



# **A Primer of Writing Systems**

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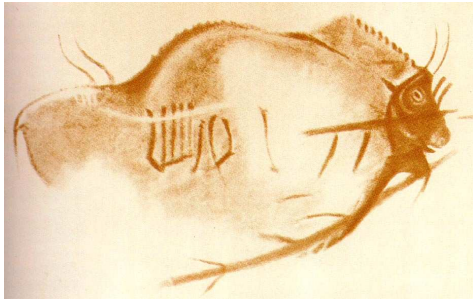
This book is dedicated to  
my son Gianluca  
and to all his colleagues, teachers and staff from  
SS. Philip and James'  
Church of England Aided Primary School  
Oxford



## 1. The origin of writing

Man started to exist sometime around one and a half million years ago. However, man started to make pre-historic paintings in cave walls only 30,000 years ago. These paintings are found all over the world. Writing did not originate from them, but they helped man to represent the world around them out of their mind. Those were the first intentional documented expressions of man's thinking and interpreting the world.

Writing started with the beginning of *Civilisation*, when the first towns were formed, about 5,000 years ago. It began in ancient Babylon in a country called Sumer with a non-Semitic people. The Sumerian started writing down numbers and isolated words naming animals, plants, personal belongings and goods in general for trade. They wrote printing figures on clay tablets with a stick prepared for the job.



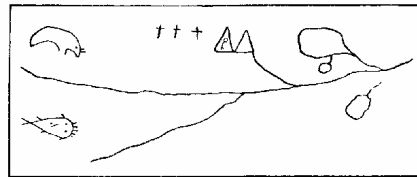
*Drawing  
or writing?*

The difference between a drawing and a writing relays in the fact that a drawing is a graphic representation of objects and a writing is the representation of language words. The fact that we can name or label drawings is the first step towards the invention of writing. In the figure, a prehistoric drawing of a bison from a Marsoulas cave in south of France.



The idea of writing started with man drawing in caves. Drawings can motivate speaking about what they represent. On the other hand, a speech can be represented by drawings, either of pictorial or conventional forms. It is easy to tell a story looking at these prehistoric drawings from the caves in S. Raimundo Nonato, Piauí, Brazil.

These integrated drawings are a 'letter' from an Ojibwa girl (bear) inviting her boyfriend (seal) to visit her. He lives close to the three lakes where there are three Christians buried. The hand out of the tent is the invitation sign.



Ojibwa Love Letter (from Mallery, 1893, p. 363). To tell a story with drawings like the cartoons is an expression of writing. This can be seen as the bridge between pure drawing and real word writing.

## 2. Drawing or writing?

The distinction between *drawing* and a graphic form that has the status of writing lays on the fact that a drawing refers to objects and facts in the material world or abstract sentiments, whereas writing refers to words of a language, or

to parts of words like syllables, consonants and vowels or even to ideas directly linked to the meanings words have.



Along the mankind's history, people had been using figurative forms to represent words. *Pictograms* are figurative forms that evoke an idea and, at the same time, refer to words or to word sounds. The ancient Egyptian writing employed a special kind of graphic figurative forms, called hieroglyphs, to represent the consonants of their language. The Sumerian made use of pictograms that became conventional graphic shapes to embody syllables and a few special words. We use pictograms to indicate special words, like the icons that identify male and female toilets. The icons give important information in public places or about important multilingual events. Modern computers make use of many icons to get more friendly software. Mobile telephones and other modern devices for easy communication in society, like Internet, caused the appearance of a huge amount of icons. In these cases, one can see the power these icons have to convey a direct, reliable and right interactive communication between the users of the system.

### 3. Types of writing

Because the basic linguistic unit is formed up from two inseparable parts: the sounds and the meaning, writing must choose to represent one or the other, the sounds by phonographic systems or the meaning by ideographic systems. But the reader must reach the part that is not revealed directly by writing to grasp the correct word and understand what is written.

The *ideographic writing* is directly linked to a linguistic idea or word meaning. The reader recognises the meaning and automatically the sounds the word has come to his mind. The words are compound of meaning and sounds and they are always the key to decipherment. Words are a concept that the reader knows because he is a native speaker of the language. The pictograms are *ideographic writings*; for instance, the pictogram 𠤎 depicts a skull with crossed bones, but in our culture it stands for the word *danger*. Ideographic writing can also be read in different languages like the Chinese ideograms used by the Japanese and Korean languages.

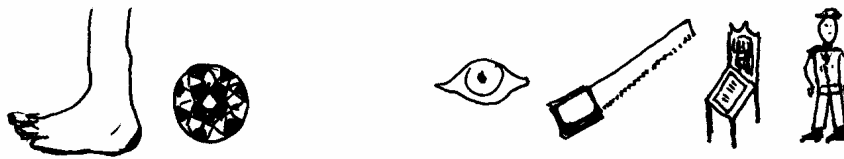
The numerals are ideographic writing but they have conventional forms not pictorial. An Englishman reads 3 as 'three' but a Frenchman will read the same numeral as 'trois'. The scientific formulae, graphs, maps are all ideographic writings. It would be very cumbersome to make mathematical calculations using traditional words with letters instead of digits to represent numbers.

*Phonographic writing* is directly linked to linguistic sounds from speech. The reader recognises the sounds and build up words with them, grasping the words meaning thereafter. A phonographic writing may represent a single phonetic element like the consonants and the vowels, or larger units like the syllables or parts of words. In the Korean Han'gul system, the letters are made of parts which describe articulation mechanisms used to classify the phonetic elements. Phonographic writing is attached to one language in particular and therefore cannot be read in a different language. However one system can be adapted to write different languages.

*Rebus* is a type of writing that have a figurative representation not of a meaning but of part of a word sound sequence. This is done because the reader attributes a name to the object depicted and keeps the sounds of this word to form part of



another word. For instance, with the drawings of a bee and a leaf, it is possible to recognise the word 'belief'; the word 'football' can be represented by the drawings of a foot plus a ball. Rebus is found as part of words in *enigmatic letters* and in some graffiti presentations.



Examples of rebus: on the left *football*; on the right *I saw the chairman*.

#### 4. Inventors of writing

The ancient people attributed the invention of writing to gods. In Egypt, writing was the invention of Thot (the baboon god). In Sumer, the goddess Nisaba invented writing and in Babylon it was done by the god Nabu and by Brahma, in India. The *runes* were the invention of the god Odin. Even in the Bible, writing has a divine origin. The ancient Greek attributed the invention of their writing system to the legendary founder of Thebes, called Cadmus. Other ancient peoples attributed the invention of writing to wise men like Tsang Chieh e Chü-sung in China and to King Seijong in Korea. The invention of the Mongol writing was attributed to the leader Kublai Kahn. The Korean brothers Ajiki and Wani created the Japanese writing, based on the Chinese. The brothers St Cyril (Constantine) and St. Methodius are reputed to be the inventors of the Cyrillic alphabet used to write the Russian languages. The missionaries and land explorers adapted and invented alphabets to write indigenous languages in modern times. In 1840, Beitha Kukju invented an

alphabet to write Albanian. The Cherokee writing system were created by the Cherokee Sikwayi (Sequoyah 1770-1843) in 1820 and modified several times by him.

*The invention of writing systems in Modern times.*

<b>R</b>	<b>D</b>	<b>W</b>	<b>lr</b>	<b>G</b>	<b>ᄁ</b>	<b>ᄂ</b>	<b>P</b>	<b>ᄃ</b>	<b>ᄄ</b>	<b>ᄅ</b>	<b>ᄆ</b>	<b>P</b>	<b>ᄇ</b>	<b>M</b>	<b>ᄈ</b>	<b>ᄉ</b>	
e	a	la	tsi	nah	wu	we	li	ne	mo	gi	yi	si	tlv	o	lu	le	ha
<b>ᄊ</b>	<b>ᄋ</b>	<b>W</b>	<b>B</b>	<b>ᄌ</b>	<b>ᄍ</b>	<b>ᄎ</b>	<b>ᄏ</b>	<b>A</b>	<b>J</b>	<b>ᄐ</b>	<b>ᄑ</b>	<b>ᄒ</b>	<b>C</b>	<b>ᄓ</b>	<b>ᄔ</b>	<b>H</b>	
wo	tlo	ta	yv	lv	hi	s	yo	hu	go	tsu	mu	se	so	tli	qui	que	sa

Part of an alphabet invented by Sequoyah who was a native speaker of Cherokee language. He invented the system when he was been alphabetised. His English name was George Guess (or Gist or Guyst). This writing system was used for a long time.

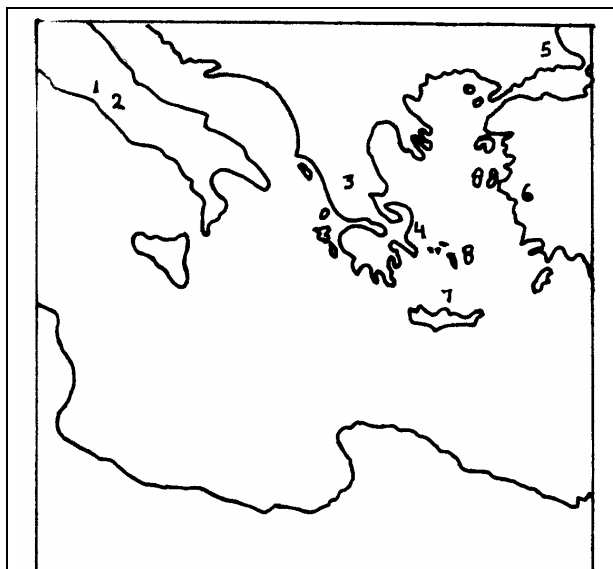
	With A	ᄁ	E	I	O	U		With A	ᄁ	E	I	O	U
A ᄁ &c.	ᄁ	ᄂ	ᄃ	ᄄ	ᄅ	ᄆ	Alone	Y	ᄇ	ᄈ	ᄉ	ᄊ	ᄋ
H	<	>	ᄌ	ᄍ	ᄎ	ᄏ	"	Q	ᄐ	ᄑ	ᄒ	ᄓ	ᄔ
ᄕ	A	ᄌ	ᄍ	ᄎ	A	ᄏ	"	Q	ᄐ	ᄑ	ᄒ	ᄓ	ᄔ
R	A	ᄌ	ᄍ	ᄎ	A	ᄏ	"	L	C	ᄑ	ᄒ	ᄓ	ᄔ
W	<	>	ᄌ	ᄍ	ᄎ	ᄏ		Tl	C	ᄑ	ᄒ	ᄓ	ᄔ
Hw	A	ᄌ	ᄍ	ᄎ	A	ᄏ			C	ᄑ	ᄒ	ᄓ	ᄔ

James Evans (1801-1846) invented several systems to write Indian languages in Canada. Like the above for the Carrier language, they are syllabic systems. It is noticeable the effort to have geometric forms with variations to represent graphically the characters. These systems had a very short life.

1. *Fraser script:* NY.. N.-. NU MI: 1V: SI.. KW AW FI DU FI
2. *Transliteration:* nyā ná, nu mì thàè sī kwa ŋwa tsi du tsi
1. ɾU KO\_ LO\_-YI NY NU J GU YE T VU.. NY, Gɿ\_ BV\_
2. fu kuḅ lo, ji nya nu ja gu ye ta hū nyǎ guḅ bhaḅ

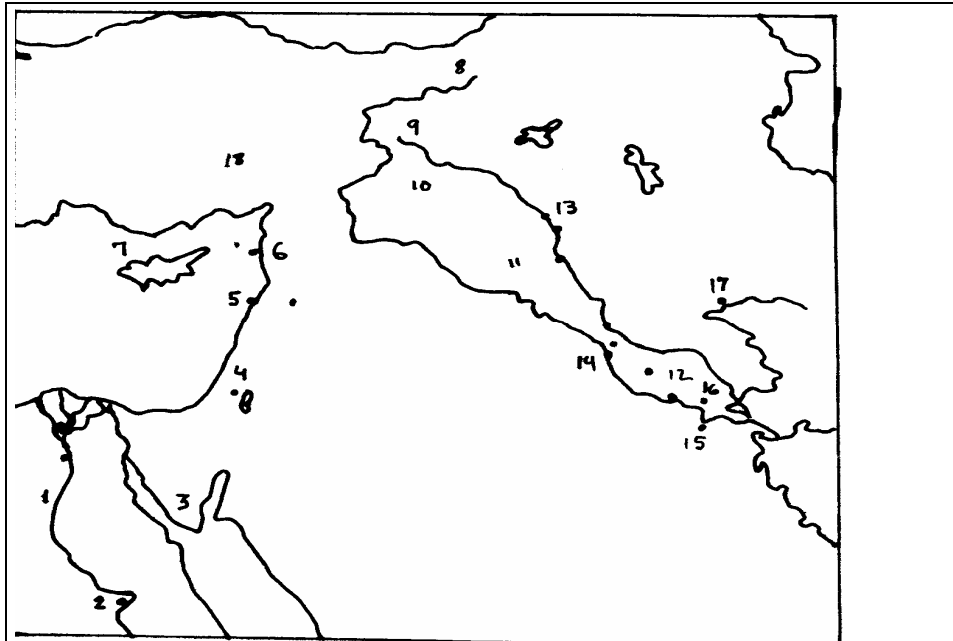
Some Europeans tried to change the Chinese writing, that they thought was too awkward, and replacing it by a more European system, like the one above, invented by J.O. Fraser to write the Lisu language in China. The system is based on the Roman capital letters and the tones were marked by dots and other prosodic marks. Many efforts in this direction were taken to translate the Bible. The example above is from the Gospel (Marc, I, 2-3).

Next, two simplified maps are presented to localise some important names and places whose references appear in the most important part of this book, related to historical information.



In this map we can see Italy, Greece, North of Africa and Turkey. The numbers stand for:

- 1 – Rome
- 2 – Etruscan land
- 3 – Greece
- 4 – Athens
- 5 – Constantinople
- 6 – Miletus
- 7 – Crete Island
- 8 – Thera Island



This map shows Turkey, Middle East, Egypt, Sinai Peninsula, Arabia and Mesopotamia. The numbers stand for:

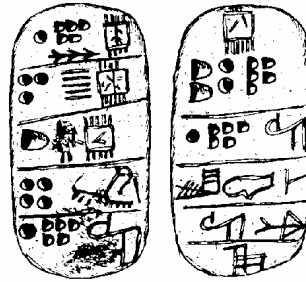
- |                       |                         |
|-----------------------|-------------------------|
| 1 - Nile River        | 10 - Assyria            |
| 2 - Karnak            | 11 - Babylon            |
| 3 - Serabit al-Khadim | 12 - Sumer              |
| 4 - Jericho           | 13 - Nineveh            |
| 5 - Biblos            | 14 - Kish               |
| 6 - Ugarit            | 15 - Ur                 |
| 7 - Cyprus Island     | 16 - Uruk               |
| 8 - Euphrates River   | 17 - Behistum (Bisitun) |
| 9 - Tigris River      | 18 - Hittites           |

## **5. Cuneiform writing**

The Sumerian arrived to Mesopotamia in the IV millennium BC. They built cities, organised people's life in society and personal habits, created a nation and started the history of our civilisation. The country was divided into two parts: Sumer in the South and Acad in the North. They also invented writing in order to keep documents about the social life affairs, like trading. The oldest written texts came from the cities of Uruk and Jemdet Nasr, produced around 3300 BC. There also came to us some accounting documents on clay tablets with numbers and isolated words, certainly produced before the texts. Their writing system soon spread over to other peoples around them, reaching the boundaries of where the modern Afghanistan is now. The Elam nation that lived close to the Sumerian but had a different origin and language left written documents in a system similar to the Sumerian, written in a language that it is not fully well understood until today.

Writing started pictographic, depicting words by simplified drawings like the Uruk's documents. In a very short time, the writing units started to represent sounds instead of word meanings, because the language was typically monosyllabic, that is, almost all words had only one syllable, and they could have more facilities with the phonographic writing rather than with the ideographic, mainly to write abstract words and proper names, principally foreign names. Writing then became a phonographic syllabic system.

This is a tablet from Uruk, c. 2850 BC. In the front face it is written: 15 barley sacs, 30 wheat sacs, 60 sacs of ??, 40 sacs of ??, 15 birds. In the back face it is written: 145 sacs of different goods, 15 birds and a signature. The numbers occupy the left side and the words the right.

