signs or more. The two situations, in Europe/America and in Japan, appear to be poles apart. But, in fact, the different writing systems resemble each other more than first appears.

Contrary to what many people think, all scripts that are 'full' writing (in the sense defined by DeFrancis above) operate on one basic principle. Both alphabets and the Chinese and Japanese scripts use symbols to represent sounds (that is, phonetic signs); and all writing systems mix such phonetic symbols with logographic symbols (that is, semantic signs). What differs between writing systems – apart from the forms of the signs, of course – is the proportion of phonetic to semantic signs. The higher the proportion of phonetic representation in a script, the easier it is to guess the pronunciation of a word. In English the proportion is high; in Chinese it is low. Thus English spelling represents English speech sound by sound more accurately than Chinese characters represent Mandarin speech; but Finnish spelling represents the Finnish language better than English spelling represents spoken English. The Finnish script is highly efficient phonetically, while the Chinese (and Japanese) script is phonetically seriously deficient, as indicated in the upper diagram opposite.

Hence there is no such thing as a 'pure' writing system, that is, a 'full' writing system capable of expressing meaning entirely through alphabetic letters, syllabic signs or logograms: all 'full' writing systems are a mixture of phonetic and semantic signs. How best to classify writing systems is therefore a controversial

ABOVE Linear B tablet. Record of grain rations for women workers. Burnt clay. Knossos (Crete), *c.*1400–1375 BC. Ashmolean Museum: AN1910.214





ABOVE All writing systems are a mixture of phonetic and logographic (semantic) signs, but the proportion of each varies. Finnish is the most phonetically efficient script, Chinese script the least

BELOW Writing systems are grouped in this diagram according to their nature (not their age, nor how one writing system may have given rise to another historically). The dashed lines indicate possible influences of one system upon another

matter. For example, some scholars deny the existence of alphabets prior to the Greek alphabet, on the grounds that the Phoenician script marked only consonants, not vowels (like the early Arabic script). Nevertheless, classifying labels are useful to remind us of the predominant nature of different systems. The tree shown in the lower diagram on the previous page divides writing systems according to this criterion, not according to their age; it does not show how one writing system may have given rise to another historically. (The dashed lines indicate possible influences of one system upon another, for example Chinese characters, *kanji*, on the Japanese syllabic *hiragana* and *katakana*.) Thus, the Phoenician script is labelled a 'consonantal alphabet', with the emphasis on its consonants and without significant logography, in contrast to the 'logo-consonantal' system of Egyptian hieroglyphs, where logography dominates but there is also a phonetic element based on the consonants: twenty-four hieroglyphic signs, each representing a consonant. The tree's terminology is self-explanatory, except perhaps for 'phonemic': the phoneme is the smallest contrastive unit in the sound system of a language, for example the English vowel phonemes /e/ and /a/ in 'set' and 'sat', and the consonantal phonemes /b/ and /p/ in 'bat' and 'pat'.

If the emergence of writing is full of riddles, then the enigma of the first alphabet is even more perplexing. That the alphabet reached the modern world via the ancient Greeks is well known – the word 'alphabet' comes from alpha and beta, the first two of the twenty-five Greek letters – but we have no idea of exactly how and when the alphabet appeared in Greece; how the Greeks thought of adding letters standing for the vowels as well as the consonants; or how, even more fundamentally, the idea of an alphabet occurred to the pre-Greek societies at the eastern end of the Mediterranean during the second millennium BC. The first well-attested alphabets belong to ancient Ugarit, today's Ras Shamra on the coast of Syria, where a thirty-sign cuneiform alphabet was used in the fourteenth century BC, and to the Phoenicians in Canaan in the late second millennium, who used twenty-two consonantal letters.

Scholars have devoted their lives to these questions, but the evidence is too scanty for firm conclusions. It is not known whether the alphabet evolved from the scripts of Mesopotamia (cuneiform), Egypt (hieroglyphs) and Crete (Linear A and B), or whether it struck a single unknown individual 'in a flash'. Nor is it known why an alphabet was thought necessary. It seems most likely that the alphabet was the result of commercial imperatives. In other words, commerce demanded a simpler and quicker means of recording transactions than, say, Babylonian cuneiform or Egyptian hieroglyphs, and also a convenient way to record the babel of languages of the various empires and groups trading with each other around the Mediterranean. If so, then it is surprising that there is no evidence of trade and commerce in the early alphabetic inscriptions of Greece. This, and other considerations, have led a few scholars to postulate, controversially, that the Greek alphabet was invented to record the oral epics of Homer in the eighth century BC.

