





1 Writing Systems

ANDREW ROBINSON

- 1 The emergence of writing
- 2 Development and diffusion of writing systems
- 3 Decipherment
- 4 Classification of writing systems
- 5 The origin of the alphabet
- 6 The family of alphabets
- 7 Chinese and Japanese writing
- 8 Electronic writing

1 The emergence of writing

Without writing, there would be no 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, whose priests promulgated his decree upon the stone in three *scripts: hieroglyphic, demotic, and (Greek) alphabetic.

How did writing begin? The favoured explanation, until the Enlightenment in the 18th century, was divine origin. Today, many—probably most—scholars accept that the earliest writing evolved from accountancy, though it is puzzling that such accounts are little in evidence in the surviving writing of ancient Egypt, India, China, and Central America (which does not preclude commercial record-keeping on perishable materials such as bamboo in these early civilizations). In other words, some time in the late 4th millennium BC, in the cities of Sumer in Mesopotamia, the ‘cradle of civilization’, 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 admin-

istrators 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-aided theory 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 from 8000 to 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; 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 more likely that ‘tokens’ accompanied the emergence of writing, rather than giving rise to writing.

Apart from the ‘tokens’, numerous examples exist of what might be termed ‘proto-writing’. They include the Ice Age symbols found in caves in southern France, which are probably 20,000 years old. A cave at Peche 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 images show animals such as horses, a stag’s head, and bison, overlaid with signs; and notched bones have been found that apparently served as lunar calendars.



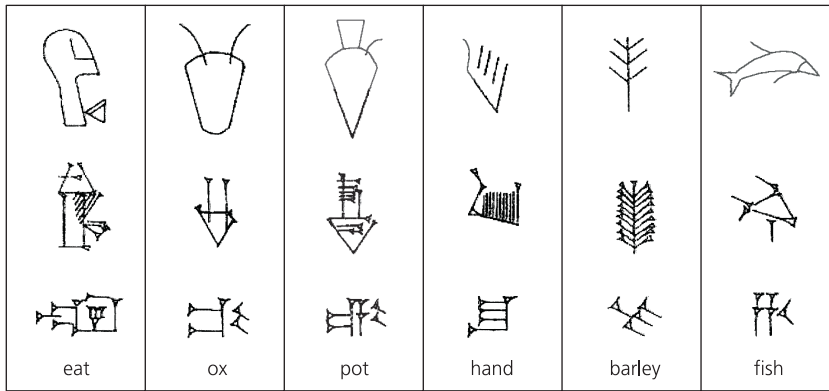


Fig. 1 Some cuneiform signs, showing the pictographic form (c.3000 BC), an early cuneiform representation (c.2400 BC), and the late Assyrian form (c.650 BC), now turned through 90 degrees, with the meaning.

‘Proto-writing’ is not writing in the full sense of the word. A scholar of writing, the Sinologist John DeFrancis, has defined ‘full’ writing as a ‘system of graphic symbols that can be used to convey any and all thought’—a concise and influential definition. According to this, ‘proto-writing’ would include, in addition to Ice Age cave symbols and Middle Eastern clay ‘tokens’, the Pictish symbol stones and tallies such as the fascinating knotted Inca quipus, but also contemporary sign systems such as international transportation symbols, highway code signs, computer icons, 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 specialized communication (DeFrancis, *Visible Speech*, 4).

2 Development and diffusion of writing systems

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, language may 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’ (Saussure, 111).