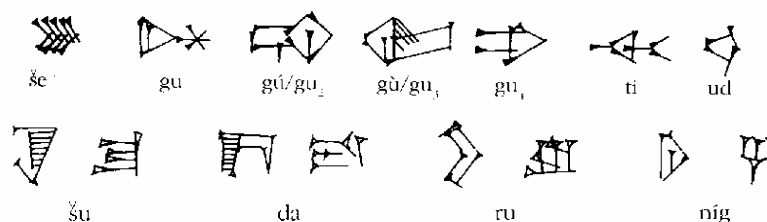


With the Chinese and the Egyptian writing, the Sumerian writing is an original branch from which all other main world writing systems derived. It started representing accounting reports with numbers and pictograms for individual words as shown in the tablet above.

In Sumerian, the ideogram of an open mouth showing the teeth stood for the monosyllabic word *ka*. In addition to what the figures showed, the ideogram was also used to express the idea of ‘shout’ that was pronounced *gu* and to mean ‘teeth’ that was pronounced ‘*zu*’. The same ideogram was used for the meaning of two other words: *du* with the meaning of ‘speak’ and *inim* with the meaning of ‘word’. So, an unique character could represent three syllables *ka*, *gu* and *zu* phonographically and two words directly by its ideographic use. The word for ‘life’ was pronounced *ti*, but the word for ‘arrow’ had the same pronunciation. The system decided to use the figure of an arrow to write the word *ti* with an ambiguous meaning: ‘arrow’ or ‘life’.

In addition to the new phonographic function put into operation very early, the figurative shape of the old Sumerian ideograms started to change to a more conventional form. Because of the tablets printing procedure, pressing the ending tip of a stick into the wet clay, the lines assumed a wedge shaped form

that caused the pictorial looking of the characters to lose their figurative aspect. Instead of straight lines, the action upon the tablets resulted in wedged marks. Thereby writing started to look an assembled set of wedged marks. In modern times those characters became known as cuneiform writing.

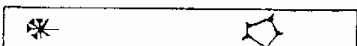
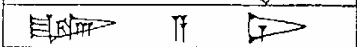
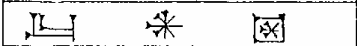
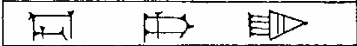
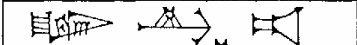
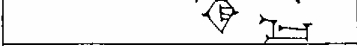
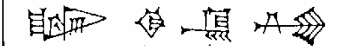
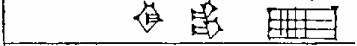
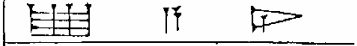
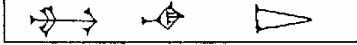


The Sumerian ideograms started to represent the sounds from the words they referred to, leaving aside the original meaning. In this way an ideographic writing became phonographic.

The new cuneiform design of the ideograms and characters were simplified later, and they even rotated from its original position. With the conventional graphic shape for the ideograms, it was necessary to fix the location of them in a row of characters or in a line, instead of drawing them inside a box as it was the use in the old times. Moreover, the traditional way to represent words in writing settled an orthographic system. Although writing was basically syllabic with conventional characters, different possibilities to write a word were obvious but inconvenient. Therefore, to avoid ambiguities and free variation, the use of writing started to introduce spelling rules, developing an orthographic system to control how the words should be written.

With writing, teaching and education in schools started to be organized in places where the children went to learn how to read and how to write. We

know from archaeological researches that almost all the houses in Ur and Isin (c. 2000-1500 BC) had scholar texts of different kinds, suggesting that the children received good education at school. The students were trained to do first the vertical, the horizontal and the oblique wedged lines. Thereafter they started to assemble the lines to build words. Proper names were preferred. Finally, they should copy important texts and to write their own texts, like modern assignments. One of these texts tells us what a boy had done along a certain day of his life.

	(Dinghir) Babbar	To God Sun
	lugal-a-ni	his king
	Ur (Dinghir)-nammu	Ur-Nammu
	nitah-kalag-ga	powerful man
	lugal Urim	almighty
	(=Schesh ab-ki)-ma	King of Ur
	Lugal Ki-en-ghi	King of Sumer
	ki-uri-ghe	and of Acad
	é-a-ni	his temple
	mu-na-du	built

Sample from Hamurabi's estela with Babylon cuneiform writing. At this time, the use of writing created a sophisticated calligraphy for the characters (from Mella, 1985, p. 78)

In Mesopotamia, many rich people had their own library. The temples and palaces held important libraries as Assurbanipal's collection in Nineveh. Mari and Ebla libraries were of particular significance. The works were done by



specialist scribes who started the custom to put the work title, the place of its origin and the name of the copyist (the colophon) on the documents.

In modern times, the old Persian cuneiform writing was the first of the ancient writings to be deciphered and fully understood. This was made possible because of a trilingual text (Persian, Elamite and Babylonian) inscribed very high in a cliff rock in a place known as Behistun to honour the King Darius (521-486 BC). At that time, the writing system had three characters for vowels (*i, a, u*) and thirty-six to represent different syllable patterns. An angled vertical wedged line (looking like the design of one of our 'parentheses' mark) was used to separate the words in the text. In addition, the writing were still using five real ideograms. Cuneiform were used for the last time during the kingdom of King Ataxerxes III (358-338 BC).

There are a huge amount of documents written in cuneiform system. The British Museum has around 130,000. In Paris, the Louvre museum has a huge collection as well. More than 80,000 can be seen in Istanbul; 20,000 are in Chicago and 30,000 in Philadelphia. The museums in Baghdad and in Syria have also big collections of cuneiform writings. Falsifications were done to duplicate ancient cuneiform documents or to produce fake documents for naive tourists and collectors, when archaeological findings became expensive objects.

## **6. Egyptian writing**

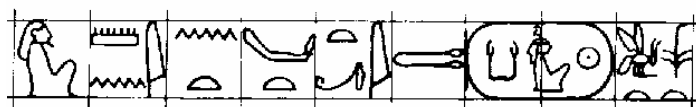
The oldest documents started with the King Scorpion Narmer, the first Pharaoh, around 3000 BC. Egyptian writing did never lose the figurative distinctive feature of their hieroglyphs, even when they started to use a more conventional and simplified form for them. In addition to the consonant letters,

the system gathered about 600 ideograms and grammatical determinatives to make reading easier and to avoid ambiguity, in a language that were written for almost three millenniums.

The Egyptian writing presents a basic and small set of characters that stand for isolated consonants or clusters. Apparently, the system did not started with any kind of a pure ideographic writing, as it happened to the two other big writing systems: Sumerian and Chinese. The Egyptian was a Semitic language and these type of language, like Hebrew and Arabic, have a tradition to write down only the consonants for the words, because the meaning of a great deal of words is typically defined by the sequence of three consonants. For instance, the corresponding Arabic letters KTB are associated to words meaning 'writing' (to write, books, etc.). The correct phonetic insertion of different vowels specifies the exact meaning. The discourse context helps the reader to find out the correct vowels, because they know how to utter the words.

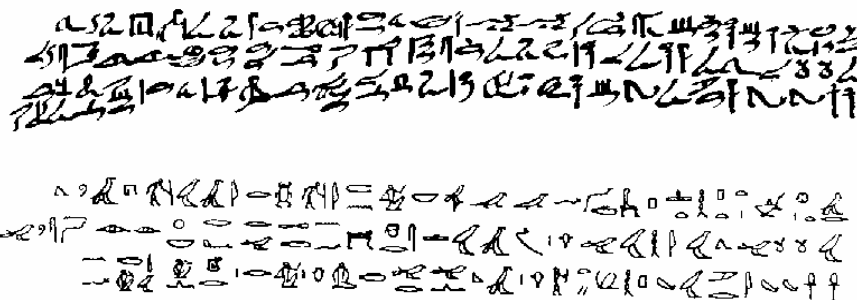


In ancient Egypt, the invention of writing was attributed to the god Thot.



The Egyptian writing had a layout framed inside squares

Along its very long history, Egyptian writing kept the same structural framework and stayed the same with little modifications in the basic system rules. Obviously, the language changed and new words came into the language and some old ones died. The system were used in a more simplified way or not, depending upon the scribes and the tradition of their times. They employed the papyrus as an usual writing support for ordinary writing along with wooden boards and ceramics. The figurative aspect of the traditional hieroglyphs were rather cumbersome for a fast handwriting that inevitably forces the use of cursive calligraphy. So, since a long time ago in their history, besides the hieroglyphs, they used a writing with simplified graphic shapes, called *Hieratic writing*, whose evolution towards a more conventional and yet more simplified forms created the *Demotic writing*, that came into use in the last centuries of the Egyptian writing history.

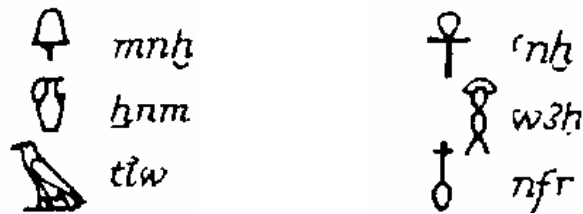


Hieratic writing from XII Dynasty with correspondent hieroglyphic characters by Alan Gardiner.

In spite of the labels - *hieratic* means related to 'priests'; *hieroglyph* means 'sacred writing' – it must be said that the Egyptian writing was as popular as any other, widespread into the entire kingdom and used by all persons

interested in writing, and not only by the professional scribes and by the ‘priests’. Of course, technical reports, literary texts and sacred books were works of professional writers. The ancient Egyptian used to write everywhere, in their personal belongings, in the common objects used inside the houses and, of course, in walls, columns, ceiling, coffins, etc. When we consider that there is no use to write if there is nobody to read, the use of writing the Egyptian society is a proof that reading was something that belonged to everybody, and it was present everywhere including ordinary people’s houses. If people could not read, it would be nonsense to write public notes asking the people to pay tribute to the Pharaoh or to a god. There are good evidences that show that even the children learned how to write and read, because a few letters written by them to their parents reached us.

A huge amount of documents dealing with all kinds of subject came to us from ancient Egyptians. Most of them have not yet been translated into our modern languages. They lay in special places in museums waiting for someone interested in studying them.

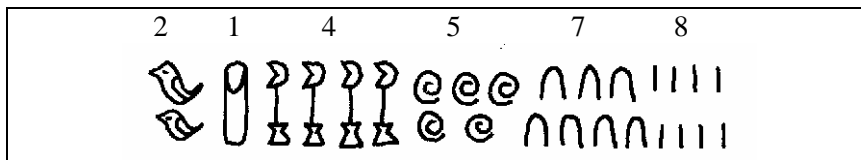


Some hieroglyphs that represented a three consonant cluster.

Egyptian hieroglyphs were representations of single consonants, but some characters were the representation of a consonant cluster. Because the Egyptian language was a Semitic language, it has been possible to reconstruct part of the vowels that were not written. When this was not possible, the linguists decided to use the vowel 'e' to fill the 'possible' gaps. The vowel 'e' is called a shwa vowel and it is considered the most 'neutral' vowel.

Hieroglyphs	Sounds	Hieroglyphs	Sounds
	h		h
	ḥ		ḥ
	ḥj		ḥj
	ḥj		ḥj
	w		s
	w		ś
	b		š
	p		q
	f		k
	m		g
	m		t
	n		t
	n		d
	n		d

In ancient Egypt, the writing of numbers was decimal but not positional. The writing direction followed the same way we say the quantities. In the example below, it is written the number 214.578. The Egyptians had also a special notation for fractions that was done with symbols that formed the 'eye of Horus' when assembled together. The Egyptians were good mathematicians. To write one million they used the character of a seated man with the hands up.



## 7. Decipherment

The decipherment is carried out usually by skilled paleographers or decipherers who work out combinations of patterns, as if decipherment were a mathematical calculation or some sort of puzzle. Sometimes they have a kind of Rosetta Stone that helped the scholars to decipher the Egyptian hieroglyphs or the engravings from Behistun (Bisitun) cliff that was crucial in the decipherment of the cuneiform writing.

Some noticeable facts in the history of writing decipherment are mentioned next. Carsten Niebuhr presented a right interpretation of the cuneiform system in 1772. The Egyptian hieroglyphs were deciphered by Thomas Young (1773-1829) and by Jean-François Champollion (1790-1832). The Brahmi system of Ashokan India was presented for the first time by James Prinsep (1799-1840). Linear B, a variety of ancient Greek spoken in Crete Island, was deciphered by Michael Ventris (1922-1956). Mayan script has been studied by Ernst Förstemann (1822-1906), J. Eric Thompson (1897-1975), Yuri Knorosov and Floyd Lounsbury, among others. The Phaistos Disk from Crete and the Rongorongo script from the Ester Island was deciphered recently by Steven Roger Fischer (1997).

In different parts of the world there has been found documents written with unknown characters or with presumably known characters but representing an

unknown language. This is the case of some recent documents found in the Middle East. From time to time, new ancient documents are studied, deciphered and published in specialised magazines and books.

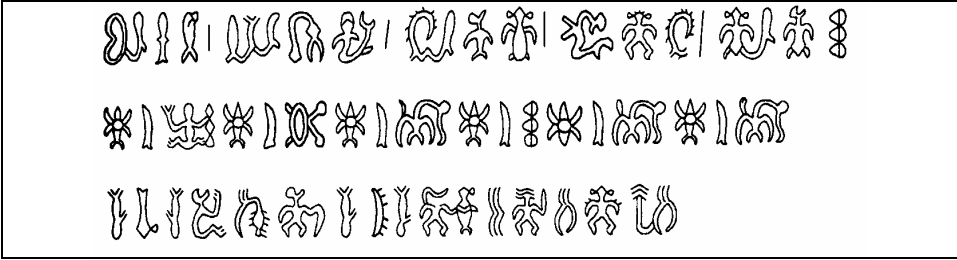


The Phaistos Disk remained one of the big challenges to decipherers until Fischer (1997) came to an acceptable interpretation of this document. He showed that the document was written in a Minoan language of the Mycenaean Greeks. It is a sort of ‘mobilisation proclamation announcing a military invasion of the country’.

Above the Phaistos Disk face B, c. 1600 BC – 16 cm diameter. (Heraklion Museum, Crete – from Fischer, 1997)

Recently, Steve R. Fischer (1997) also deciphered the *Rongorongo* writing from the Ester Island. The documents that reached us have been produced in modern times, around the XVIII – XIX centuries AD. They were written in the Old Rapanui language. The texts refer to the Rapanui’s conception of the procreation of everything, that is, how things came into existence.

Below, there are Samples of Rongorongo writing from Santiago Staff (top), Large Washington Tablet (middle) and Aruku Kurenga (bottom) (from Fischer, 1997, p. 211).



**8. Maya writing**

	ya      k'a wa	u      pi	y-ak'aw u-pi(s) he presents his cycle
	WINI hun      ki	pi      xo la	hun winik pixol one twenty hat

Mayan glyphs from Palenque – reading and translation by Martha J. Macri (from Daniels and Bright, 1996, p. 179).

In Mesoamerica there appeared several writing systems, but the most impressive was the Maya script. It took centuries for the scholars to decipher that script. Only recently the researchers came to a reasonable conclusion, but many aspects of the system have not yet been well understood. Mayan writing uses pictographic representations of objects, animals, etc. to indicate whole words, syllables or even individual sounds, like word endings. Different



characters are organised to look like sequences of squared pictures. Reading runs from left to right and from top to bottom, but inside the squares the order of the glyphs is not important. They usually wrote two rows at the same time, following the text. There are around 600 different writing forms. They had also a very clever system to write number that allowed them to be good mathematicians. Maya writing started around the V century AD and when the Spaniards invaded Yucatan, in Mexico, the Maya writing system was not any more known by the Aztecs, a people who took the places left by the Mayans. Aztecs scripts are completely different from Mayan.

## **9. Chinese Writing**

The Chinese writing is the oldest system in use today. It started before 2000 BC with a pictographic system, writing accounting and administrative reports and religious texts. China had been completely independent from other countries and only in the second half of the XX century it opened itself to the external world. As any language that last long, Chinese developed into different languages, like Mandarin, Cantonese, Hakka, Suchow, etc. However, because of the ideographic system, writing maintained with a few modifications for millenniums for all Chinese languages. The West tried to convince the Chinese to change its writing system, because they thought it was too awkward. But, in fact, it is a perfect system and it has a huge amount of culture in books that would be lost with another radically different writing system. Until the half of the XVIII century, there were more books written in Chinese than in all other systems together.