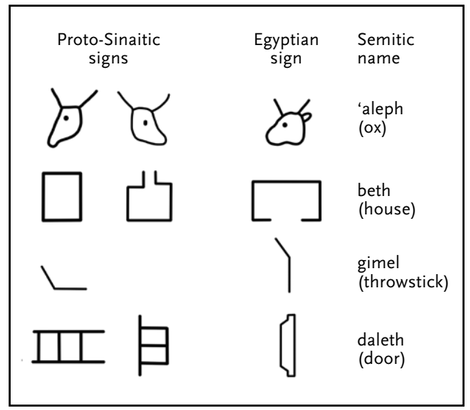
In the absence of proof, anecdote and myth have filled the vacuum. Children are often evoked as inventors of the alphabet, because they would not have had the preconceptions of adult writers and their elders' investment in existing scripts. One possibility is that a bright Canaanite child in northern Syria, fed up with having to learn the complexities of Babylonian cuneiform and Egyptian hieroglyphs, borrowed from the hieroglyphs the familiar idea of a small number of signs standing for single consonants and then invented some new signs for the basic consonantal sounds of his own Semitic language. Perhaps the child first doodled the signs in the dust of some ancient street: a simple outline of a house, Semitic 'beth' (the 'bet' in 'alphabet'), became the sign for **b**. In the twentieth century, Rudyard

Kipling's child protagonist in 'How The Alphabet Was Made', Taffimai, designs what she calls 'noise-pictures'. The letter **A** is a picture of a carp with its mouth wide open like an inverted **V** and its barbel forming the cross-stroke of the **A**; this, Taffimai tells her father, looks like his open mouth when he utters the sound /ah/. The letter **O** matches the egg, or stone, shape and resembles her father's mouth saying /oh/. The letter **S** represents a snake, and stands for the hissing sound of the reptile. In this somewhat far-fetched way, a whole alphabet is created by Taffimai.

To quote an earlier poet, William Blake, writing in *Jerusalem*: 'God ... in mysterious Sinai's awful cave/To Man the wond'rous art of writing gave'. A small sphinx in the British Museum at one time seemed to show that Blake was right, at least about the origin of the alphabet. The sphinx was found in 1905 at Serabit el-Khadim in Sinai, a desolate place remote from civilisation, by the famous Egyptologist Flinders Petrie. He was excavating some old turquoise mines that were active in ancient Egyptian times. Petrie dated the sphinx to the middle of the Eighteenth Dynasty (1550–1295 BC); today, its date is thought to be *c.*1500 BC, but may be as early as *c.*1800 BC. On one side of it is a strange inscription; on the other, and between the paws, there are further inscriptions of the same kind, plus some Egyptian hieroglyphs that read: 'beloved of Hathor, mistress of turquoise'. Similar inscriptions were written on the rocks of this remote area.

Petrie guessed that the unknown script was probably an alphabet, because it comprised fewer than thirty signs (out of a much larger number of text characters); and he thought that its language was probably Semitic, since he knew that Semites from Canaan – modern Israel and Lebanon – had worked these mines, in many cases as slaves of the Egyptians. Ten years later, another distinguished Egyptologist, Alan Gardiner, studied the 'proto-Sinaitic' signs and noted resemblances between

LEFT Early Phoenician inscription. Bronze arrow-head. Phoenicia, 11th century BC. British Museum: 1989,0409.1



some of them and certain pictographic Egyptian hieroglyphs. Gardiner now named each sign with the Semitic word equivalent to the sign's meaning in Egyptian (the Semitic words were known from biblical scholarship), such as 'beth' for 'house' and 'gimel' for 'throwstick' (see diagram above). These Semitic names are the same as the names of the letters of the Hebrew alphabet: a fact that did not surprise Gardiner, since he knew that the Hebrews had lived in Canaan in the late second millennium BC. However, although the names are the same, the shapes of the Hebrew letters are different from the proto-Sinaitic signs, suggesting that any link between them cannot be a straightforward one.