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, or 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-4th millennium BC, in the Indus Valley dating to the 3rd millennium, and in China dating to as early as the 5th millennium, accord-

ing to the (doubtful) claims of some Chinese archaeologists. In many cases, their iconicity soon became so abstract that it is barely perceptible to us. Fig. 1 shows how the Sumerian pictograms developed into the wedge-shaped cuneiform signs 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 meaning ‘by things’, enables phonetic values to be represented by pictographic symbols. Thus in English, a picture of a bee beside the figure 4 might (if one were so minded) represent ‘before’, and a bee with a picture of a tray might stand for ‘betray’, while a picture of an ant next to a buzzing beehive full of honey, might (less obviously) represent ‘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 pharaoh Ramesses. In an early Sumerian 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 Valley (undeciphered seal stones) 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 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 (*see* 10): 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 much more proximate civilizations of Mesopotamia and Egypt), a majority of scholars prefer to think that writing developed independently in the major civilizations of the ancient world. The optimist, or at any rate the anti-imperialist, will choose to emphasize 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 Greeks (at the beginning of the 1st millennium BC) borrowed the alphabet from the Phoenicians, adding in the process signs for the vowels not written in the Phoenician script (*see* 3). There are many other examples of script borrowings, such as the Japanese taking the Chinese characters in the 1st millennium AD and incorporating them into a highly complex writing system that mixes several thousand Chinese characters with slightly fewer than 100, much simpler, syllabic symbols of Japanese origin. If ever the Rongorongo script of Easter Island—the most isolated inhabited spot on earth—is deciphered, it may shed light on the intriguing question of whether the Easter Islanders invented Rongorongo unaided, brought the idea of writing from Polynesia in their canoes, or borrowed it from Europeans who first visited Easter Island in the 18th century. If Rongorongo could be proved to have been invented unaided on Easter Island, this would at last guarantee that writing must have had multiple origins, rather than radiating from a single source.

3 Decipherment

In ordinary conversation, to decipher someone’s ‘indecipherable’ handwriting means to make sense of the meaning; it does not imply that one can read every single word. In its more technical sense, as applied to ancient scripts, ‘deciphered’ means different things to

different scholars. At one extreme, everyone agrees that the Egyptian hieroglyphs have been deciphered—because every trained Egyptologist would make the same sense of virtually every word of a given hieroglyphic inscription (though their individual translations would still differ, as do all independent translations of the same work from one language into another). At the other extreme, (almost) every scholar agrees that the script of the Indus Valley civilization 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 Central America, for example, most scholars agree 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 absolute distinction exists by which a script can be judged to be deciphered or 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 Knorozov 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 Valley script from Pakistan/India, Linear A from Crete, the Meroitic script from Sudan, the Proto-Elamite script from Iran/Iraq, Rongorongo from Easter Island, and the Olmec, Zapotec, and Isthmian scripts from Mexico. They 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 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 Etruscan language is not related to Indo-European or other languages; while the Indus Valley script is an example of the last category, since the script bears

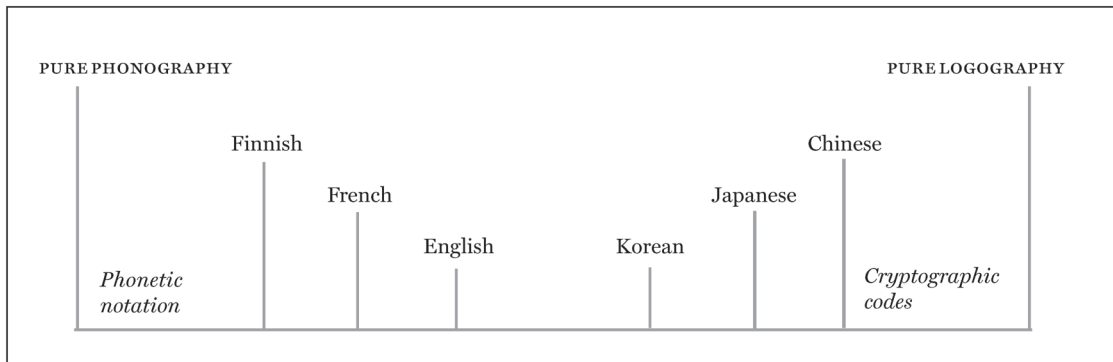


Fig. 2 A schematic diagram of phonography and logography in writing systems.

no resemblance to any other script and the language of the civilization does not appear to have survived (unless, as some scholars speculate, it is related to the Dravidian languages of south India).