Similarly to Sumerian language, in Chinese language the words have one syllable, they are monolithical in the sense that it does not have endings with

grammatical functions. Using all consonants and vowels in just one syllable, the inventory of words is not so big. To improve the system they use the ‘tones’ to make different words. The tones are pitch variations: high, low, mid (level tones), rising, falling, (contour tones), etc. In addition, they have lots of compound words. Another problem attributed to Chinese writing was the fact that it had too many ambiguous words. This is a naive view of the Chinese system because word ambiguity is found in all writing systems and it is even more common in all oral languages. In this respect, a look at an English dictionary is sufficient to convince anyone.

So, after so many years, Chinese writing is still in perfect use. Historically, the ideogram shapes changed, from pictographic to more conventional graphic forms. They became more simple and easier to be written. An interesting feature about this system is the way they make dictionaries and software for computers. Since it is a semantic based system, the words are divided into semantic categories and organised according to the strokes used in writing (there are rules to do so).

homophones	tsu2	with ambiguous meanings	(foot, to be enough)
	fu2		(bat, joy)

During the Han Dynasty (206-221 AC), the Chinese writing started to make use of the phonographic principle attributed to syllables to write new words, particularly foreign names. The phonographic principle plays a very important role until today. We can say that the Chinese system represents a good balance between ideography and phonography today.

兒	兩	你	人	的	得	千	說	個	的	有	
罷	打	就	想	打	把	兩	我	財	人	一	
	我	給	了	死	你	銀	送	主	這	個	
	個	我	半	這	活	子	給	就	天	很	
	半	五	天	個	活	我	你	和	遇	貧	
	死	百	說	窮	兒	可	一	他	見	窮	

*you<sup>3</sup> i ko*  
*hen<sup>3</sup> p'in<sup>2</sup> ch'iu<sup>2</sup> ti jën<sup>2</sup> chê<sup>4</sup>*  
*t'ien<sup>2</sup> yü<sup>4</sup> chien<sup>4</sup> ko ts'ai<sup>2</sup> chu<sup>3</sup> chiu<sup>4</sup>*  
*ho<sup>2</sup> t'a shuo<sup>1</sup> wo<sup>3</sup> sung<sup>4</sup> kei<sup>3</sup> ni<sup>3</sup> i*  
*ch'ien<sup>1</sup> liang<sup>3</sup> yin<sup>2</sup> ts'i wo<sup>3</sup> k'o<sup>3</sup> tê<sup>2</sup>*  
*pa<sup>4</sup> ni<sup>3</sup> huo<sup>2</sup> huo<sup>2</sup> êrh ti ta<sup>3</sup> s'i<sup>3</sup> chê<sup>4</sup>*  
*ko ch'iu<sup>2</sup> jën<sup>2</sup> hsiang<sup>3</sup> lă pan<sup>4</sup>*  
*t'ien<sup>1</sup> shuo<sup>1</sup> ni<sup>3</sup> chiu<sup>4</sup> kei<sup>3</sup> wo<sup>3</sup> wu<sup>3</sup>*  
*pai<sup>3</sup> liang<sup>3</sup> ta<sup>3</sup> wo<sup>3</sup> ko pan<sup>4</sup> s'i<sup>3</sup> êrh*  
*pa<sup>4</sup>.*

Chinese text with a calligraphy that arranges the characters strokes to fit into a square. The text reads from top to bottom and from right to left. The layout of the characters are carefully organised. Translation: *There was (once) a very poor man. One day he met a rich one. The latter then said to him: 'I will give you 1,000 silver taels if I may strike you, living as you are, dead!' The poor man thought hard and long and said: 'Give me 500 taels and strike me half-dead!* (From Jensen 1969 p. 172).

In the XVII century, Matteo Ricci and N. Tsigault invented a system to transliterate the Chinese writing into alphabetic letters. This system is important for trading purposes and for communication, like posting. This transliteration is technically known as Romanisation.

The influence of the Chinese language in the East-Asia has always been very strong. The Chinese writing were adapted to write different languages like the syllabary Yuchen (II c.); Ch'i-tan (X c.), Hsi-hsia (XI c.) for the Tibetan language, Miao-tse and Yao (XVII c.). The Chinese characters were used to write the Korean language (I c.) and the Vietnamese (II c.) until these languages changed to another system. Since the II century BC, but specially in

the reign of the Emperor Ojin (404 AC), the Chinese writing started to be used also in Japan.

### **10. Japanese Writing**

Differently from Chinese, in the Japanese language the words have usually more than one syllable, and they have several grammatical endings, like English and French. Because of this language structure, it was very difficult to adapt the ideographic Chinese system to write the Japanese language. They needed a more phonographic system. Since the grammatical word endings were typically monosyllabic, the use of characters to write them turn out to be a syllabic writing that spread over to other syllables. During some time, the Chinese characters were pronounced with the function they had in Japanese. So, the Chinese ideogram for 'human' was pronounced *jèn* in Chinese, but *hito* in Japanese. The number 3 was pronounced *san1* in Chinese and *mi* in Japanese.

Today, the Japanese writing still uses Chinese ideograms for names and special words and expressions. These Chinese ideograms are known as *Kanji* and *Eimoji*. The use of alphabetic letters and Arabic numerals are known as *Romaji*

The typical Japanese writing has two syllabaries called *Katakana* that appeared around 750 AC., invented by Kibi no Mabi and *Hiragana*, invented by Kobodaishi, around 800 AC. The Hiragana are used to show the pronunciation of the Kanji and Eimoji in the dictionaries. They appear at the right side with a small size graphic representations.

Japanese Katakana syllabary					
ア	<i>a</i>	チ	<i>ti (chi)</i>	ム	<i>mu</i>
イ	<i>i</i>	ツ	<i>tu (tsu)</i>	メ	<i>me</i>
ウ	<i>u</i>	テ	<i>te</i>	モ	<i>mo</i>
エ	<i>e</i>	ト	<i>to</i>	ヤ	<i>ya</i>
オ	<i>o</i>	ナ	<i>na</i>	ユ	<i>yu</i>
カ	<i>ka</i>	ニ	<i>ni</i>	ヨ	<i>yo</i>
キ	<i>ki</i>	ヌ	<i>nu</i>	ラ	<i>ra</i>
ク	<i>ku</i>	ネ	<i>ne</i>	リ	<i>ri</i>
ケ	<i>ke</i>	ノ	<i>no</i>	ル	<i>ru</i>
コ	<i>ko</i>	ハ	<i>fa (ha)</i>	レ	<i>re</i>
サ	<i>sa</i>	ヒ	<i>fi (hi)</i>	ロ	<i>ro</i>
シ	<i>si (shi)</i>	フ	<i>fu</i>	ワ	<i>wa</i>
ス	<i>su</i>	ハ	<i>fe (he)</i>	エ	<i>we</i>
セ	<i>se</i>	ホ	<i>fo (ho)</i>	キ	<i>wi</i>
ソ	<i>so</i>	マ	<i>ma</i>	ヲ	<i>wo</i>
タ	<i>ta</i>	ミ	<i>mi</i>	—	—

The Japanese writing system has two syllabaries and a set of ideograms borrowed from Chinese and adapted to the Japanese system. Differently from the Korean system that started to avoid the use of Chinese ideograms, the Japanese writing still makes use of many Chinese ideograms in its writings. But the principal system is the Katakana and the Hiragana syllabaries.

Katakana and phonetic values (from Jensen 1969 p. 202)

The Japanese writing is a good example how the cumulative principle gather old and new ideas into a system. As a matter of fact, all writing systems depend upon a cumulative principle to keep the old tradition ready for the new user of

the system. The use of kanji is part of the Japanese tradition. It is a distinctive feature of the Japanese writing not a problem in a highly literate society.

Following a suggestion by J.C. Hepburn (1815-1911), the Japanese started to be transliterated into alphabetic letters for communication sake with the West. After the Second World War, they carried out a great reform into the system to make it simpler and better defined in relation to the use of Chinese ideograms.

The Japanese writing is syllabic in which each letter corresponds to a consonant plus a determined vowel, representing a single unit. This system differs from Egyptian and Semitic that were consonantal writings. The syllabic writing has two distinct graphic styles: the Katakana set of letters that is used in a more formal circumstances and the Hiragana set of letters that is less formal. It is interesting to notice that syllabic systems come from ideographic predecessors and not from consonantal or fully developed alphabetic writing.

### 11. Korean system

Names	Han'gul	Romanisation	Chinese Ideograms	Pronunciation
Korea	한국	Hanguk	韓國	hangʊə
China	중국	Jungguk	中國	dʒuŋgʊə
Japan	일본	Ilbon	日本	nippon

In the table above the names of Korea, China and Japan are presented in the Han'gul writing followed by the romanisation form for the Korean writing. The Korean also knows some Chinese ideograms they use in special occasion. In the table above, the three names are also written with Chinese ideograms. There is also the way the Koreans and the Chinese say those ideograms. The Chinese ideograms for Japan are presented with the Japanese pronunciation. The ideograms are the same in the written form, but they are pronounced differently in the three countries.

Korea adopted the Chinese writing around 2000 years ago and used it until the XVII century. Since the Korean language is very different from Chinese, with several grammatical particles and words with different affixes, the Chinese writing ought to be reduced and modified to represent those facts. Soon it became a syllabic system. In 692, it was drastically reduced to 36 characters. This changing was carried out apparently by influence of Sanskrit. In addition to the new system, the written language continued to write several Chinese ideograms that were read in Korean.

Since the XIII century, the Koreans realised that the Chinese ideograms were very difficult to be used in printing, an invention they took from the Chinese. In the XV century, the King Seijong (1419-1450) decided to invent a new writing system that could be easier to print, to read and to write, even by the children. The new system was called 'people writing' or 'enmun'. Today it is called 'Han'gul' (Korea writing). It started to be used in 1446, but the educated people preferred to use the old system instead. Only in the XIX century the Han'gul system became widespread, being used for everyday purpose.

Although it might have had the direct influence of some alphabetic system, the Han'gul system is unique. It is based on the parameters that control the

speaking mechanism, such as voicing, rounding, manner and place of articulation. At the same time it can be associated to the ideas of Ying and Yang. To look more like a Chinese ideogram, it associates different letters into syllables. To avoid linguistic variations, i.e., different pronunciations for the same word, its orthography is based on an underlying morphological representation of the words, that is nobody's pronunciation, but that can be read easily by everyone. The most phonetic system needed to be somehow ideographic in order to work properly in a society where people have different accents. The Han'gul system was also a literacy project with all explanations in a book called Hummin Chong'um.

Today the Korean writing still has some Chinese ideograms and a transliteration system do convert Korean words into alphabetic letters. However, the Chinese ideograms are becoming scarcely used in everyday writing.

## **12. The origin of the alphabet**

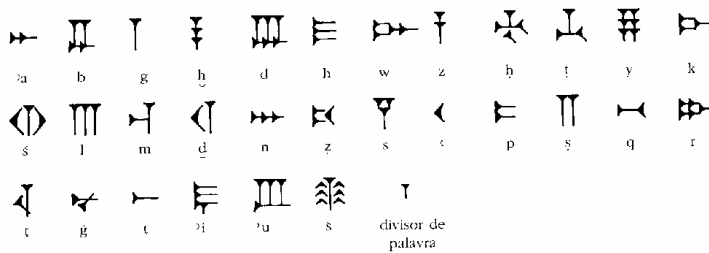
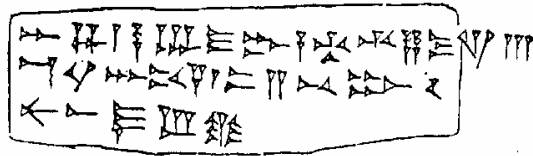
### *12.1. The previous situation*

In the Crescent Orient (Middle East), there were two writing systems in use around 1500 BC: cuneiform writing from Mesopotamia and hieroglyphic writing from Egypt. At that time both systems were basically phonographic. Pure ideograms had a specific use in certain circumstances. So, the common idea about writing was to transfer the language sounds into written forms. Cuneiform wrote the syllables and hieroglyphs wrote the consonants. The cuneiform system could write employing a small set of letters (about 40) but the Egyptian system had about 600 hieroglyphs. Cuneiform writing originated



in a non-Semitic language (Sumerian) but was used to write many Semitic languages in the middle of the second millennium BC.

Around 2000 BC, in Ugarit (now in modern Syria), sprang from old cuneiform writing a new branch characterised by being extremely simplified: the syllabic patterns were split up into two separate parts: the consonants on one side and the three vowels 'i, a, u' on the other side. A document with all these alphabetic letters displayed in the alphabet traditional sequence of letters were found in archaeological searches. However, taking historical time into consideration, it seems to us that the system was not used outside the region neither for long time. So, around 1500 the situation had only two good models: the syllabic cuneiform system and the Egyptian hieroglyphs. It is worthwhile to note that there were other writing systems already in use or known in other parts of the world, but they were irrelevant to the history of the alphabet.



The oldest list of letters in a certain order (like the alphabet) has been "found in Ugarit (Ras Chamra, Syria) from c. 1500 BC. The three first letters refer to

the vowels A, I and U, the others represent consonants. They wrote vowels only word initially, the rest of the word was written only by the consonants. A vertical bar was used to separate the words.

### 12.2. *The beginning*

The idea of a simplified system to write lesser important Semitic languages started to widespread around 1500 BC among the Semites who worked with the Egyptians at the copper mines in the Sinai Mountains. They left a few words written in a different way that can be regarded as the oldest documents of our alphabetic writing.

The alphabet was created with the use of an *acrophonic principle*. A 21-words list were made so that all of them initiated with a different consonant, gathering all possible consonants in the language. The words were carefully chosen in a manner they could be represented semantically by simple shaped characters associated to some Egyptian ideograms. The list started with the following Semitic words and meanings: *aleph* 'ox', *beth* 'house', *gimmel* 'boomerang', *daleth* 'door', and so on. The word initial consonants were associated to Egyptian hieroglyphs that showed the figurative indications related to the words chosen as letters names. Therefore, *aleph* was represented by an ox head, *beth* by a house, etc. Thereby, to write any word, a person should analyse the word consonantal structure and choose the corresponding letters from the list, guiding himself only by the consonant sounds. In doing so, they discovered a very interesting phonographic system. It is worthwhile to point out that *Aleph* represented the glottal stop consonant like the break that occur in the middle of the word 'Scotland' as pronounced by some Scots. The Egyptian pronunciation for the hieroglyph named *beth* by the Semites was 'per' and its meaning was related to 'house'. For this reason an Egyptian could not read the new writing unless he knew the language and the sounds associated to the letters.



In one of the sides there is an inscription with Egyptian hieroglyphs. It reads: 'the one beloved by Hathor (Lady) of the Turquoise. The square above was supposed to hold the name of the Pharaoh, perhaps Snefru (1st Pharaoh from the IV Dynasty).



In the other side, we see a sample of the Proto-Sinaitic writing, where it reads: (L) B'LT – the name of Ba'alat, a Canaanite goddess. The language is Semitic and different from Egyptian. The characters can be related to Egyptian hieroglyphs but with a completely different meaning and use.

The statuette known as Sinai Sphinx, from around 1800 BC, was found by Flinders Petrie in 1905 in a temple dedicated to the Egyptian goddess Hathor. The Egyptians settled a turquoise mine in Serabit al Khadin during the XIIIth dynasty. The goddess Hathor was the Lady of the Turquoise. The first to decipher this document was Alan Gardiner.