Gardiner's hypothesis enabled him to translate one of the inscriptions that occurred on the sphinx from Serabit el-Khadim as 'Baalat': in an English transcription, with the vowels spelt out. (Hebrew and other Semitic scripts do not indicate vowels; readers guess them from their knowledge of the language, as explained later.) Gardiner's reading made sense: Baalat means 'the Lady' and is a recognised Semitic name for the goddess Hathor in the Sinai region. So the inscription on the sphinx seemed to be an Egyptian-Semitic bilingual. Unfortunately no further decipherment proved tenable, mainly because of lack of material and the fact that many of the proto-Sinaitic signs had no hieroglyphic equivalents. Scholarly hopes of finding the story of the Exodus in these scratchings were scotched. Nevertheless, it is conceivable that a script similar to Petrie and Gardiner's proto-Sinaitic script was used by Moses to write the Ten Commandments on the tablets of stone.

It is still not known whether Gardiner's 1916 guess was correct, plausible though it is. For some decades after Petrie's discoveries in Sinai, the inscriptions were taken to be the 'missing link' between the Egyptian hieroglyphs and the cuneiform alphabet at Ugarit and the Phoenician alphabet. But it seems unconvincing that lowly – and presumably illiterate – miners in out-of-the-way Sinai should have created an alphabet; prima facie, they seem to be unlikely inventors. Subsequent discoveries in Lebanon and Israel have shown the Sinaitic theory of the alphabet to be a romantic fiction. These inscriptions, dated to the seventeenth and sixteenth centuries BC – a little earlier than the proto-Sinaitic inscriptions – suggest that the people then living in the land of Canaan were the real inventors of the alphabet, which would be reasonable. They were cosmopolitan traders at the crossroads of the Egyptian, Hittite, Babylonian and

OPPOSITE Rudyard Kipling, 'How the Alphabet was Made'. Autograph manuscript. England, 1902. British Library: Add MS 59840, ff. 76r
ABOVE 'Proto-Sinaitic' inscription. Sandstone sphinx; known as the Serabit Sphinx. Sinai (Egypt), 1800-1500 BC. British Museum: 1905,1014.118
BELOW Some 'Proto-Sinaitic' signs resemble pictographic Egyptian hieroglyphs

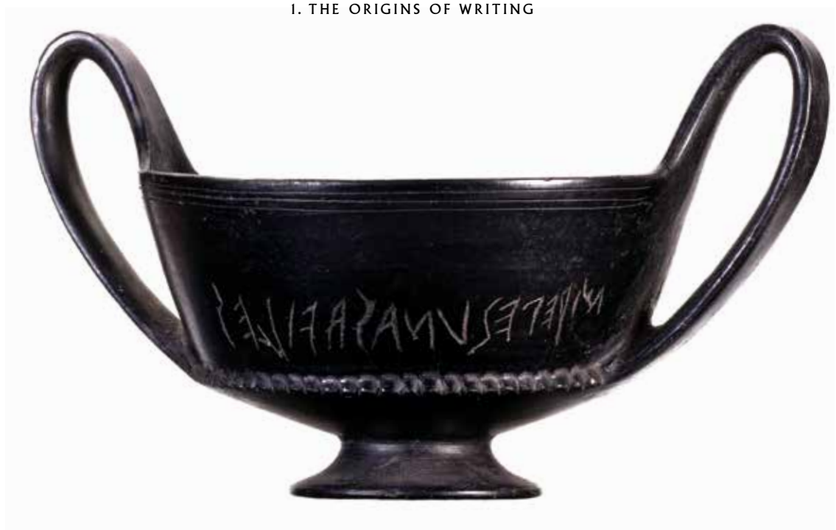
Cretan empires; they were not wedded to an existing writing system; they needed a script that was easy to learn, quick to write and unambiguous. Although unproven, it is probable that the (proto-)Canaanites were the first to use an alphabet.