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:

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. (Ventris, 200)

4 Classification of writing systems

Europeans and Americans of ordinary *literacy must recognize and write around 52 alphabetic signs (26 capital letters and their lower-case equivalents), and sundry other signs, such as numerals, punctuation marks, and ‘whole-word’ semantic signs, for example +, =, &, %, £, \$, which are generally called logograms or *analphabetics. Japanese readers, by contrast, are supposed to know and be able to write some 2,000 signs, and, if they are highly educated, must recognize 5,000 signs or more. The two situations, in Europe/America and in Japan, appear to be poles apart. In fact, however, the different writing systems resemble each other more than at 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 (i.e. phonetic signs); and all writing systems mix such phonetic symbols with logographic symbols (i.e. 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 Fig. 2.

There is thus no such thing as a ‘pure’ writing system, that is, a ‘full’ writing system capable of expressing meaning entirely through alphabetic letters or syllabic signs or logograms—because all ‘full’ writing systems are a mixture of phonetic and semantic signs. How best to classify writing systems is therefore a controversial 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, no 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 Fig. 3 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 broken lines indicate possible influences of one system upon another, for example Chinese characters on the Japanese syllabic ‘kana.’) Thus, the Phoenician script is labelled a ‘consonantal alphabet’, with the emphasis

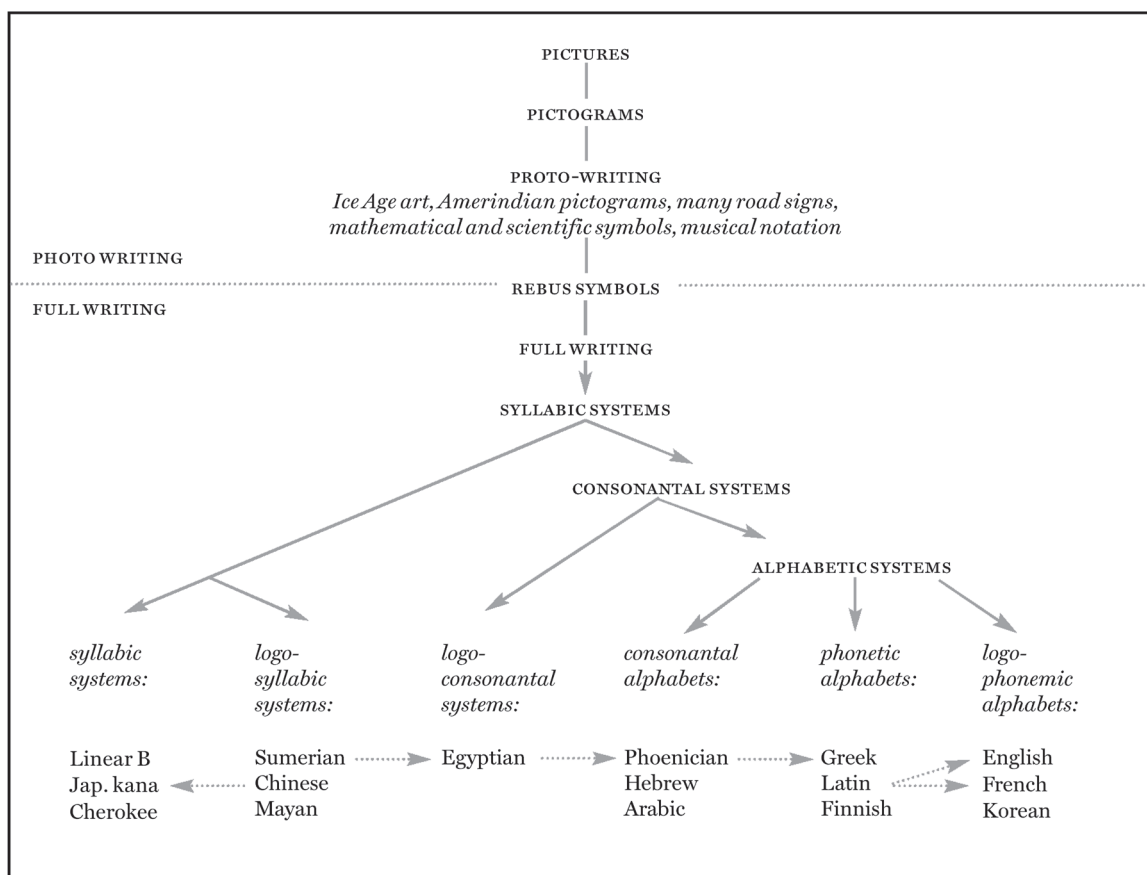


Fig. 3 The classification of writing systems.