Egyptian	Phoenician	Greek	Etruscan	Roman
𐀀 𐀁 𐀂 𐀃 𐀄 𐀅 𐀆 𐀇 𐀈 𐀉 𐀊 𐀋 𐀌 𐀍 𐀎 𐀏 𐀐 𐀑 𐀒 𐀓 𐀔 𐀕 𐀖 𐀗 𐀘 𐀙 𐀚 𐀛 𐀜 𐀝 𐀞 𐀟 𐀠 𐀡 𐀢 𐀣 𐀤 𐀥 𐀦 𐀧 𐀨 𐀩 𐀪 𐀫 𐀬 𐀭 𐀮 𐀯 𐀰 𐀱 𐀲 𐀳 𐀴 𐀵 𐀶 𐀷 𐀸 𐀹 𐀺 𐀻 𐀼 𐀽 𐀾 𐀿	𐤀 𐤁 𐤂 𐤃 𐤄 𐤅 𐤆 𐤇 𐤈 𐤉 𐤊 𐤋 𐤌 𐤍 𐤎 𐤏 𐤐 𐤑 𐤒 𐤓 𐤔 𐤕 𐤖 𐤗 𐤘 𐤙 𐤚 𐤛 𐤜 𐤝 𐤞 𐤟 𐤠 𐤡 𐤢 𐤣 𐤤 𐤥 𐤦 𐤧 𐤨 𐤩 𐤪 𐤫 𐤬 𐤭 𐤮 𐤯 𐤰 𐤱 𐤲 𐤳 𐤴 𐤵 𐤶 𐤷 𐤸 𐤹 𐤺 𐤻 𐤼 𐤽 𐤾 𐤿	Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω α β γ δ ε ζ η θ ι κ λ μ ν ο π ρ σ τ υ φ χ ψ ω	𐌀 𐌁 𐌂 𐌃 𐌄 𐌅 𐌆 𐌇 𐌈 𐌉 𐌊 𐌋 𐌌 𐌍 𐌎 𐌏 𐌐 𐌑 𐌒 𐌓 𐌔 𐌕 𐌖 𐌗 𐌘 𐌙 𐌚 𐌛 𐌜 𐌝 𐌞 𐌟 𐌠 𐌡 𐌢 𐌣 𐌤 𐌥 𐌦 𐌧 𐌨 𐌩 𐌪 𐌫 𐌬 𐌭 𐌮 𐌯 𐌰 𐌱 𐌲 𐌳 𐌴 𐌵 𐌶 𐌷 𐌸 𐌹 𐌺 𐌻 𐌼 𐌽 𐌾 𐌿	A B C D E F G H I J K L M N O P Q R S T U V W X Y a b c d e f g h i j k l m n o p q r s t u v w x y

The evolution of the graphic forms of the alphabet letters is shown in the table above, comparing the Pre-Sinaitic, the Phoenician, the modern Greek, the Etruscan and the modern Roman alphabets.

Only with the Greek, more than 700 years later, the alphabet incorporated letters to refer to vowel sounds. With this acquisition, the alphabet was fully developed. But before the Greeks, the alphabet was used to write several Semitic languages in the Middle East. The Greek alphabet was clearly based on the Phoenician alphabet.

### 12.3. *The acrophonic principle dilemma*

Unfortunately, such an ingenious and important invention faced a tricky difficulty to be put in practice. With the alphabetic principle, writing would have only the acrophonic principle to say which letter should be used, according to the names of the letters. On the other hand it is a well known fact that all languages have different pronunciations for some words according to the way different dialects pronounce them. These phonetic variations are a real problem for a writing system based on the transcription of vowels and consonants, because a word would be written with different letters for different dialects. The alphabet would be a chaotic system if it had made a strict use of the alphabetic principle.

Since the Sumerians, it was compulsory to have an orthography to 'freeze' the words in writing to avoid that people with different pronunciations would prefer to write following their own pronunciations which could lead to a chaos. The alphabet had no solution but to be less alphabetic and to introduce the orthography into its writings. Orthography is an ideographic procedure. This is the reason by which even in relation to the alphabet, orthography is one of the most essential principles. The primary function of orthography is to neutralise the linguistic variation among dialects of the same language and, consequently, orthography causes a disruption in the way the acrophonic principle works. The

result is to leave the acrophonic principle only to write foreign words or specific pronunciations when needed.

#### *12.4. The orthographic action inside the system*

The seminal acrophonic principle could not be left completely out of the alphabet, because it created the alphabetic principle. In fact, it kept in the letters names at least one sound associated to the letter. But the real mechanism to relate letters to sounds and vice-versa was assumed by orthography. In the new scenario, a letter represents all possible sounds (consonants and vowels) associated to it in all words pronounced by all speakers. This covers all possible linguistic variations, all dialects in different times, places and social groups of speakers. The primary function of the alphabet is no more to relate a letter to a determined sound, but to allow reading. For example, we can now read Shakespeare, using our own dialect, without the need to know how the bard pronounced the words, in his time. This is a simple idea but one of the most important insights in the history of mankind. On the other hand orthography has some rules that limit how far the variation is supported by the system. The context where a letter occurs in words helps us to formulate most of the variations found in the relationship between letters and sounds. For instance, the X at the beginning of words has always the sound of a 'z', but not in all other contexts. In the word 'exotic', the X has the sound of 'gz', but in the word 'expand', it has the sound of 'ks'. The context for the 'exotic' is 'between vowels' and for 'expand' the X occurs before a 'voiceless consonant'.

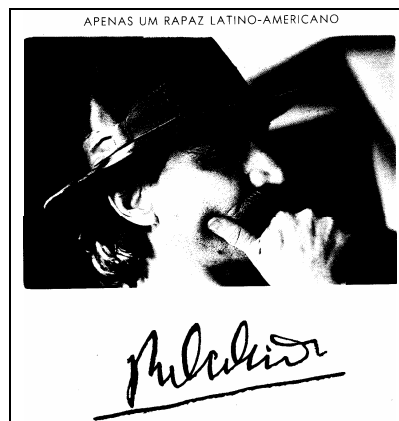
#### *12.5. Functional and graphic categorisation in the alphabet system*

When orthography took over the acrophonic principle it did not lost completely the phonographic nature of the alphabet. The system maintained its alphabetic

based phonographic nature controlled by two essential parameters that we can call the *functional* and the *graphic categorisation*. To save the system from its inner weakness, the alphabet faced some difficulties and found also good results. With the orthography applied to the alphabetic system, writing became a much harder task, because the users need to memorise the letters they will write to keep the right spelling for the words. On the other hand, reading became much easier to all speakers because the new alphabetic writing is no longer a phonetic transcription based only on the acrophonic principle. When the system came to this point, it found the right balance all writing systems must have between phonography and ideography. As a result we expect to have in all writing systems, reading is by far an easier process than writing.

occurrence of the letter A in spelling	Pronunciation of the letter A in words on the left	Sounds of the letter A in words on the right	Variant pronunciation for the same context	Other letters with the same pronunciation shown for the letter A	Pronunciation of the other letters
hat	æ	ei	hate		
arm	a:	ɔ:	warm		
watch	a	æ	match	mommy	o
state	ei	æ	static	heyday	ey
any	e	æ	sanity	central	e
ago	ð	æ	agony	serene	e
hair	ɛ	ei	faint	bed	e
near	ð:	ɛ	pear	never	e
fall	ɔ	æ	pallid	shore	o
wasn't	ʌ	a	wasp	but	u
weapon	ø	ð	weary		
clean	ø	ð	bear		
realm	ø	ð	beard		
clerical	ø	æ	pal		

Looking at the table above, we can realise that the problem with the function categorisation of the alphabet letters lays upon the relationship between letters, orthography and variation in the pronunciation of the word in different linguistic varieties (accents) and in different contexts. The table above becomes much more complex when the different pronunciations for the words are taken into account. For instance, an Englishman says *bad* with the sound [æ] and a Scotsman, with the sound of [a]. The word *time* is pronounced [t a i m], but in some accents it is pronounced [t ə i m] or even [t ÷ i m].



This figure is a CD cover with the autograph by a famous Brazilian singer: who is he? Sometimes handwriting can bring such a difficulty to read because the graphic categorisation of the letters is opaque and the reader cannot even identify which letters the word has.

The main problems with the graphic categorisation come from the fact that the reader cannot identify one or more letters and therefore he is unable to decipher what is written. Proficient readers are accustomed to make all kind of guessing work, looking at the graphic shapes and to the linguistic context in order to read. His mind also plays an important role in this job. What may look clear and obvious to someone may not be the same to another person. In the beginning, some children think that the letter *p* is the sum of *j* plus cursive *s*. They also think that *p*, *b*, *q* are the same letter. An elegant cursive *o* is viewed as the letter *i* followed by the letter *e*. Graphic categorisation is one of the most



striking difficulty the children face when they start the literacy learning with cursive writing. This problem can be better understood by proficient readers when they are asked to read old documents. In many cases, they cannot even say which letters appear in some words.

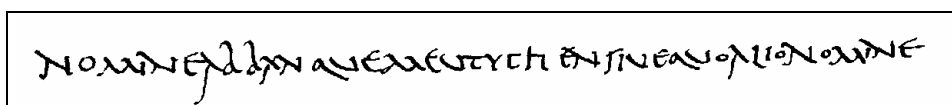
### 12.6. Problems of graphic categorisation in old writings

In the example below the letters are read easily even today, except for the R (*aperires*, *adiutorium*, *gloria*) that is different from the other R (*patri*, *spiritui*). The long letter S is also different from today's use (*festina*, *spiritu*, *sancto*). The word *et* (last line) also has a different shape. But, when we compare this example with the examples below, it is quite clear that it is not easy to read old writings because we have no familiarity with the letters shapes.



French book of hours – Paris, German Hardouyn, (1532). Instr. Misc., 7920, pp. 21v-22r. (from a postcard)

### 12.7. Problems of graphic categorisation caused by the design of the letters



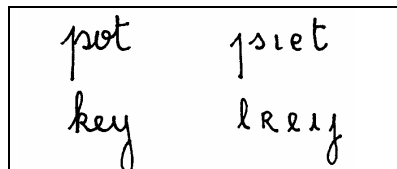
(from the British Library, papyrus 229. 166 C.E., from Stan Knight article in Daniels and Bright, 1996, p. 313). The text reads: *nomine abban quem eutychon sive quo alio nomine*.

<sup>awritton</sup>  
 scribserunt lucas euangelista  
<sup>de godspellere</sup>

(from the British Library, Cotton Ms. Nero. D. iv ca. 698 C.E., from Stan Knight, in Daniels and Bright, 1996, p.318). The text reads: *scribserunt [awritton] lucas evangelista [de godspellere]* – the words in brackets occur on the top of the line.

#### 12.8. Problems of graphic categorisation caused by cursive writing

The examples on the right show that a child may interpret cursive writing thinking that the strokes are mixed in a way different from the shape some letters have.



#### 12.9. Problems of graphic categorisation caused by idiosyncratic handwriting

The problem faced by the children in literacy is common to proficient readers when they face the task to read notes made by somebody else in a handwriting which is not familiar. As one writes fast, the tendency is to simplify the shapes for some letters, sometimes resulting in simple traces, as it happens usually to letters like *m* and *n*.

An important consequence of introducing an orthography into an alphabetic system is to free the graphic form of the letters, allowing different styles (actually, different alphabets). The graphic categorisation of the letters says that a graphic form ought to be understood as a letter if it occupy the letter place in a word. This is the reason by which we recognise as being the same word when written with letters of different styles, as follows: BAD, bad, *bad*, *bad*, etc.

With the functional and graphic categorisation of the letters, controlled by orthography, a letter became a very abstract unit in writing.

The acrophonic principle remained an important starting point to adapt the alphabet to write different languages. Every language sets up its own acrophonic list. The Greek adapted the Semitic letter names saying *alpha*, *beta*, *gamma*, etc. The name 'alphabet' came from the two first Greek words. The Romans were practical people and changed the letter's names saying just the basic sound they had: *a*, *be*, *ce*, etc., as we do nowadays, and the alphabet gained new names: ABC, Abecedary. In its very long history, some letters lost its acrophony, because of orthography. So, in the name of the letter H, we find no sound related to the phonetic consonant that letter is associated with in English.

The acrophonic principle has been used as a reading and writing key to children in literacy programs. The children commonly use the friend's names to set up a personal acrophonic system, saying, for example, D for Daniel, F for Fiona, W for Willie, etc. When people want to be sure about spelling, they may use a personal acrophonic set of words, saying, for example, 'the correct is V as in 'vanity', not F as in 'fair', and so on.

The Military NATO alphabet has a list of words to help in the identification of words, mainly in the case of proper names. They use an acrophonic list with words like: Alpha, Bravo, Charlie, Delta, Echo for the first five letters: A, B, C, D, E, and so on.

Morse code, Braille system, Sign language (like the American finger-spelling) are systems that transliterate the orthographic form of words into symbols of a special system. They are a different graphic representation of the alphabetic

system based upon the language orthography. In addition they have some symbols for special expressions, functioning like real ideograms – what is quite familiar to other forms of the alphabet.

### 13. The alphabet diffusion in the world

Detail from the Sinai  
Sphinx



The oldest documents that can be traced back related to our alphabet were found in the Sinai Mountain, at the ruins of goddess Hator's temple, in Serabit al-Khadim, in 1904. The Semites were mining copper in that region at that time. Alan Gardiner deciphered the writings in 1916. These documents belong to the half of the second millennium BC, and they are known as *proto-sinaitic* writing. The same system spread over the Middle East and regions around it. The last documents of that primitive alphabet were produced around 1300 BC. The most probable language was the old Aramaic.



Proto-Sinaitic writing  
using an alphabetic  
consonantal system

The Proto-Sinaitic alphabetic writing started to be used by Semitic peoples living the Middle East and a few samples from the very early time have come to us, like the one above. These are the oldest shapes of the letters we use until today.

There are a few documents from the beginning of the alphabetic writing, and this is one of the most important. At that time the Phoenician alphabet had been used for many centuries. In this document the words are separated by vertical bars. In 1923, one of the oldest Phoenician alphabet documents, probably from the of XIII century BC, was found in the King Ahiiram's tomb, in Biblos (Tyre). At that time, the Phoenician system were well established and started to have a great influence upon other writing systems. However, most of the documents we have related to Phoenician writing came from the V century BC and mainly from the III century BC.

139BK (1C9 1V(3149BK)S1C09 F 607I 139 K  
 13C09T9 + W V 139K  
 1+5 H 31 K 3 X 1 3 3 F 9 1 3 V F Y 1 3 V 6 3 9 1 V 6 3 1 K 3  
 1V) + 3 + 1 3 3 W 3 1 9 3 H 1 7 F + H + 3 I 1 3 9 K 1 6 2 Y 1 C 9 1 1 2 6  
 3 7 W 1 1 3 3 7 F H 3 3 1 K 3 Y 1 C 9 1 1 6 1 1 0 1 H 9 9 1 1 + H 3 Y 1 3 3 1 K 3 F V

Phoenician writing: inscription on Ahiiram's sarcophagus, King of Gebal.

All writing systems in use in the old territory of Palestine were based on Phoenician's system. From the Aramaic merged the Hebrew writing. The new derived alphabets presented graphic variations in the letter shapes and different sound values to fit to the language's phonetics.

An example of South Arabian inscription with alphabetic letters is shown in the figure at the right. The words are separated by vertical bars, a custom that started within the cuneiform writing and was in use by the Ugarit alphabetic writing.

ባዘ | ዳበ። | ወሃኸ > ባዳበ።  
 ሃጸ | ሃፋባ1ክ | የካፋሃ | ካ>  
 ወ>ሆ | 1።በ | ባ1።በ | >ወጸወ | ካወ  
 | የዕወ1 | ወሃጸዕጸ | ካባ1ጸ | ባካ  
 ክ | ክጸወ | 1ወ | ባወክዳ።ላ | ወሃካበ  
 ባዳበ። | ወሃዳበ። | ካየዕወሃ | ሃፋባ1  
 ወዳጸላየ | ሃ>ክክ | 1።በ | ወሃክ>  
 ባወ | ባጸባ።ካ | ወባሃዳ።ላ | 1ወ | ወሃካ  
 | ካበ | ወባሃካየ>ሃ | 1ወ | ባፋዳጸ | ጸገካ  
 ሃፋባ1ክወ | >ጸጸ።በ | ባጸላክበ

#### 14. The Greek alphabet

The oldest ancient Greek documents of the Mycenaean epoch were not written with alphabetic letters, but with syllabic characters of a system called Linear B, around 1500 BC, found in Crete Island. After the Minoan civilisation destruction, the Greek language stopped to be written until about 800 BC. A Greek tale narrates that the Phoenician Cadmium founded Thebes in the Greek territory of Boecia in 1350 BC, and started to write the Greek using an adapted system based on the consonantal Phoenician alphabet. This story has been told by Greek historians like Herodotus (484-420 BC) and Eratostenes (282-191 BC). Apart from the *dipylon* vase, the oldest Greek alphabet documents were found in Thera and Melos Islands and the letters look very similar to Phoenician letters from IX and VIII century BC.

The Greek inscription on the *dipylon* vase from Athens (750-690 BC), found in 1871, is shown in the next figure. This is the oldest document with Greek alphabet. The text has one complete hexameter and part of another.



The *dipylon* vase is the oldest text with the Greek alphabet. The shape of the letters is very similar to Phoenician letters.

ἢ ἡ μὲν ἀλλοτρίων πάντων ἀταλώτατα παίξει τοῦτον δεκάων μιν.

The text runs from right to left:

HOΣ NYN OPXEΣTON ΠANTON ATALOTATA ΠAIZEI TOTO ΔEKAN  
MIN.

It corresponds to the Classic Geek:

ὅζ νῦν ορχηστῶν πάντων ἀταλώτατα παίξει τοῦτον δεκάων μιν.