In the late 1990s, however, the picture was further complicated by new discoveries in Egypt itself, and a revised version of the Gardiner theory now seems plausible. In 1999 two Egyptologists, John and Deborah Coleman Darnell, announced that they had found examples of what appeared to be alphabetic writing at Wadi el-Hol, west of Thebes, while they were surveying ancient travel routes in the southern Egyptian desert. The date of the inscriptions is *c.*1900–1800 BC, which places them considerably earlier than those from Lebanon and Israel and makes them the earliest-known alphabetic writings.

The two short inscriptions are written in a Semitic script and, according to the experts, the letters were most probably developed in a fashion similar to a semi-cursive form of the Egyptian script. The writer is thought to have been a scribe travelling with a group of mercenaries (there were many such mercenaries working for the pharaohs). If the Darnell theory turns out to be correct, then it looks as if the alphabetic idea was, after all, inspired by the Egyptian hieroglyphs and invented in Egypt, rather than in Canaan. However, the evidence is by no means conclusive and the search in Egypt for more alphabetic inscriptions continues.

From its unclear origins on the eastern shores of the Mediterranean, writing employing the alphabetic principle spread: westwards (via Greek) to the Romans and thence to modern Europe, which uses roman letters to write many of its languages; eastwards (via Aramaic, most likely) to India and thence to Southeast Asia. By the twentieth century, as a consequence of Europe's colonial empires, most of the world's peoples except the Chinese and Japanese were writing in alphabetic scripts. These employ on average between twenty and thirty basic signs; the smallest, Rotokas, used in Papua New Guinea, has twelve letters, while the largest, Khmer, used in Cambodia, has seventy-four letters.

The western alphabetic link between the Greeks and the Romans was Etruscan, as is clear from the early Greek letterforms inscribed on Etruscan objects dating from the sixth century BC, which were then borrowed by early Latin inscriptions. (The transference of the script occurred despite the dissimilarity of the Indo-European Greek and Latin languages to the non-Indo-European Etruscan language mentioned above; see page 29). This early Roman acquisition from Greek accounts for the differences between some modern European letterforms and the modern Greek letters, which are based on a later Greek alphabet known as Ionian that became standard in Greece in 403–402 BC.

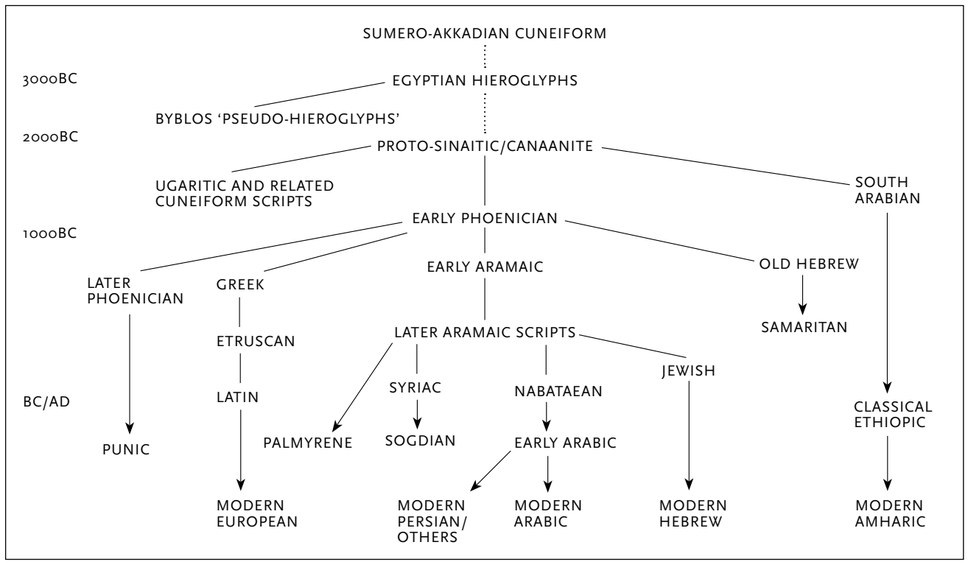


The eastern alphabetic link is indicated by the remarkable fact that in Mesopotamia, by the fifth century BC, many cuneiform documents carried a notation of their substance in the twenty-two letters of the Aramaic alphabet, inked onto the tablet with a brush. From the time of Alexander the Great (356–323 BC) onwards, cuneiform was increasingly superseded by Aramaic; it eventually fell into disuse around the beginning of the Christian era, with the last cuneiform inscription dated AD 75. In Egypt, fairly soon after that, the Coptic alphabet (consisting of twenty-four Greek letters plus six letters borrowed from Egyptian demotic script) supplanted Egyptian hieroglyphs; the last Egyptian hieroglyphic inscription is dated AD 394.