on its consonants and without significant *logo-graphy, in contrast to the ‘logo-consonantal’ system of Egyptian hieroglyphs, where logography dominates but there is also a phonetic element based on the consonants—24 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*.

5 The origin of the alphabet

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 the first two of the Greek letters, alpha and beta—but we have no clear idea of how and when

the alphabet appeared in Greece; how the Greeks thought of adding letters standing for the vowels as well as the consonants; and how, even more fundamentally, the idea of an alphabet occurred to the pre-Greek societies at the eastern end of the Mediterranean during the 2nd millennium BC. The first well-attested alphabets belong to ancient Ugarit, today’s Ras Shamra on the coast of Syria, where a 30-sign cuneiform alphabet was used in the 14th century BC; and to the Phoenicians in Canaan in the late 2nd millennium BC, who used 22 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 it 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 note 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 8th 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 cuneiform and 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 20th 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 barbelled mouth wide open; 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 snake. In this somewhat far-fetched way, a whole alphabet is created by Taffimai.

To quote an earlier poet, William Blake wrote 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 civilization, 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 18th Dynasty; today, its date is thought to be c.1500 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.

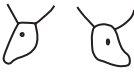

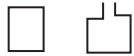





Proto-Sinaitic signs	Egyptian sign	Semitic name
		'aleph (ox)
		beth (house)
		gimel (throwstick)
		daleth (door)

Fig. 4 The proto-Sinaitic theory of the origin of the alphabet.

Petrie guessed that the unknown script was probably an alphabet, because it comprised fewer than 30 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. Ten years later another distinguished Egyptologist, Alan Gardiner, studied the 'proto-Sinaitic' signs and noted resemblances between 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) (see Fig. 4). 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 2nd 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 English transcription with the vowels spelt out. (Hebrew and other Semitic scripts do not directly indicate vowels; readers guess them from their knowledge of the language, as explained in 'The family of alphabets' below.) Gardiner's reading made sense: Baalat means 'the Lady' and is a recognized Semitic name for the goddess Hathor in the Sinai region. Accordingly, 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 the 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 17th and 16th centuries BC—a little earlier than the proto-Sinaitic inscriptions—suggest that the people then living in the land of Canaan were the inventors of the alphabet, which would be reasonable. They were cosmopolitan traders at the crossroads of the Egyptian, Hittite, Babylonian, and 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 Coleman Darnell and his wife, Deborah, 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 the inscriptions 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 appears that the alphabetic idea was after all inspired by the Egyptian hieroglyphs and invented in Egypt, rather than in Palestine. This latest evidence is by no means conclusive, however, and the search for more alphabetic inscriptions in Egypt continues.

6 The family of alphabets

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, eastwards (via Aramaic, in all probability) to India and thence to Southeast Asia. By the 20th century, as a consequence of colonial empires, most of the world's peoples except the Chinese and Japanese were writing in alphabetic scripts. These employ on average between 20 and 40 basic signs; the smallest, Rotokas, used in Papua New Guinea, has 12 letters, the largest, Khmer, used in Cambodia, has 74 letters.