Translation: *The one among the dancers who have a better performance now will be...* Gelb (1963, p.181) suggests the following translation: *Any dancer who would make happiness more graceful will take this.*

As the Semites' consonantal alphabet were based on an acrophonic principle, comparing the two languages, the Greek realised that there were sounds in Greek not found in the Semitic languages and vice-versa. In the process of adaptation, the common consonants in both languages were kept the same. The Phoenician letters that had no correspondence to similar sounds in Greek, were used to represent Greek sounds not found in the Phoenician language. For

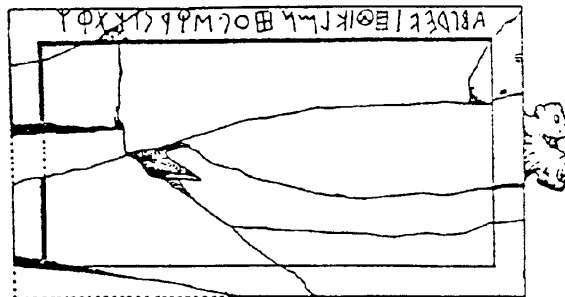
example, the letter *aleph*, with the adapted name of *alpha*, used to represent a glottal stop [ʔ] (a consonant in Semitic languages), in Greek, was chosen to stand for the vowel ‘a’ – the second sound in the name [ʔalef] and the first in the name *alpha*. The Semitic *he* and *heth* became the short and the long vowels ‘e’. The *iod* letter became the vowel ‘i’. The pharyngeal consonant *ayin* changed to represent the short vowel ‘o’. The long ‘o’ derived from the *ayin* but looking like an open ring: Ω. The new designed letter was called *omega* and occupied the last position in the alphabet list. By analogy, the short vowel changed its name to *o micron*. The Semitic *vau* became a rounded front vowel that changed its name to be then the vowel *upsilon*. The Greek also invented new letters: the *theta* stood for the aspirated ‘t’ (th); the *psi* for the cluster [ps]; the *phi* for [f] and *chi* for [k] in the place of the old *quopa* that went into disuse.

Original text	modern letters / writing direction
ΦΑΝΟΔΙΚΟ	φανοδῖκο
ΧΟΜΙΟΤΙΜΕ	ἐμὶ τόρμοκ
ΡΑΤΕΟΣΤΟ	ράτεος τό
ΗΥΜΟΧΟΝ	Προκοννη
ΣΙΟΚΡΗΤΗΡ	σίο κρητήρ
ΑΔΕΚΑΙΛΟΚ	α δέ: καὶ ὑποκ
ΡΗΤΗΡΙΟΝ:Κ	ρητήριον: κ
ΑΙΝΟΜΟΝΙΑ	αὶ ἡθμόν: ἕς π
ΡΥΤΑΝΗΙΟΝ	ρυτανήιον
ΕΔΩΚΕΝ:ΣΥΚΕ	ἔδωκεν: Συκε
ΕΥΣΙΝ	εὗσιν

This Sigeu inscription, from around 550-40 BC, uses the Greek Ionic letters and a boustrophedon layout. Translation: *I am the estela of Fanodius who is Hermocrates’s son from Proconesus; he gifted the sigeans a bowl for wine and a sieve to be used by the city assembly.*



To keep the acrophonic principle working, the Semitic letters names were adapted and labelled as *alpha*, *beta*, *gamma*, etc. With separate letters for the vowels, the Greek completed the invention of the alphabet. The Greek writing started to show significant variations, but in 403 BC, during the classic period, the system used in Athens became dominant and used as a model by other Greeks.



This alphabet ivory board was found in Marsiliana d'Albegna, in Italy. It has the alphabet letters written from right to left, in mirror image. This kind of board was common to teach how to write e many of them reached us. (from Bonfante, Giuliano and Bonfante, Larissa, 1983, in Daniels & Bright, 1996, p. 299)

The ancient Greek used ceramic pieces as supporting material for writing. They called them *Ostrakon*.



The actual Greek letters graphic shapes were designed by Wetstein from Antwerp in 1660 AD. Until the Byzantine period (III century AD), the Greek wrote without separating one word from the next. However, since the very beginning, there were different strategies to indicate to the reader where words started and ended. A dot was the most common punctuation mark in ancient times. In the II century AD, Aristophanes from Byzantium introduced three punctuation marks into the Greek writing: an upper dot [·] meant a full stop [.]; a medium-high dot [.] meant a semicolon [;] and a dot in the baseline [.] meant a comma [,]. A dot with an inverted comma on top generated the modern interrogation mark [?]. Punctuation marks started to be commonly used only from the IX century AD with books, becoming obligatory with printed book, from the XV century AD.

## 15. Letters and numerals

Many systems in ancient times used the same characters for language sounds and meanings to write numbers as well. This was done by the Semites with the alphabet letters. The Greek followed that tradition and all letters were associated to numerals. Archaic letters like the *digamma* and *quopa* stopped being used in texts but remained in the writing of numbers. The Greek were good mathematicians and their works became schoolbook in Europe for centuries.

All Greek number figures came from characters and letters with or without different graphic forms. In ancient Greece, the Athenians developed a non positional decimal system using the alphabet letters. A few numbers employed the first letter from the word they mean: 5 : Γ = πέντε; 10 : Δ = δέλτα; 100 : Η = ἑκατὸν; 1000 : Χ = χίλοι; 10000 : Μ = μύριοι. The system is as follows:

Numeric notations in Athens systems (Classical Greek)							
1		10	Δ	100	Η	1000	Χ
5	Γ	50		500		5000	
10000		50000				10000	Μ

The Ionic system used in Miletus was more complex and it stayed in use until 1453 – the fall of Constantinople. The system is presented below:

Numeric notation from Miletus							
1	α	10	ι	100	ρ	1000	ϰ
2	β	20	κ	200	σ	2000	ϰβ
3	γ	30	λ	300	τ	3000	ϰγ
4	δ	40	μ	400	υ	10000	Μ
5	ε	50	ν	500	φ		
6	ς	60	ξ	600	χ		
7	ζ	70	ο	700	ψ		
8	η	80	π	800	ω		
9	θ	90		900			

The numeric notations appeared sometime between VI and V centuries BC. The numbers had their own names and they were not spoken by the letters names. So, ΔΔ read *éikosi*, i.e., 20, and not *delta-delta*. To differentiate the numeric notations from common word writings, sometimes, the Greeks used to write numbers with a horizontal line over them. In a non-positional system like that, the reading follows the same direction of the words in speech. In other words, we do not need to check where the first arithmetic units start to know the higher values. For instance, in our positional system, if we have 247... we cannot figure out the value, because we do not know the value of 7 (is it seven,

seventy, seven hundred?). We can only say ‘two hundred and forty seven’ if 7 is in the lowest decimal position in the number. The secret of a positional system is the ‘zero’ value, but the ancient Greek did not use ‘zero’. When the zero was introduced in our system, with the Arabic numeric system and figures, we changed the way we count: instead of counting from 1 to 10, we started to count from 0 to 9 to fulfil the first 10 decimal arithmetic units. The new differences between writing, reading and dealing with arithmetic values introduced a rather complex structure in the use of numerals and numbers in our society. In maths classes, some students think wrongly that our decimal system has only nine units because of the way we make the calculations, since zero means nothing.

Numeric notations from Miletus Ionic system		Numeric notations from Athens	
128	ρκη	11	Δ
222	σκβ	128	ΗΔΔΓ
1601	αχα	1601	ΧΓΗ

The Roman numerals are much older than Roman letters, having a coincidental graphic shape. For example, in the very ancient representation of numerals in bones and staffs, for instance, the number V was two oblique lines, X was two crossed lines, C was just a half circle, etc. With the coincidence with Latin words and letters, the old system fitted easily into the Roman writing system. Our modern decimal system started in India and were brought to Europe in the Medieval times by the Arabs, who redesigned the Hindi numerals, resulting in the modern graphic aspect they have today. It is interesting to point out that, until the XVIII century, accounting notes on banking books were done preferably with Roman numerals. When the Arabic numeral started to be accepted, the banks required that money quantities should be written in full,

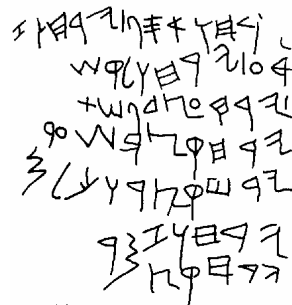
i.e., with all the words next to the figures, as we do today when we write a bank check. This demand was due to the fact that the bankers thought the Arabic figures could be easily falsified.

## 16. Other alphabetic systems

### 16.1. Semitic alphabets

The idea of an alphabet started in the Middle East and spread first over the region. With the contact with other peoples for trading, the alphabet started to represent languages that were very different from the Semitic languages. The Phoenicians took the alphabet to the peoples who lived around the Mediterranean sea, reaching the Iberian Peninsula. The alphabet reached India and some people from Asia. Only the Chinese tradition resisted the spreading of the alphabet in the world.

Inscription from the Hebrew Guezer calendar from X BC. At that time, the Hebrew language was written with Phoenician letters.



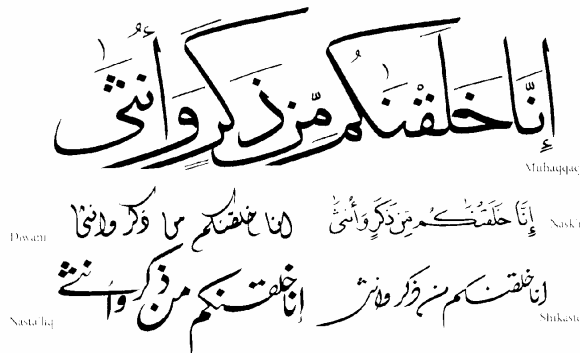
א	ב	ג	ד	ה	ו	ז	ח	ט	י	כ	ל	מ	נ	ס	ע	פ	צ	ק	ר	ש	ת
a	b	g	d	h	v	z	h	t	y	k	l	m	n	s	p	q	r	s	t	sh	th

Modern Hebrew Square letters with typical phonetic values.

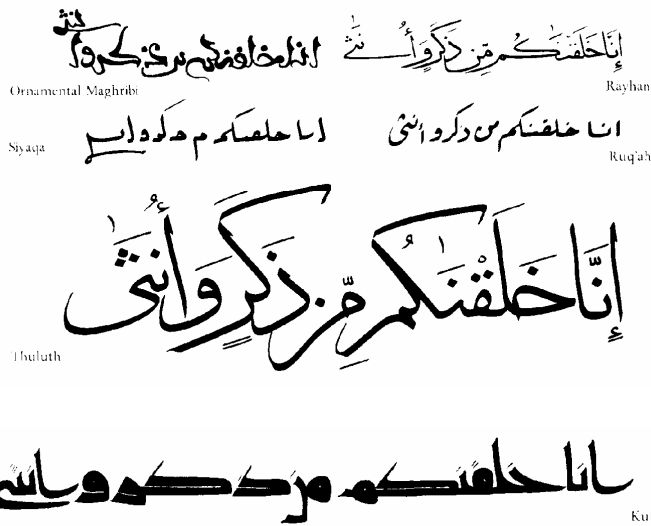
ا ب ت ث ج ح خ د ذ ر ز س ش ص ض ط ظ ع غ ف ق ك ل م ن ه و ي  
 y w h n m l k q f g ' z t d s š s z r d d h h j t t b'

Modern Arabic letters with typical phonetic values.

The Arabic letters came from Tamudic writing from 500 BC. There are very few documents with Arabic writings before the Koran (VII century AC). Arabic tradition attribute to al-Halil (c. 768 AD) the invention of dots to identify vowels in writing. A dot above a consonant meant an A or O vowel, a dot below meant an I or E vowel, and a dot in the centre meant an U vowel.



A sample from the Koran with elaborated calligraphy. Transliteration: 'inna ḥalaqnākum min ḍakarīn wa'untā. Translation: *Believer, We created your male and female.* (Sura, 49:13). (From Zakariya, Mohamed U., 1978, Observations on Islamic Calligraphy. *Fine Print* 4: 97-103; - in Daniels and Bright, 1996, p.245). More exemples are shown below.



One of the most sophisticated Arabic calligraphy is the Kuffik style showing the same Koran passage displayed above.

### 16.2. The alphabet in Asia

𑀧𑀺𑀢𑀺𑀓𑀺	𑀓𑀺𑀢𑀺𑀓𑀺	𑀧𑀺𑀢
devāna-piyena	piya-dasina	lājina
𑀧𑀺𑀢𑀺𑀓𑀺𑀢𑀺𑀓𑀺	𑀧𑀺𑀢	𑀧𑀺𑀢
vīsativasābhisitena	atana	āgāca mahīyite hida budhe jāte

Sample of Old Brahma writing from Asoka edict – 251 BC. Translation: *The beloved by the gods, the king of a kind eye, enthroned king twenty years ago, came to honour Buddha where he was born* (from Daniels and Bright, 1996, p.

381). Brahma and Kharousthi writings are syllabic systems adapted from ancient Aramaic.

नैनं	चिन्दन्ति	शस्त्राणि	नैनं	दहति	पावकः ।
nainam	chindanti	śastrāṇi	nainam	dahati	pāvakah
nainə	ʧindanti	əstrəɳi	nainə	dəɦoti	pəvəkəɦ

Sample of Devanagari writing with transliteration and pronunciation. Translation: *Weapons do not cut the soul neither the fire can burn it.* (from Bhagavadgita 2:23 – in Daniels and Bright, 1996, p. 390).

మీరు	అక్కడికి	వెళ్ళినతరువాత,	నాకు	ఉత్తరము
mīru	akkadiki	vellinataruvāta	nāku,	uttaramu
mi:ru	akkəɽiki	vellinətaruva:tə	na:ku	uttərəmu

Sample of Telegu writing with transliteration and pronunciation. Translation: *After going out from there, and after having written me a letter...* (From Arden, 1937, in Daniels and Bright, 1996, p. 418)

<p>ຮຳພາສາລາວໃຫ້ຂຽນຕາມສຽງເວົ້າ</p>
-----------------------------------

Sample of writing from Laos. The transliteration is as follows: kham pha:sa la:w hay khian ta:m siang vaw. Translation: *In Laos the words must be written following their pronunciations* (from Daniels and Bright, 1996, p. 466).



คำภาษาไทยให้เขียนตามหลักเกณฑ์นิรุกติศาสตร์

Sample of Thai writing. The transliteration is as follows: kham pha:sa: thay hay khian ta:n lak ke:n niruktisa:t. Translation: *In Thai the words must be written according to the etymological principle.* (from Daniels and Bright, 1996, p. 466)

### 17. Etruscan alphabet



The Etruscan alphabet derived directly from Greek alphabet. In this Etruscan vase we can see the alphabet letters in a traditional order.

There are a few documents with Etruscan writing, but they are important because the Roman and the Runic alphabets derived directly from the Etruscan alphabet.

Before the Romans, the Etruscan played a very important cultural and commercial role in the Italian Peninsula.

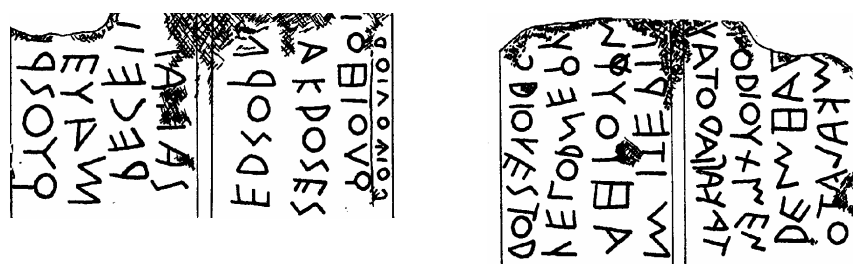
The Etruscan started writing their language with an alphabet adapted from Ionic Greek, with local features from old Ichia close to Naples, which was a Greek colony in Italy. One of the features was the rounded shape of C and D, different from the Greek shapes Γ and Δ. They started writing in the VII century BC. Like the Egyptian we find their writing in all kinds of objects for everyday life. There are even alphabets decorating vases, meaning that writing had a prestigious cultural value in that society. However, we do not know very much about Etruscan civilisation.

The Etruscan alphabet was composed by 26 letters. Since in that language there were not voiced stops [b, d, g], neither the vowel [o], the letters were kept in the alphabet inventory but have not been found in texts. The Greek letter Φ had the phonetic value of an aspirated *p* [p<sup>h</sup>] and the Etruscan alphabet kept it. They invented a letter [f] with the graphic shape of an 8. A few Germanic peoples made use of Etruscan alphabet, adapting it to write their languages. From these alphabets developed a special one called Runic writing.