The Aramaic script is the ancestor of modern Arabic and of modern ('square') Hebrew script, as used in Israel. (A second Hebrew script, known as 'old Hebrew', evolved from the Phoenician script and disappeared from secular use with the dispersion of the Jews in the sixth century BC.) The first independent Arab kingdom, that of the Nabataeans centred on Petra in modern Jordan, spoke a form of Arabic but wrote in the Aramaic script. The presence of certain distinctively Arabic forms and words in these Aramaic inscriptions eventually gave way to the writing of the Arabic language in Nabataean Aramaic script. This was the precursor of the Arabic script, which arose during the first half of the first millennium AD and replaced the Aramaic script.

Both the Arabic and Hebrew scripts write only the consonants, not the vowels, in their respective Semitic languages, using twenty-eight letters in Arabic and twenty-two in Hebrew. Thus the three letters in modern Hebrew that stand for **sfr** or **spr** can take the following meanings: *sefer* (a book), *safar* (counted, as in 'he counted'), *sapar* (a barber), and even *sefar* (border, frontier or fringe). In practice, however, various additional signs have been developed to aid the reader in pronouncing the 'missing' Arabic and Hebrew vowels. The commonest of these is a system of dots placed above and below a letter, referred to as *niqqudot* (dots) in Hebrew. A separate, historically much earlier system, known as *matres lectionis* – Latin for 'mothers of reading' – used three semi-vowels, w, y and ' (aleph), to denote long vowel signs instead of their consonant values.

OPPOSITE Early Euboean Greek inscription. Aryballos (flask). Cumae (Italy), 670 BC. British Museum: 1885,0613.1
ABOVE Etruscan inscription. Burnished black Bucchero kantheros. Italy, *c.*600 BC. British Museum: 1953,0426.1



The time chart above shows the main lines of emergence of the modern alphabetic scripts from the Proto-Sinaitic/Canaanite scripts of the second millennium BC. It does not include the Indian scripts and their Southeast Asian derivatives, since their connection with Aramaic is problematic and, strictly speaking, unproven. (The earliest Indian scripts, leaving aside the undeciphered Indus writing of the third millennium BC, are Kharosthi and Brahmi, used in the rock edicts of the Emperor Ashoka in the mid-third century BC.) Nor does the chart show later alphabets such as the Cyrillic alphabet used in Russia, which was adapted from the Greek alphabet in the ninth century AD, the Korean Hangul alphabet, invented by King Sejong in Korea in 1443, or the so-called Cherokee alphabet (really a syllabary), devised by a Native American, Chief Sequoyah, in the USA in 1821. Also excluded are runes, since the origin of the runic alphabet, in the second century AD or earlier, although clearly influenced by the roman alphabet, is not known.

The undoubted worldwide triumph of alphabetic writing, except in China and Japan, has encouraged a mystique of the alphabet. It is often said that the alphabet was necessary for the growth of democracy; its very simplicity enabled numerous people to become literate and politically aware. Others have claimed that the West's global dominance in the second millennium AD, particularly in science, was largely the result of a so-called 'alphabet effect'. They contrast the West with China and its characters: while both developed science, the West went on to produce the analytical thinking of, say, a Newton or an Einstein, and left China far behind, because these thinkers were nurtured on the letter-by-letter principle (inherent in the alphabet). Put at its crudest, alphabets are alleged to promote reductionist thinking; Chinese characters holistic thinking.