The western alphabetic link between the Greeks and the Romans was Etruscan—as is clear from the early Greek letter-forms inscribed on Etruscan objects dating from the 7th century BC, which were then borrowed for early Latin inscriptions. This early acquisition from Greek accounts for the differences between some modern European letter forms and the modern Greek letters, which are based on a later Greek alphabet known as Ionian that became standard in Greece in 403–2 BC. The eastern alphabetic link is indicated by the fact that in Mesopotamia, by the 5th century BC, many cuneiform documents carried a notation of their substance in the 22 letters of the Aramaic alphabet, inked onto the tablet with a *writing brush. From the time of Alexander the Great 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 24 Greek letters plus 6 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, the sacred script of Islam, and of modern ('square') Hebrew script, as used in Israel (*see* 8). (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 6th 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 1st millennium AD and replaced the Aramaic script (*see* 38).

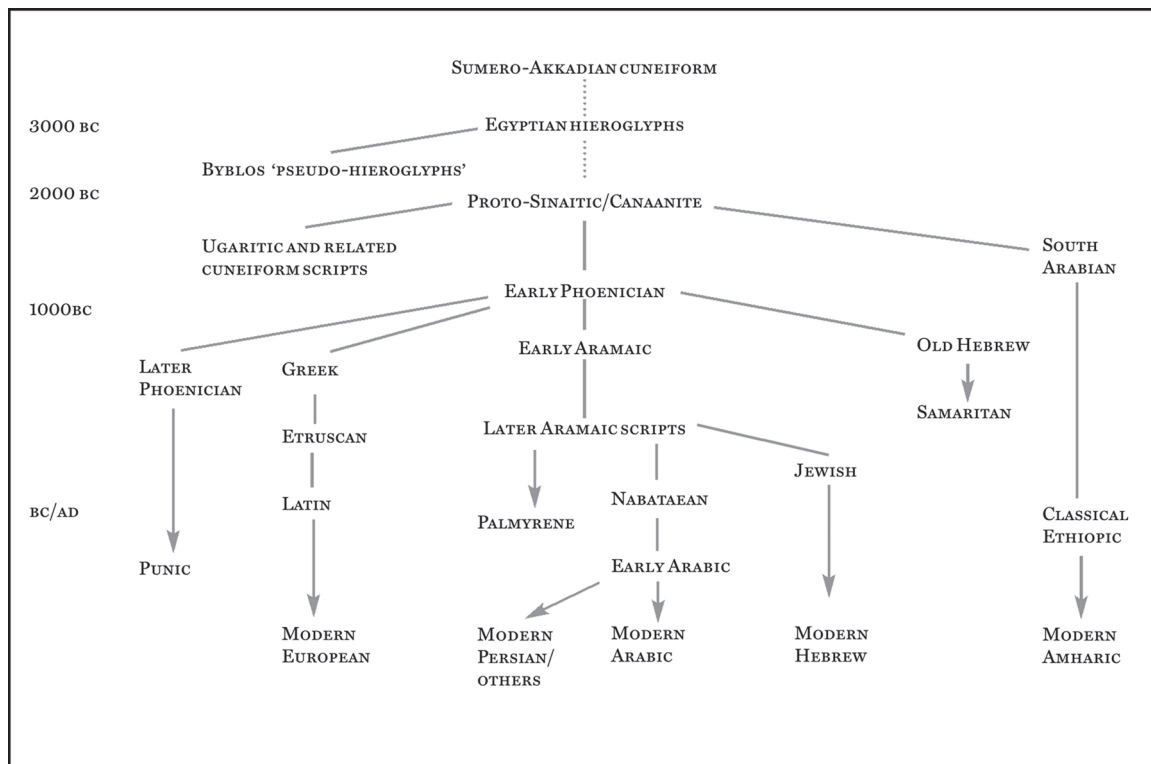


Fig. 5 The evolution of the main European alphabetic scripts.

Both the Arabic and Hebrew scripts write only the consonants, not the vowels, in their respective Semitic languages, using 28 letters in Arabic and 22 in Hebrew. Thus, the three letters in modern Hebrew that stand for *ktb* or *ktv* can take the meanings: ‘katav’ (I wrote), ‘kotav’ (I write, a writer), ‘katoov’ (written), ‘kitav’ (letters, script), and even ‘kitovet’ (address), ‘kitoobah’ (marriage certificate), or ‘katban’ (scribe). In practice, however, various additional signs have been developed to aid the reader in pronouncing the Hebrew and Arabic vowels. The commonest of these is a system of dots placed above and below a letter, referred to as ‘vowel points’ or *matres lectionis* (Latin for ‘mothers of reading’).