### **18. Roman alphabet**

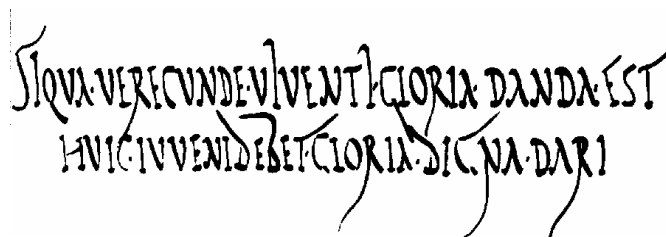
The Romans followed the Etruscan civilisation from which they learnt how to write Latin. The Romans became powerful and with a culture that took over other cultural manifestations in the Italic Peninsula, leaving behind in time the Etruscan civilisation. They started using the complete Etruscan alphabet to write Latin with a few adaptation in the beginning. The oldest text in Latin is found in the Black Stone from the Roman Forum, where it is possible to see a text with 21 letters, in boustrophedon layout, from around 600 BC. It is a

rectangular stone with the inscription in the four sides. See it in the figure below:



Since Latin did not have the aspirated stops, the letter  $\Phi$  were employed to transcribe the consonant *p*. The ancient *vau* was transformed into a F letter with the phonetic values for *u*, *v* and *f*. In the IV century BC, Latin changed the phonetics associated to *s* and the value of some other letters: the letter *zed* was no longer used; the Etruscan C, K and Q were used with the same value of C, representing the phonetic value of [k]. When the Latin language started to use a voiced velar stop [g] sound, in opposition to the traditional voiceless velar stop [k], represented by C, Spurius Carvilius Ruga invented a modified C letter with an oblique stroke at the lower end of C, generating the modern letter G. This happened in 230 BC.

Perhaps by Etruscan influence, the Romans did not take the letters names from the Greek. However, their alphabet needed to have names for the letters, because of the acrophonic principle. Therefore, they decided to call their letters by the simplest possible names, that is, saying the vowels with their own sounds and the consonants followed by the vowel *e*: *a*, *be*, *ce*, *de*, *e*, *fe*, etc., except the letter K that was said with the vowel *a*, the letter Q that was named *qu* and the letter X with the name *iks*.



Roman letters from Pompeii (79 AD), written with ink on a wall.

During Varro's epoch (who was born in 116 BC), the name of the letters changed: the vowels remained the same, but some consonant letters, like F, L, M, N, S and R moved the consonantal sound from the beginning to the end of the letters name: *ef, el, em, en, es*. The letters Z and Y were re-introduced into the alphabet and placed at the end of it. Both letters kept the Greek names: *zeta* and *upsilon*. The letter H was called *adspiratio* ('aspirated') and was used to transcribe the fricative [h]. With that framework, the Roman alphabet was taken to all Roman Empire and adapted to write many different languages.

### 19. The origin of some letters

The Roman alphabet has been in continuous use for more than 2500 years. With a so long history, some important modifications were expected to occur. The history of new letters is presented below.

J – The letter J derived from a longer I, when there was one next to another, to avoid confusion with the letter U, in manuscript books with Gothic letters. Sometime in the XIV century AD a habit started of putting a dot over the letters I and J. The French orthographer Louis Meigret suggested the introduction and a place for J into the alphabet after the letter I. Moreover, he attributed the consonantal sound of French J to the letter, a habit that is used

ever since. Now, J is commonly used to represent consonant sounds and not the vowel I.

V – The angled shape of the letter V was the typical Roman graphic form of the letter and it was used to represent the sound of the vowel U and the sound of the consonant [v] in Latin. The rounded shape came up with uncial writing in the beginning of the Middle Age. The difference between the consonant V and the vowel U started during the XVII century AD. At that time people thought that V was a new letter, because it came from a vowel and changed to represent a consonant. Therefore, the letter V was added to the alphabet inventory as a new letter and located after the letter U.

W – The letter W is a double U as its name says, when the U could be written with the V shape. It started to be used in Germany during XI and XII centuries AD. However, it was used occasionally as early as 692 AD, in Britain. With a different function, the letter W was located after the letter V in the alphabet.

t – The uncial T started to be written with a longer vertical stroke going higher than the horizontal trace. This gave to the letter a different graphic style that was extended to other letters in the Carolinian minuscule alphabet, in the IX century AD.

Pp Tt – The letters were drawn with bigger size (*uncia* means *nail*) at the beginning of paragraphs in the Uncial writing (from III to VII centuries AD). Later on in the IX century, with the introduction of minuscule letters, the Carolingian writing extended the use of capital letters (majuscule) to indicate the beginning of the syntactic periods and proper names. The end of syntactic periods was also identified by a full stop. This procedure was intended to help the reader to identify proper names, paragraphs and utterances with a complete

grammatical structure and meaning. It also gave a special layout for writing in general.

Ç – The Spanish invented the *cedilla* under the letter C to represent the *ceceo*, a consonant sound not found in Latin, like the one represented in English by the letters TH. The French and the Portuguese also make use of this device but to represent the sound *s* before the vowels *a, o, u*, where the letter C has normally the sound of *k*. As happened to other new letters, Ç should be placed after C in the alphabet, because it is an independent letter now. Because English has no Ç, the typical representation of the alphabet inventory does not show that letter.

The Old British Insular writing used the letter ð *thorn* and þ *wynn* to represent what is now written with TH. The first came from Greek alphabet with a Celtic name and the second from Runic alphabet. They are not used now-a-day.

*Diacritics* – Almost all modern alphabetic systems make use of diacritics or special marks in writing to modify the graphic aspect or the letter phonetic function. In Portuguese, the stress marks indicate different vowel qualities for the letter *e* and *o*. So, O and E are ambiguous, but Ô and Ê are closed vowels, and Ó and É are open vowels. In French, the stress marks have a different function, to show whether a letter must be pronounced at the word final syllable or it represents a historical mark elsewhere. The Spanish use the *tilde* over the N to indicate a modified N that sounds palatal instead of alveolar: Ñ. Portuguese uses the tilde over vowels to indicate that they are nasalized. Other European alphabets use other types of diacritics: ø ā ä ç đ ġ ħ ĩ ĵ å . As far as the system is concerned, these letters with diacritics are as different letters as Roman C and G, or the Greek O Ω Φ Θ . The abuse of diacritics into the alphabet represents unawareness of the orthographic function that allows easily the reading of ambiguous letters because the native speakers know how to do it.

They come into use when people think that the acrophonic principle is more important than orthography, what is a misunderstanding about writing systems.

& - This is an old cursive graphic form of E + T, writing the Latin word *et* ('and').

@ - An old strategy to indicate abbreviation was to write a few letters from the word beginning and to draw a semicircle line over it. The writing @ is a short writing for *at* with a graphic form to facilitate handwritings.

£ € \$ # % © ® § - These modified letters are pure ideograms we use together with the alphabet letter in common writing. Their function is to reveal a meaning to which we associate linguistic sounds to get the words they stand for: £ means *pounds*; € means *euros*; # means *number*; © means *copyright*; § means *paragraph*, etc.

## 20. Useless letters

When the alphabet was adapted to write a language or after some drastic orthographic reforms, some letters may come into disuse, because there was no equivalent sound to be represented or because another letter could be employed with the same function. As a consequence of these, for example, the Italian alphabet does not have the traditional Roman letters J, K, W, X and Y. In Yoruba alphabet there are not the traditional letters C, Q, V and Z. Portuguese does not have K, W and Y. In Portuguese, these letters are found only in foreign names. English does not have Ç and it does not make use of diacritics to differentiate alphabetic letters. On the other hand, the functional

categorisation is highly complex in English, because the same letter may represent a variety of different phonetic sounds.

## **21. Fonts or different letter styles**

Since its beginning the alphabet started to show different inventories of letters with different graphic shapes when it was adapted to write different Semite languages. Some inventories tried to keep the possibilities to change the graphic form of letters to the minimum. The Arabic and Hebrew alphabets have one set of letters with a determined graphic pattern until today for common use. During the Middle Age, a factor that contributed to the evolution of new letter styles was the production in the *scriptoria* of hand written books, beautifully illustrated. Some calligraphers left individual features in the work, that could be followed by others, starting a new graphic shape for some letters or even for the whole inventory of letters. In the history of writing, the technical term for these variations, that constitute real different alphabets, is *font*. The fonts have special names, like Roman Capitals, Uncials, Carolingian, Italic, Garamond, Times Roman, Arial, etc. Some fonts represent an elaborate and artistic achievement by important calligraphers and graphic designers.

All writing systems in the world developed special shapes for the characters in order to allow a fast writing, an action that is important sometimes. The modifications tend to simplify the amount of hand movements to draw the letters and to allow the writer to connect letters, sometimes amalgamating them in one special drawing. This writing procedure is known as *cursive writing*. One of its most noticeable features is to have a rounded shape instead of broken lines. Cursive writing is the most common way to do handwriting at school and even in everyday use of writing, but it is very unusual to be found in printed



books or in newspaper and magazine texts. Nevertheless it can be found in special books to help children in the literacy process or as a distinctive mark in advertisements.

The different graphic shapes of the letters, grouped into fonts or styles, in fact, are really different alphabets, in the same way the Greek alphabet was different from the Phoenician and the Roman alphabet was different from the Greek alphabet. They seem to be simple variants of an idealised alphabet because we use them to write the same language with the same orthography.

The real possibility to have the variation in letters styles is based on the *graphic categorisation* of letters, one of the most important concept in writing systems. As a matter of fact, letters are abstract units in the writing systems. For example, the letter A is not just an amount of assembled lines, but a value in the system, so that all graphic representation that fulfils the requirements to occupy the location of the letter A in words, according to orthography, is, in fact, one possible materialisation of the letter A.

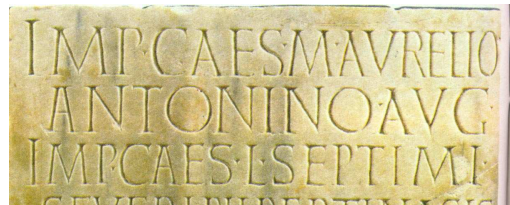
The artistic concern about how a letter may be drawn forces the shapes of them to attend specific patterns, creating a desirable similitude among them. This factor is the letter style. Letter style is also known as letters fonts and it has an important role in computerised word processors. Letters from different fonts can be used to highlight some words or expressions and to call the reader's attention, like the italic letters in the middle of a text. After the invention of printing, many different fonts have been invented. In a modern computer we can have hundreds and even thousands of different fonts in use. It means that we are handling with the same amount of alphabets. What does not change is the orthography. Computers also have letters that can be used to write many different languages, with different alphabetic systems and different

orthographies. Besides the letters, the computers have a great number of icons and pictograms. With the computers we are involved in a writing and reading world that is much more complex than there existed before them.

## **22. Naming the fonts**

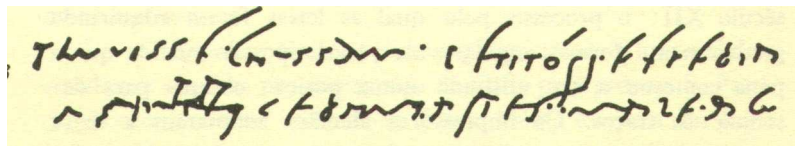
The oldest alphabets kept the name of the language they were used to write. However, the Greek historian Herodotus found necessary to give different labels for the three Egyptian writing systems, which were labelled as *hieroglyphic*, *hieratic* and *demotic writings*. In fact, they represent three different styles for the Egyptian's characters, the basic orthographic system resting the same. After sometime in use, people decided to give special labels for some letters styles, after somebody who used it or from some place where it was widely used. We refer to Petrarca's calligraphy, to Irish calligraphy, Italic letters and so on. In some cases, a special feature were used to label the letters style, as it happened to uncial letters, majuscules, minuscule, handwriting calligraphy, etc.

*Capital letters* - These well designed Roman letters were used to carve texts into the monuments stones. They have a distinct graphic form to differentiate them making reading easier. That is the reason by which most teachers prefer to use those letters to teach how to read to the children. In modern times, these letters have been called majuscule letters because they are the modern letters that substituted the initial uncial letters. The capital Roman letters carved on monuments stones are familiar to us until today. We may say that those letters have the best graphic shapes for reading, if we compare them with other styles of letters from the Roman alphabet. See the next figure.



Capital Roman letters carved on stone.

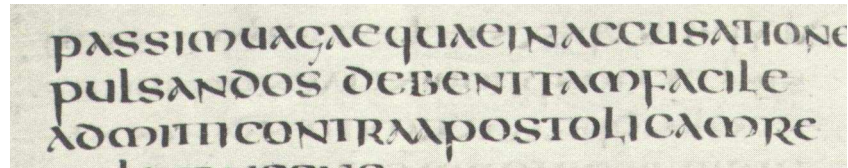
*Roman cursive letters* – the Romans employed cursive letters for everyday handwriting, as the graffiti found in the ruins of Pompei and in the Vindolant tablets. That letter style had a significant influence into new fonts that were invented in the last period of the Middle Age, and principally in the way we make our handwriting until today.



Capital Roman letters in a cursive style.

*Uncial letters.* As the name indicates, the uncial letters has the size of a nail (in Latin *uncia*). Uncial letters with a big size were used only at the beginning of paragraphs. But their rounded shape, in a smaller size were used to write the text. Most of the books produced in the III and IV century AD were written with uncial letters. It is not rare to find modern books for the Catholic liturgy printed with uncial letters. A variant of it were denominated *half-uncial*. This modified style had an important influence in the creation of the Carolingian letters that became our minuscule letters.

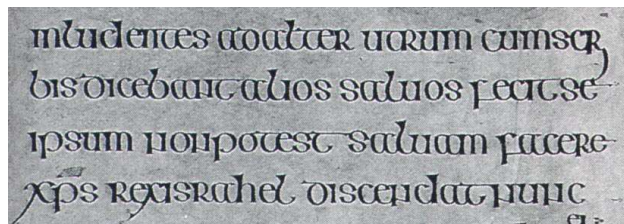
*Letters in the Middle Ages*



The uncial letters derived from capital Roman letters with a more round shape. Because they were written on parchment with quill feather tip and ink, the shape of some letters started to have a particular shape like the letters A and E. Uncial letters started to be used in the beginning of the Middle Age and they remained as the most typical lettering for liturgical books.

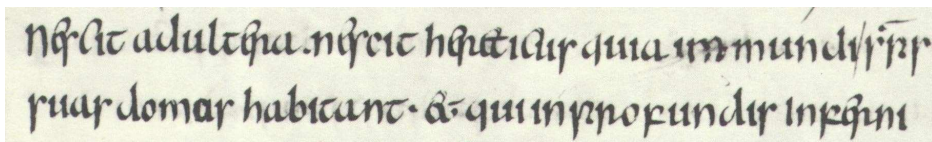
Saint Benedict's Rules with bold uncial letters, from Canterbury VII-VIII centuries. The uncial letters are a typical example on how the writing material can have a special influence upon the letters shapes. The quill pens facilitated the round shape of these letters.

PECCATORIS SED  
UT CONVERTA  
TURE TU QUAT  
CUM ERGO IN TE  
ROGASSEM AS  
DŌNŪ FRATRES  
DE HABITATORE  
TABERNACULI



Irish Uncial lettering

*Insular letters* – Between the VII and XIII centuries AD, very important scriptoria where hand made illustrated books were produced were located in England and Ireland. The letters used then became known as having an *insular style* in opposition to those employed in the continent, that were called *continental style*. The old Irish letters were characterised by pointed lines and the old English by a more rounded shape form. The letter W was invented in the insular letters style.



Above, a sample of Anglo-Saxon letters from England.