ABOVE The evolution of the main alphabetic scripts according to an approximate time-scale (after John F. Healey, *The Early Alphabet*)

The first suggestion, about democracy and the alphabet, has a kernel of truth. But did the alphabet help democracy to grow, or did a nascent European desire for democracy give rise to the invention of the alphabet? The ancient Egyptians, in a sense, invented the alphabet in the third millennium BC when they created twenty-four signs for their consonants. But instead of using this simple system to write their language, the Egyptians chose to write in hieroglyphs with many hundreds of signs. Perhaps they felt no urge for democracy in their pharaonic political system?

The second suggestion, about science, appealing as it may be to some, is a fallacy. It is quite conceivable that the Chinese writing system, as a result of its enormous complexity, retarded the spread of literacy in China, but it is ludicrous to connect a deep cultural trend, a supposed dearth of Chinese analytical thinking, with the predominance of logograms over phonetic signs. To explain profound cultural differences, we need to look at cultures in the round, not single out one aspect, such as a culture's writing system, however important this may appear to be. After all, if Isaac Newton and Albert Einstein could understand gravity and relativity, they could surely have mastered an education imparted in Chinese characters or, for that matter, in Egyptian hieroglyphs or Babylonian cuneiform.

Chinese characters also enjoy a mystique. The complexity of Chinese writing encourages the notion that it operates differently from other modern writing systems. The obscurity of its origins – which may or may not have involved foreign stimulus from, for example, Mesopotamian writing – reinforces its apparent uniqueness. The antiquity of the modern Chinese characters, many being recognisable in the Shang oracle bone inscriptions of about 1200 BC, further reinforces this view, abetted by national pride in the system's exceptional longevity, which exceeds that of Babylonian cuneiform and equals that of the Egyptian hieroglyphs.

The most important claim is that Chinese characters are 'ideographic': a word now generally avoided by scholars in favour of the more specific 'logographic'. That is, the characters are thought to be capable of communicating ideas without the intervention of phoneticism or indeed spoken language. This claim is seemingly supported by the fact that speakers of different Chinese dialects, such as Mandarin and Cantonese, who may not be able to understand each other fully when speaking, may still write using the same characters. Even Chinese and Japanese speakers are sometimes able to achieve some level of mutual understanding through the use of characters common to both their scripts. This, of course, would be inconceivable for English, French, German and Italian monoglots, even though they share one (roman) script.

The claim is, however, false. No 'full' writing system, as already explained, can be divorced from the sounds of a spoken language. The majority of Chinese characters are composed of both a phonetic and a semantic component, which readers must learn to recognise. The phonetic component gives a clue to the pronunciation of the character, the semantic component to its meaning. These two components are generally characters in their own right, with their own pronunciation and meaning. For example, the simple character 羊 is pronounced *yáng* in Mandarin and means 'sheep'. This provides the phonetic component of the compound character 洋, which is also pronounced *yáng* and means 'ocean'. The three-stroke sign on the left side of 洋 is a semantic component, which means 'water' and provides a broad category of meaning for the character. In dialects other than Mandarin, this simple character and this compound character still have the same meanings and share a common phonetic value. A Cantonese speaker, for example, would know that these two characters mean 'sheep' and 'ocean' (while pronouncing them both as something other than *yáng*). In order to

communicate with a Japanese speaker using characters, a Chinese person would have to hope that the particular characters he or she is using are not only used in Japanese but also that they have retained the same form and meaning in modern Japanese as in Chinese. (The characters for 'sheep' and 'ocean' are identical in Chinese and Japanese.)

The Japanese language differs greatly from the Chinese, phonologically, grammatically and syntactically. Even so, the Japanese based their writing system on the Chinese characters, as already discussed. When they first adopted Chinese characters during the early centuries of the first millennium AD, the Japanese applied their own pronunciations, sometimes based on native Japanese words and sometimes adapting an original Chinese pronunciation to the sounds of the Japanese language. (Indeed *kanji*, the Japanese word for Chinese character, is a rendering of a term which in modern Mandarin is pronounced *hanzi*, meaning 'Han characters'.) Gradually, over time, they developed two fairly small sets of supplementary phonetic signs, the syllabic *kana* (now standardised as forty-six *hiragana* and forty-six *katakana*) – the forms of which are actually simplified versions of the Chinese characters – in order to make clear how the characters were to be pronounced in Japanese and how to transcribe native (that is, Japanese) words and grammatical endings. It would have been simpler, one might reasonably think, if the Japanese had used only these invented signs and had abandoned the Chinese characters altogether, but this would have entailed the rejection of an ancient writing system of huge prestige. (From the 1980s, it is true, certain words written in *katakana* began to be written in the roman alphabet, as so-called *romaji*, which were considered to be fashionable, especially by the Japanese advertising world, but there is no possibility of *romaji* supplanting the native script altogether.) Just as a knowledge of Latin was until quite recently a *sine qua non* for the educated European, so a familiarity with Chinese has always been considered essential by the Japanese literati.