The time chart in Fig. 5 shows the main lines of emergence of the modern alphabetic scripts from the Proto-Sinaitic/Canaanite scripts of the 2nd 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 Valley writing, are Kharosthi and Brahmi, used in the rock edicts of the emperor Ashoka in the 3rd 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 9th century AD (*see 35*), the Korean Hangeul alphabet invented by King Sejong in the 15th century (*see 41*), or the so-called Cherokee alphabet (really a syllabary), invented by a Native American, Sequoya, in the US around 1821. Also excluded are runes, since the origin of the runic alphabet, in the 2nd century AD or earlier, though clearly influenced by the Roman alphabet, is not known (*see 26*).

7 Chinese and Japanese writing

If great claims are made for the power of the alphabet, even greater ones attach to Chinese writing. The evident complexity of the system encourages the notion that it operates quite 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 of which are clearly recognizable in the Shang ‘oracle bone’ inscriptions of about 1200 BC, further supports this view, abetted by nationalist pride in the system’s exceptional longevity, which exceeds that of 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. Thus, Chinese speakers of Mandarin and Cantonese who do not know each other's 'dialect' and cannot talk to each other are said to be able to communicate in writing through Chinese characters. Some scholars (both Chinese and westerners) have even claimed that the same scenario applies to Chinese, Japanese, Korean, and Vietnamese speakers, whose languages differ greatly but who have shared the use of Chinese characters in their scripts. This, of course, would be inconceivable for equivalent English, French, German, and Italian speakers, who also share one (Roman) script. The implication is that the Chinese writing system works in a completely different way from scripts with a large phonographic component: writing systems are therefore said to come in two fundamental varieties, one ideographic (e.g. Chinese), the other phonographic (e.g. alphabets).

Each of these claims is false. No 'full' writing system, as already explained, can be divorced from the sounds of a spoken language. Written Chinese is based on Mandarin, also known as Putonghua ('common speech'), a language spoken by over 70 per cent of Chinese—hence the myth of the universal intelligibility of Chinese characters. A speaker of Cantonese wishing to communicate in writing with a speaker of Mandarin must learn Mandarin as well as the characters. The characters have both a phonetic and a semantic component, which readers must learn to recognize. The former gives a clue to the pronunciation of the character, the latter to its meaning. Generally, the phonetic component proves a better guide to pronunciation than the semantic does to meaning—contrary to predictions based on the ideographic notion of Chinese.

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 remarked earlier. In borrowing the thousands of Chinese signs during the early centuries of the 1st millennium AD, the Japanese altered the original Chinese pronunciation in particular ways corresponding to the sounds of the Japanese language. (Indeed 'kanji', the Japanese word for Chinese character, is an approximation of the Mandarin term 'hanzi'.) Eventually, they invented two fairly small sets of supplementary phonetic signs, the

syllabic 'kana' (46 'hiragana' and 46 '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 words. 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. 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.

8 Electronic writing

As the 6th millennium of recorded civilization opened, 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 world languages.

Yet, although today's technologies of writing are immeasurably different from those of the 3rd millennium BC, its linguistic principles have not changed very much since the composition of the Sumerian epic of Gilgamesh (*see* 19). However, the seismic impact of electronic writing and archiving on information distribution and research has polarized the debate about the correct definition of 'writing'. Must 'full' writing depend on a spoken language, as maintained in this essay? Or can it float free of its phonetic anchor?