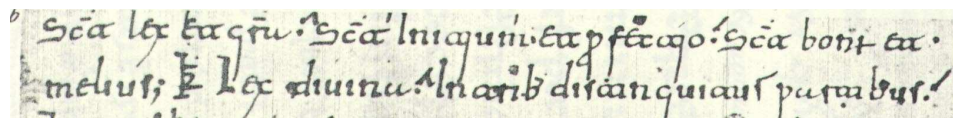
**Dixit inimicus persequens comprehendam partibo**

Insular Anglo-Saxon minuscule letters from the XI century. It reads: *Dixit inimicus persequens comprehendam partibo* (British Library, Add. Ms. 37517. Ca. 1000 C.E. – in Daniels and Bright, 1996, p. 318)

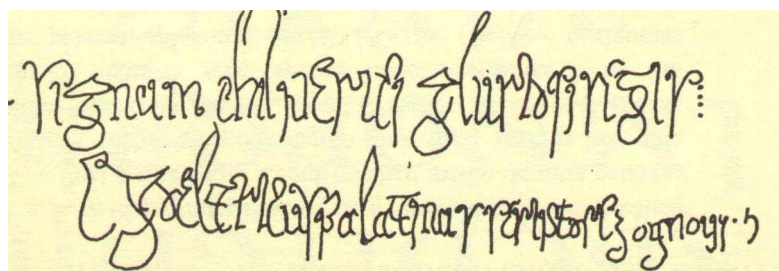
**theyr hors whiche redoundede in to the ayer and rennyng  
as they that helde not of heuen ne of erthe vpon theyr  
enemies began to fighthe/certes whyn the troians sawe  
the centaures mountyd on horsback rennyng as the  
wynde they were so aferd and affrayed that they had**

Insular letters from the first English book printed by Caxton and Mansion in 1475. The letters are of a round Gothic type.

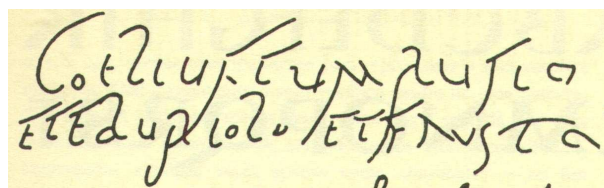
*Continental letters* – The three more important scriptoria in continental Europe were located in Italy, where a *curia style* was dominant, because of the Vatican influence in the culture; in Spain, where the Visigothic style with straight lines and upright position were used extensively; and in France, with the Carolingian style, with small and rounded letters.



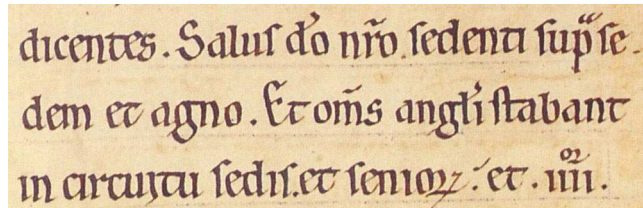
Above, a sample of Visigothic style of letters in use in Spain at the end of the Middle Age.



Above, there is a sample from a document written with Merovingian letters (c. 500-750 AD)



Capital letters from the Middle Ages. It is interesting to compare these letters with the Roman cursive capital letters.



Above, there is an example of Carolingian letters which was developed in France at the time of Charlemagne (d. 814 AD). The most striking feature of the Carolingian letters is the minuscule shape of the letters.

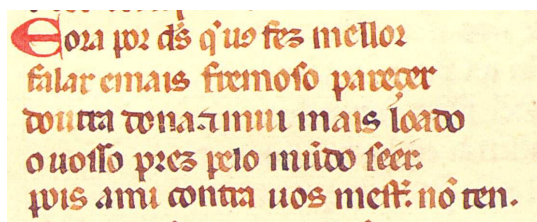
*Carolingian letters* – Our minuscule letters came directly from the Carolingian letters – also named Carolinian letters. These letters from the city of Tours were developed by the scriptoria under the supervision of Alcuin, in the IX century AD, during the reign of Charlemagne. From the Carolingian style, important letter styles were developed in Italy, like the *rotunda*, *bastarda*, *antiqua* and *notula* letters.

*Gothic letters* – The Gothic letters are characterised by having broken lines giving a general looking of squared letters. They were of common use between the XI and XIV centuries AD. Another feature was a bold shape and the typical black ink which gave to these letters the name of black letters. The first printed books were printed with Gothic letters. The reason for this choice was the fact that the Gothic letters were the most common style of letters in use in Europe at the end of the XV century. At that time there appeared the first literacy schoolbooks preceding the Catechism, written with Gothic letters. A variant from Gothic style generated the *textura* and *Fraktur* letters that were employed in Germany until the Second World War.

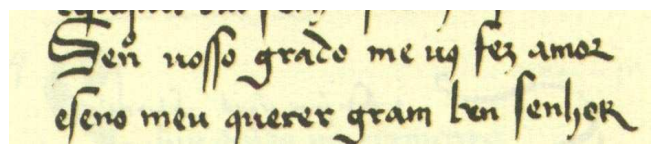


A B C D E F G H I J K L M N O P Q R  
 a b c d e f g h i j k l m n o p q r r s s t t

These letters are known as Fraktur style, which appeared in the XVI century.

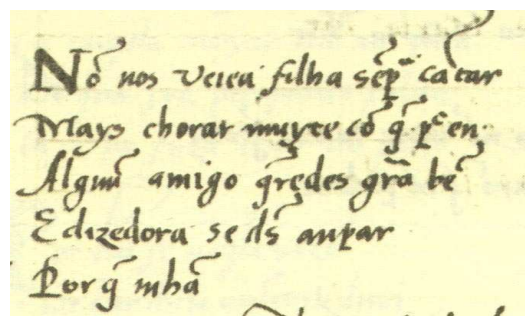


Gothic letters from Cancioneiro da Ajuda, written in Portugal in the XIV century.



This sample from the Cancioneiro da Biblioteca Nacional, Lisbon, shows Gothic letters with a Portuguese text, copied in Italy in the XV century.

Humanistic letters from the Cancioneiro da Biblioteca Nacional (National Library in Lisbon). Humanistic styles were common after the Renaissance.

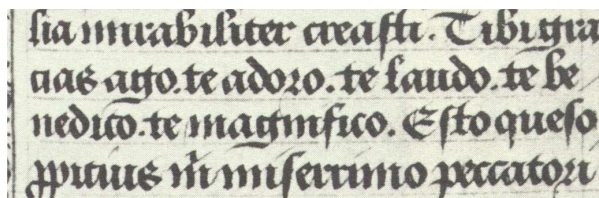




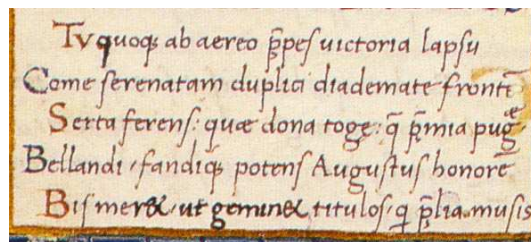
**¶ Aquí comienza el prologo q̄ escriuió el va-  
ron de vida bõrrada: ⁊ de sciencia muy ense-  
ñada fray Ambrosio mōje dela orden delos  
calmaldulenses: sobre la traslaciõ nueva q̄ fi-  
zo de griego en latin enel libro d̄ sant Juã cli-  
maco: q̄ es llamado en latin escolastico.**

Spanish Gothic Letters from XVI century.

Roman letters – At the end of the XV century AD, the printed books started to be produced in Italy. The most common letter style in use at that time was the antiqua letters. From that letter style developed one of the most important letter style of all times, called Roman letters. Nicholas Jenson designed one of the most influential Roman letters among printers, in 1470.



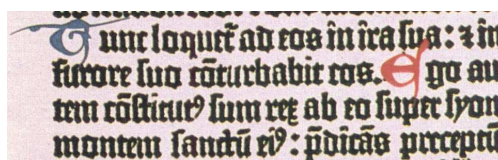
This style of letters were known as 'bastarda'. They derived from Gothic letters and were in use principally in Italy.



Example of Humanistic letters.

The Humanistic letters were used in the XIII-XVI centuries in Europe. In the sample shown in the next figure, the capital letters have special use to configure a layout for the text, which were written with minuscule letters, derived from Carolingian style.

Johannes Gutenberg invented in Europe the first printer with mobile types that could be reused to print low price books compared with the previous illuminated hand written books. Before this achievement, other forms of printing were in use. The oldest printers were invented by the Chinese towards the end of the VI century AD.



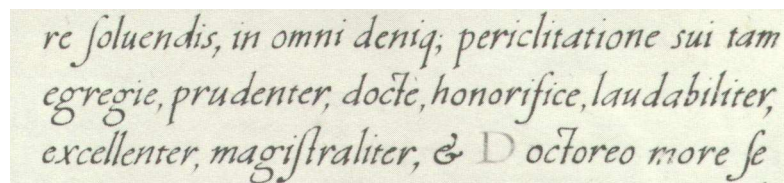
Johannes Gensfleisch zum Gutenberg (1397-1468) and a sample from the Bible, first book he printed with movable types.

The first book Gutenberg printed in Mainz was the 40 lines Bibles with black and red Gothic letters and with two columns per page. Some pages were decorated by hand to look similar to the illuminated books produced in the ‘scriptoria’.

It took four hundred years to appear machines to write. The first typewriter was invented by Christopher Latham Sholes in 1867 and sold by Remington from 1873. James B. Hammond invented another kind of typewriter in 1881 that

inspired the future electronically controlled spheroid IBM typewriter. The courier letters were a common font assembled in typewriters. The Linotype was created by Ottmar Mergenthaler in 1880. With the word processors, the computers took over the task to prepare and to print today.

Italic letters – One version of the Roman letters leaned towards the right side, associated to the antiqua letters became one of the most important letter style, generating the italic letters. This letter style was invented in Aldus Manutius typography, in Venice, in the end of the XV century AD. The job was done by an artist called Francesco Griffo, who worked for Aldus Manutius.



The above graphically sophisticated style of letter for printing was shaped in Italy and became known as ‘italic letters’. The sample above is from 1627.

*Old letters* – Under this denomination there are a group of letters styles that appeared principally during the XVI and XVII centuries AD, like the *Garamond letters* created by Claude Garamond in 1540 and the *Caslon letters*, created in 1730.

*New Style* – The letters designed principally in the XVIII and XIX centuries AD are called *new style letters*, like the *Times New Roman*, *Baskerville* and *Bodoni letters*. The latter was designed by Giambattista Bodoni in 1760. Perhaps the most common letters styles in the printer is the modern version of the *Times New Roman*, designed by Stanley Morrison, in 1931. Morrison

redesigned Pietro Bembo's letters from 1495 with the name *Bembo letters*, in 1929.

*Registrar calligraphic letters* - This is a general reference to cover different standardised handwriting styles for commerce that were in use during the XVII and XVIII centuries AD. The most commonly known calligraphic letters are attributed to Petrarca's handwriting. A variation of it became the school calligraphy used in the first years teaching.

*Without serif letters* – Serif is the small stroke at the ending of the straight lines in letters. The serif were a typical feature of many letters styles, but letters without serif appeared at the end of XIX and at the beginning of the XX century with the work of Eric Gill, creating the *Sans-serif letters*. This style of letters is very popular but it is not very much in use in book printing. A good example of this type is the Arial font, one of the most popular letter style associated with the use of word processors for computers.

Script letters – The cursive form of some letters styles started to be used as independent letters not in a cursive writing. These letters became common in the XX century as a non cursive handwriting that could also be printed. Computer software made very easy to print script letters today.

The table below shows examples of different letter styles or fonts found in a word processor software for use in modern personal computers. The letter length proportion between majuscule and minuscule letters can be seen when they are compared. Arial letters are typically non seriffed and Times New Roman are typically seriffed.

Examples of computer fonts	Fonts
THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG the quick brown fox jumped over the lazy dog	Arial
THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG the quick brown fox jumped over the lazy dog	Lucile Console
THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG the quick brown fox jumped over the lazy dog	Courier New
THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG the quick brown fox jumped over the lazy dog	Times New Roman
THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG the quick brown fox jumped over the lazy dog	AGaramond Bold
<i>THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG</i> <i>the quick brown fox jumped over the lazy dog</i>	Zurich Calligraphic

### 23. Phonetic alphabets

Since the beginning of the history of writing, we find the desire to make a good transcription of pronunciation. All attempts to make a writing system to work phonographically reveal that desire. However, without orthography no writing system can survive in a society where people have different accents. However orthography is a strategy that neutralises linguistic variations and therefore it is the written representation of nobody's pronunciation. But the linguists could not carry on their work without a system of phonetic transcription. From the XVI century some linguists (like Johan Hart, in England) created systems to transcribe pronunciation disregarding the traditional spelling. Alexander J. Ellis created several systems at the end of XIX century to transcribe English dialects. Alexander Melville Bell invented an iconic system called "Visible Speech", in 1867. Bell's pupil Henry Sweet improved the system and published his system called Revised Organic Alphabet in 1880. Otto Jespersen (1889) and Kenneth L. Pike also invented special systems to transcribe speech phonetically.

The purpose of creating a phonetic alphabet is not only to have different letters, but a different writing system. First of all, a phonetic alphabet must transcribe the real pronunciation without the interference of orthography. In this system, a letter stands for a unique sound (or phonetic fact) of the language and vice-versa. Variations are not allowed neither ambiguities. Dictionaries started to show the standard pronunciation of words along with the grammatical and semantic information. There are several phonetic alphabets but the most important system that is today widespread is the alphabet from the International Phonetics Association, known as IPA. It was published first in 1888 and was based on important works done earlier, principally on Henry Sweet's Revised Romic System (1880). The IPA alphabet was first organised by Paul Passy and Daniel Jones. The last version of it was issued in 1989 and revised in 1993. The IPA has 72 letters for common consonants, plus 14 additional for special cases; 25 letters for common vowels plus 1 additional; 31 diacritics plus 1 for double articulations; 11 marks for suprasegmentals (prosody) and 12 marks for syllabic tones. The whole inventory covers all phonetic facts necessary to carry on a linguistic analysis of any language.

A good phonetic transcription is based on the articulatory possibilities of man and must cover all language sounds from all languages. It must be simple to allow phonological analysis as well as detailed phonetic transcription for the study of speech sound in phonetic laboratories. In the first case, the alphabet has letters and in the second, diacritics. Every letter or diacritic represent only a single phonetic fact and the system has no ambiguities. Because of the nature of speech, the phonetic transcription must represent also prosodic features like rhythm, intonation, speech velocity, voice qualities, etc. Although there is a perfect correlation between aerodynamic mechanisms, phonatory processes, articulations and acoustic transmission of speech sounds, because all these factors are needed to speak, speech analysis made by electronic instruments

reveals patterns differently from the articulatory dimension that is used to produce the phonetic transcriptions. Because of the high degree of variation, these records do not have a model of systematic phonetic transcription.

**Spelling:**                    **The quick brown fox jumped over the lazy dog**  
**IPA:**                            θə 'kwi:k ,braʊn ,fɔ:ks 'dʒʌmpət ,əʊvəɪ θə 'leɪzi ,dɒg

## 24. Shorthand writing

The shorthand or tachygraphy or stenography are interesting strategies of writing. These systems were known in the antiquity. The Greek started a system in the IV century BC. One of the most important systems was invented by Tirus, an ex-slave and scribe who worked for M. Tullius Cicero (106-43 BC). The system was invented to transcribe Cicero's discourses in the Senate. The system has a simplified shape for the letters allowing a fast writing. It has also some special ideograms and special units to refer to word parts, like words endings, with highly frequent occurrences in the language. The Roman system was used during the Middle Age with the name of 'notae' (Tironian notation).

A	^ h	M	~
B	3	N	z u
C	()	O	o ~
D	γ b	P	^ L ^
E	- ll l	Q	o q
F	^ /	R	1 P
G	ς	S	ς
H	v	T	7
I		V	v
K	k	X	+
L	L	Z	z y

The Roman tachygraphic system, known in the Middle Age as *notae*. (from BEW Feb. 1934, p. 284-285 – in Daniels and Bright 1996, p. 808).

In 1602, John Willis invented the first tachygraphic system based on phonetic transcription, and not in the word spelling system like most of them. He called it 'The Art of Stenographie'. After him, many linguists tried to improve the system. The most successful was created by Isaac Pitman (1813-1897).

A	B	C	D	E	F	G	H	I	J	K	L	M
^	∩	Γ	⌋	<	L	└	+	∝	>	Γ	∩	U
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
\	c	/	∪	-		C	∩	V	)	∞	∞	Z

The Art of Stenographie by John Willis. (from BEW Oc. 1934, p. 96-97 – in Daniels and Bright 1996, p. 810).

## 25. The runic alphabet

Futhark is an acrophonic word made up from the first six letters of the Germanic Runic alphabet (*fehu, uruz, thurisaz, ansuz, raitho, kenaz*). The Anglo-Saxon name is *Futhorc*. Runic writing started in the North of Europe in Germany and Denmark. It started in the early Middle Age and was in use for centuries, although its importance was not compared with other scripts based on Roman alphabet. The Runic alphabet consisted of 24 'runes' or letters representing consonants and vowels.