✧✧✧

As the sixth millennium of recorded civilisation opened in 2000, Mesopotamia was again at the centre of historical events. Where once, at the birth of writing, the statecraft of absolute rulers like Hammurabi and Darius was recorded in Sumerian, Babylonian, Assyrian and Old Persian cuneiform on clay and stone, now the Iraq wars against Saddam Hussein generated millions of mainly alphabetic words on paper and on the World Wide Web written in a babel of languages.

But although today's technologies of writing are immeasurably different from those of the third millennium BC, its linguistic principles have not changed very much since the composition in cuneiform during the second millennium BC of the epic about the legendary Sumerian king, Gilgamesh. However, the seismic impact of electronic writing and archiving on information distribution, research and communications has polarised the debate about the correct definition of 'writing'. Must 'full' writing depend on a spoken language, as maintained in this chapter? Or can it float free of its phonetic anchor? If so, the world could theoretically become open for universal written communication, without barriers of language.

While some people persist in thinking that the digital revolution since the 1990s has made little or no difference to what happens in their minds when they actually read, write and think, others as stoutly maintain that the digitisation of writing is radically altering our absorption of knowledge and will at last usher in the ideographic utopia imagined by the philosopher Gottfried Wilhelm Leibniz in the 1690s: 'As regards signs, I see ... clearly that it is to the interest of the

'British Library':

大英圖書館
(written in Chinese)

大英図書館
(written in Japanese)

Republic of Letters and especially of students, that learned men should reach agreement on signs.'[7] Moreover, this faith in the increasing intelligence of computers – with their ubiquitous pictographic and logographic icons – chimes with many scholars' growing respect for the intelligence behind ancient scripts. Down with the monolithic 'triumph of the alphabet', they say, and up with Chinese characters, Egyptian hieroglyphs and Mayan glyphs, with their hybrid mixtures of pictographic, logographic and phonetic signs. This conviction has in turn encouraged a belief in the need to see each writing system as enmeshed within a whole culture, instead of viewing it simply as a technical solution to a problem of efficient visual representation of the culture's language. Although one may or may not share the belief in the hidden power of digitisation, and one may remain sceptical about the expressive virtues of logography, this holistic view of writing systems is surely a healthy development that reflects the real relationship between writing and society in all its subtlety and complexity.

ABOVE Can a Chinese speaker and a Japanese speaker communicate in writing without knowing the other's language? To some extent they can, as suggested by the Chinese and Japanese spellings of 'British Library'.
BELOW Thoth, Egyptian god of writing. Carved and painted relief. Temple of Ramesses II, Abydos (Egypt), 1279–1213 BC

Perhaps this relationship is captured best in a story told by the ancient Greek philosopher Socrates (who famously never published a word of his thoughts in writing), which was recorded by his student, Plato, in a dialogue in the fourth century BC. Socrates talks of the Egyptian god Thoth, the inventor of writing, who came to see the Egyptian king seeking the royal blessing on his enlightening invention. However, the king was ambivalent about the new invention. He told Thoth:

> You, who are the father of letters, have been led by your affection to ascribe to them a power the opposite of that which they really possess ... You have invented an elixir not of memory, but of reminding; and you offer your pupils the appearance of wisdom, not true wisdom, for they will read many things without instruction and will therefore seem to know many things, when they are for the most part ignorant.[8]

In a twenty-first-century world drenched with written information and surrounded by information technologies of astonishing speed, convenience and power, these cautionary words about writing recorded 2,500 years ago surely have a surprisingly contemporary ring.