Although 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 *digitization 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 Republic of Letters and especially of students, that learned men should reach agreement on signs' (Mead and Modley, 58). 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

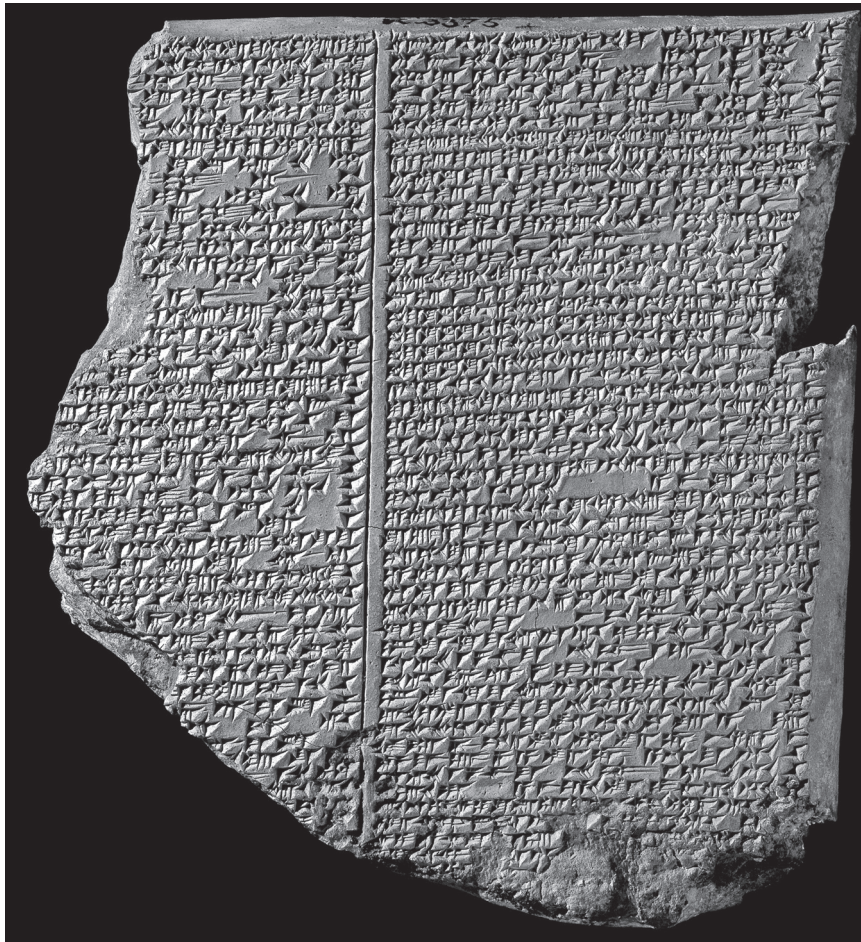


Fig. 6 A clay tablet in cuneiform script from Nineveh, in northern Iraq, written in the 7th century BC, showing part of the epic of Gilgamesh. Associated with *Ashurbanipal, king of Assyria, the *tablets were identified in 1872 by George Smith in the British Museum's collections.

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 power of digitization, 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.

BIBLIOGRAPHY

[British Museum,] *Reading the Past* (1990)
M. Coe, *Breaking the Maya Code*, 2e (1999)

P. Daniels and W. Bright, eds., *The World's Writing Systems* (1996)
J. Darnell, ed., *Two Early Alphabetic Inscriptions from the Wadi El-Hol* (2006)
J. DeFrancis, *The Chinese Language* (1984)
— *Visible Speech* (1989)
A. Gardiner, 'The Egyptian Origin of the Semitic Alphabet', *Journal of Egyptian Archaeology*, 3 (1916), 1-6
R. Harris, *The Origin of Writing* (1986)
S. Houston, ed., *The First Writing* (2004)
M. Mead and R. Modley, 'Communication Among All People, Everywhere', *Natural History*, 77.7 (1968), 56-63
M. Pope, *The Story of Decipherment*, 2e (1999)
A. Robinson, *The Story of Writing*, 2e (2007)
— *Lost Languages*, 2e (2009)
— *Writing and Script* (2009)
F. de Saussure, *Course in General Linguistics* (1983)
J. M. Unger, *Ideogram* (2004)
M. Ventris, 'A Note on Decipherment Methods', *Antiquity*, 27 (1953), 200-206