NOTES

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3. https://wearesocial.com/us/blog/2018/01/global-digital-report-2018, accessed 11/08/18.
4. World Economic Forum website: https://www.weforum.org/agenda/2018/05/what-happens-in-an-internet-minute-in-2018, accessed 11/08/18.
5. Italic type makes its first appearance for a complete book in an edition of Virgil printed by the Venetian publisher Aldus Manutius in 1501.
6. Coulmas, *The Writing Systems of the World*, p. 2.
7. DeFrancis, *Visible Speech*, p. 5; Gelb, *A Study*, p. 12.

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1. Robinson, *Cracking the Egyptian Code*, p. 237.
2. DeFrancis, *Visible Speech*, p. 4.
3. De Saussure, *General Linguistics*, p. 111.
4. Quoted in Duhoux, Palaima and Bennet, *Problems*, p. 26.
5. Ventris, 'A note', p. 200.
6. Quoted in Robinson, *The Man Who Deciphered Linear B*, p. 14.
7. Quoted in Mead and Modley, 'Communication', p. 58.
8. Robinson, *The Story of Writing*, p. 8.

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1. In personal correspondence, February 1983.
2. Johnston, *Writing & Illuminating, and Lettering* (1906), p. 416.
3. In the colophon of the Virgil published by Aldus Manutius in 1501.
4. Quoted from report of the *Histoire de l'Académie royale des Sciences* (1699) in Jammes, 'Académisme et Typographie', pp. 72 and 73.
5. Quoted from the introduction (*Avis*) to Fournier's quarto type specimen, *Modèles des Caractères de l'Imprimerie* (1742) in Hutt, *Fournier, the Compleat Typographer*, p. 29.
6. Quoted from Baskerville's own letter to the President of the French Royal Academy of Sciences (undated, ?1773) in Pardoe, *John Baskerville of Birmingham*, p. 131.
7. Quoted from anonymous letter now in Birmingham Assay Office (undated, ?1776) in Pardoe, *John Baskerville of Birmingham*, p. 140.
8. Quoted from Fournier's *Manuel typographique*, Vol. II (1768) in Hutt, *Fournier, the Compleat Typographer*, p. 47.
9. Quoted from Richard Austin's introduction to his *Imperial Letter Foundry Specimen of Types* (Shoreditch, London, 1819), unpaginated, in James Mosley, *Typefoundry* blog, 'Richard Austin', 14 February 2007: typefoundry.blogspot.com/2007/02/scotch-roman.html, accessed 6/9/18.

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1. Fisher, 'Ink', p. 68.
2. Shinoda, 'Sumi infinity', p. 79.
3. *Manchester Guardian*, 3 October 1840, front page.
4. Ishikawa, *Taction*, p. 1.
5. Schmandt-Besserat, *When Writing Met Art*, pp. 63–86.
6. Suchman, 'Centers of Coordination', pp. 41–62.
7. For more on conversation analysis see Goodwin and Heritage, 'Conversation analysis', pp. 283–307.

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1. Mao's words from 'On Coalition Government' (24 April 1945) quoted on cover of Double Pigeon typewriter manual, produced in Shanghai, *c.*1964–1975. British Library collection. English translation by author.

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2. Ibid. p. 172.
3. Schimmel, *Calligraphy and Islamic Culture*, pp. 18–19.
4. Baskerville, 'The Preface', opening page (unpaginated).
5. See Carr, 'The Information by James Gleick: review'.

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1. Mueller and Oppenheimer, 'The pen is mightier'.
2. Buber, *I and Thou*, p. 11.
3. Williams, *Stand Out of Our Light*, p. 23.

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2. Hutchinson Guest, *Labanotation*, pp. 15, 29.
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4. *Ibid*.
5. See, for example, Prunty et al., 'An examination of writing pauses'.
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7. Rosenblum, Parush and Weiss, 'The in air phenomenon', pp. 933–54.
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9. See, for example, James, 'How printing practice affects letter perception'; and Zwicker et al., 'Smaller cerebellar growth and poorer neurodevelopmental outcomes in very preterm infants'.
10. Izadi-Najafabadi et al., 'Participation of children with developmental coordination disorder'.
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29. Mueller and Oppenheimer, 'The pen is mightier', pp. 1159–68.
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