The Germanic Futhark was brought to Britain by the Anglo-Saxons. In the new environment, the alphabet extended up to 31 runes and changed the phonetic



value of some characters. From the X century AD, the Runic alphabet stopped to be used in general.



A Swedish inscription in the old Germanic runic alphabet, c. IV century AD. Writing runs from right to left. (From Jensen, 1969, p. 554)

The Germanic runes were in use for centuries in Europe and they are known by the name of the countries where they existed. In spite of that, there are only a few documents with that type of writing. The runes have similar shapes to other Iberian scripts that have derived from Etruscan alphabet.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
ƿ	ᚠ	ᚢ	ᚦ	ᚱ	ᚨ	ᚷ	ᚦ	ᚱ	ᚠ	ᚢ	ᚠ	ᚠ	ᚠ	ᚠ	ᚠ	ᚠ	ᚠ
f	u	þ	o	r	c	g	w	h	n	i	j	i	p	x [ks]	s	t	b
19 20 21 22 23 24 25 26 27 28																	
ᚱ ᚷ ᚱ ᚦ ᚦ ᚦ ᚦ ᚠ ᚠ ᚠ																	
e ng [ŋ] d l m œ [ø] a æ y ea																	

Anglo-Saxon Futhorcs (runes), IX century AD, found in the River Thames. (from Ralph W. V. Elliott in Daniels and Bright, 1996, p. 338).

## 26. The alphabet today

Our alphabetic writing system has been in use for longer than 3500 years. Only the Chinese system is older than the alphabet. Both system can be considered equally important in the history of mankind. Until the middle of the XVIII century AD, half of the books in the world were written in Chinese. Because the occidental civilisation has played a very important role in the World History in the past centuries, the alphabet also became more important. Writing has a *cumulative function* which adds innovations into the old system keeping the old and the new working together. It takes a long time to discard uses and functions that once had been incorporated into writing. When we look around us, the writing world is very chaotic. The alphabet is not the unique writing system in use and in certain circumstances it is not the most important. Besides the numeral, the scientific notations, that are pure ideographic writings, we have a huge amount of icons and pictograms. Most of the information we get in the highway, like the traffic signs, are presented in ideographic writing. In this context, the alphabet stands only for place names. Even a P inside a circle meaning 'parking' is an ideographic writing with the help of the first letter of a word. This is a typical example of when a severe abbreviation becomes an ideogram. In Portuguese, 'parking' is said 'estacionamento' and the traffic sign has the letter E inside the circle.

The phonographic writing systems are more convenient to write long texts, because the languages have an average set of 10 phonetic vowels and usually less than 30 consonants in their phonetic system and less than that in their phonological system. Therefore, with a set of less than 30 letters it is possible to write any language. The functional categorisation carried out by orthography

complete the necessity to represent what is important from the language into the writing. Orthography neutralises the linguistic variations found in the different dialectal pronunciations or accents. This is one of the most striking contributions to allow the alphabet to be used adequately. When we look at the pages of a book we realise how simple and how complete our writing system is. To write texts the pure ideographic systems are rather cumbersome and inconvenient. But for scientific writing and for specific short communication network, the ideographic system is far better than the alphabet. In this case it is the alphabet that looks very cumbersome. This is the reason by which we live in a world with different writing systems everywhere on Earth.

Historically, the alphabet was used by conquerors and by discoverers that took their culture and writing system to different peoples all over the world. From the XVI century AD, the European culture with the Roman alphabet were brought to many peoples by modern conquerors and discoverers. From that time, the Roman alphabet started to be more important than local writing systems or at least as important as the traditional writing as it happened in India. Different alphabets are still in use. More recently, the Arabic alphabet has played a very important role with the diffusion of Islamic religion in many countries.

The importance of the Roman alphabet is also related to international trading, posting, media transmission, communication and computer use throughout the world. In necessary transliterations, when a parcel, for instance, must be handled by staff of different culture, the Roman alphabet is always present. Because the most important technical reports and science books are printed in English, we find educated people in all countries who know how to read and write texts with the Roman alphabet.

The mixture of different systems in our writing chaotic world can be noted mainly in advertisements, propaganda, newspaper and magazines. If we open a couple of pages from a magazine, we may come across to different facts about writing as follow:

- Letters from different styles or alphabets: capital letters, minuscule, italic, bold, sans-serif letters. The easier way to identify this is looking at the different shapes for the same letter: A, a, *a*, etc.
- Many diacritics, like stress marks, tilde and punctuation marks.
- Numerals and scientific notations: 259,  $\sqrt{\neq}$   $\leftrightarrow$  % etc.
- Letters employed as ideograms, as Dr for ‘doctor’, SS for ‘saints’, OX for ‘Oxford’, UK for United Kingdom, etc.
- Abbreviations: txt for ‘text’; Rpt for ‘repeated’, etc.
- Acronyms: BBC, ITV, MP, DVD .
- Transcription of noise and funny sounds: *pow! augh!... @#\*\$*, etc.
- Tables, graphics, scientific figures, maps, statistic graphics .
- Music notation, symbols: ☺ ♀ 🎵 🎶 🎷 🎸 🎹 🎺 🎻 🎼 . .
- Pictograms instead of words: 📞 123-4567; 📞 123-4567, ✂ for ‘cut here’, etc.
- Spelling variations: behavior / behaviour; metre / meter; organization / organisation.
- Foreign names: Schumacker; Rio de Janeiro; Muhammad Ali.
  - Letters layout with special decoration, colour, etc. (for instance, the head of a fox occupying the place of the letter ‘o’ in the word ‘fox’).
- Different writing direction: on a baseline, vertically, around a circle.

So, looking at the pages of a magazine, it is amazing the variety of writing systems we find there. However, they seem very familiar to us. The familiarity with writing is so incredible that all the facts look as if they would belong to a

simple and easy reading system. But when we analyse them carefully we come across to an unbelievable complex and complicated intellectual framework in which we find somehow all the writing systems that has been invented and used in the history of mankind.

With the modern computers and media devices to transmit images and language, it may seem that writing is no longer as important as it was in the past. This is true, but it does not mean that writing is jeopardised or the alphabet is threatened to be extinct. It is also true that we use much more pictograms and icons than ever, but they live in special context and circumstances in our world. We still depend on books and writing as never. We cannot survive without newspapers, magazines of different interests and subjects. It is even true that our reading habits have changed a lot with the modern use of writing. New technologies have valued the speech to be more important than writing, because if the alphabet is a more convenient writing system in general, speaking is yet more suitable to communicate, because it has all the language possibilities as in a face to face communication. However, the future is still a blank page to be written.

## **27. Writing today**

In magazines we find all sorts of advertisement in which different styles of letters are employed. In the sample below the name of a famous newspaper is written with old Gothic letters. The use of fonts and the layout in which they appear are distinctive features of trade marks. The fixed form to present writing in these cases helps the observer to identify easier the product or the information. It is common to accompany the writing with some logotypes, ideograms or pictograms that are associated with the names of the products and companies. In one case there is a series of colours (because the company

deals with photographs) and in another a two colours sash to indicate the company symbol.



If we look around us in a street we usually see all types of writing on commercial panels, in shop windows, on walls and doors, route signals, traffic control information. Since the ancient times graffiti is found in cities.

The symbol £ stands for ‘sterling’ or ‘pound’. It is an ideogram familiar in our writing system. Because of its semantic nature, we can read Lbs – that means ‘librae’ in Latin – as ‘pounds’ – the common word in use today. This is an extreme use of alphabetic letters employed to form ideograms. The number 7 is also a pure ideogram. The abbreviation R.R.P. cannot be read with the names of the letters, but with what they mean: ‘recommended retail price’.



But the abbreviation UK can be read with the names of the letters. Abbreviation is a special system inside the normal writing system. It is not an independent system, like the numbers.



A map is an ideographic writing. It has also the common writing system, like the alphabet. In addition it is plenty of symbols and pictograms. A bed means a guest house, a flag means an Embassy, the underground and train stations and the bus stops are signalled with the city symbols for them. Streets, parks, rivers are also indicated. An arrow signs the way to go, and a man and woman silhouette stands for toilets. A map is a special writing system in which we can read from different directions. Reading in this case means to convert graphic information into a list of words or even in a text. We read a text from the beginning to the end, but a map can be read only partially. When we analyse a map we realise that it is a convenient way to bring information that otherwise would require a very long and complicated text.

In a world plenty of new technologies, a huge number of new icons has been created. It is not rare to find them with the label written with letters as well. The icons are intended for easy identification and fast reading.



The modern life is plenty of symbols and trade marks like logotypes, icons and similar forms of ideographic writing. In this respect, when we look around our writing world we find ourselves in a situation similar to Japanese and Korean writing which have Chinese ideograms along with their common writing. The ancient Egyptian and other peoples as well used to add special ideograms to make the writing easier for the reader and to help the understanding of the text. The use of writing is very common and familiar mainly in advertisements.



The layout of the name Fuji is presented in a similar calligraphy used by the Arabic tradition. Layout is as important as the letter style to fix a trade mark.

In the next figure, the figures are meant to indicate a ‘telephone number’, but a telephone number is not a number in the arithmetic sense. It is different from 08,000,436,060. A telephone number is a classificatory identification based on



the way we write numbers. The four first figures 0800 means a free call. We do not read classificatory numbers arithmetically, but in different ways, by groups of figures or one by one, never by the total.



**0800 043 6060**  
APPLY ONLINE [www.dial4loan.com](http://www.dial4loan.com) ref LWT308

**cfb**  
Corporation of  
finance brokers

**FISA**  
registered

**TELETEXT** On ITV p.386

**YELLOW PAGES**<sup>TM</sup>

The internet site is a formula and as such it is plenty of ideograms and words mixed together. In these cases, the writing material has also a special layout, like 'dial4loan' written without a blank space between the word units. The sample 'ref LWT308' shows how familiar it is to us the use of ideographic writing in our everyday life. Because we do not know the meaning of LWT, we read it saying the names of the letters. But in the case of p.386 we read 'page' and not 'pe'. Some pictograms like the one that identifies the Yellow Pages are supposed to convey a clear idea of an action: 'to look for and find consulting the telephone book', but in most cases they are not so clear to the user, being a simple trade mark or logotype. TM is an abbreviation for 'trade mark'. Abbreviation must be accepted by the society to work adequately. In other words, they have an orthography. We do not write TRD MK. On the other hand we write Ltd and not LmtD or simply L.

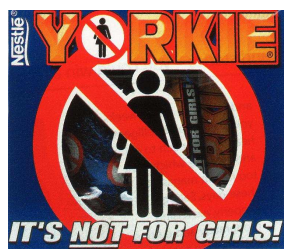
Another striking use of writing units in advertisements and to compose trade marks is found in monograms or artistically shaped letters to obtain a special 'drawing' with the letters, like the 'cfb' in the last figure.

 **Call 0845 303 3000** quoting A559:  
 Lines open 8am-8pm Mon-Fri, 9am-5pm Sat.  
 Calls are charged at local rate. Textphone: 08000 565 020

 **Come to any  
 Alliance & Leicester branch**

 **Click on  
[www.alliance-leicester.co.uk](http://www.alliance-leicester.co.uk)**

With the great circulation of newspapers and magazines, numerous icons had been created, invading the traditional text format written only with letters. In shops and public places, the pictograms are everywhere. The drawing of a telephone (in old or modern model) means ‘call’, a drawing of a ‘mouse’ means connect the internet site. Two shoes means ‘come to’ or ‘walking distance’. In the latter case, we see that even the pictograms can be ambiguous, and they have the right meaning depending on the context where they appear. It is interesting to see that still now we write the Latin word *et* with the old form &, but we say ‘and’ in English. Punctuation marks and other layout strategies have accompanied writing along its history because who writes has the reader in mind, and to get a right reading, writing must be friendly to the reader, allowing him to do his job with the least effort.



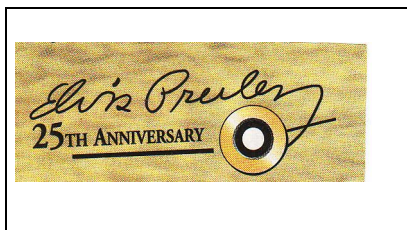
In advertisements it is not rare to come across to drawings of objects, animals etc occupying the place of some letter because of the meaning of the drawings and the meaning of the word.



A serious problem in reading is related to the ‘graphic categorisation’ of the characters or letters. In the example above, the third letter looks like an U and not a double l. The letter ‘g’ does not look an unmistakable ‘g’, and the same happens to the last letter ‘e’. If the reader cannot identify the letters he has a serious trouble and he may not read at all. Sometimes, the context and more often the knowledge of the world will tell him how to read. In these cases, writing is somehow opaque. When we compare the handwriting with the capital letter, as in the example above, we easily understand why the capital letters are much easier to be read, because they do not present problems of graphic categorisation.



Even after more than 3500 years, we are still inventing new shapes for the letters. When they have an artistic style, they are called letter style and named with special labels, most of the cases with the names of their creators. Technically they are called ‘styles’ or ‘fonts’.



A signature can be just a form of handwriting in cursive form or a typically conventional ideogram of a special kind. Signatures are intended to difficult their copy, but at the same time it makes difficult do recognise what they refer to.

## *Life in a Postcard*

After the invention of printing with separate and movable types, the books stopped to be written with cursive letters. However, recently, printing does not use movable types anymore, but special electronic printers (laser, inkjet) and texts and illustrations obtained from software with the help of word processors in powerful computers. Because of the new technology, we find eventually cursive handwriting style of writing on newspapers and magazines. Books maintain the old fashion style, although they may be printed with different traditional fonts.

Since the old times, we find drawings of objects occupying the place of some letters because their shape have close resemblance with the letters shape. So, a tomato could be used to occupy the place of the letter O in a word like 'tomato'. A pencil could be used instead of the letter I in the word 'pencil'.



Another use of drawings filling up the place of letters is found when the pictorial representation is a typical pictogram for a word. For instance, in the above example, the drawing of a heart is used to indicate the word 'love', because in our culture, 'love' is something related to 'heart'.

In the rebus, the pictograms represent only part of a word, like the drawing of the 'sun' plus a 'daisy' to mean 'sunflower' or the drawing of a foot plus a ball to mean 'football' or a 'chair' plus a 'man' to mean 'chairman', etc.

## 28. Writing systems glossary

**ABBREVIATION:** orthographic variant of the spelling form of a word that consists on the use of some letters from the extended word to represent the whole word. An abbreviation may have special patterns. When we write *txt* for ‘text’ we abbreviate by writing only the consonants. When we write *OX* for ‘Oxford’, only the beginning of the word is used. When we write *Dr* for ‘doctor’ or *rd* for ‘road’, only the first and the last letters are displayed. In certain cases, abbreviation works like real ideograms, as in *Dr* (doctor), *Rd* (road), *Lbr* (pound), etc. Abbreviation shows that our alphabetic writing does not need to write exactly all the phonetic sounds we have in the words.

**ALPHABET:** a writing system that has letters to represent vowels and consonants.

**BOUSTROFEDON:** the direction of writing that consists in going to an opposite direction in relation to the direction of the previous line. When applied to our alphabet, we have a mirror image of the letters in the even lines.

**CHARACTER:** the same as graphic ‘symbol’ or ‘script’ used as writing unit that is combined with other units to write words. Ideograms and letters are characters. A character may be of conventional or of pictorial form. A pictogram is not a character.

**CONSONANT WRITING:** In the beginning, the alphabet wrote only consonants. The vowels were introduced about 1000 years later than the consonants, when the alphabet began to write Greek, a non-Semitic language. Still today the Semitic languages like Arabic and Hebrew can be written without the vowels. One way to make abbreviations of short words is to write only their consonants. There is no system that represents only the vowels leaving the consonants out.

**CURSIVE WRITING:** The cursive writing is a procedure to write usually connecting letters and simplifying its graphic characteristics to allow a fast handwriting.

**DIACRITICS:** Besides the letters and the characters, the writing systems employ special marks called diacritics. The stress marks over vowels mean the word prosodic stress, over a consonant they mean different phonetic consonants or consonants with a secondary articulation. The tilde sign was used to indicate abbreviation, but now it is typically a mark for nasality. Some diacritics have the function to indicate a sound that has not been associated to the consonants and vowels traditionally referred to by the Roman letters. These new modified letters are, in fact, real new letters not just a letter plus a diacritic. The letter G derived from the letter C with a diacritic mark added to it. The letter i has a diacritic dot to differentiate it from u in the Gothic letters. Another solution to this problem resulted in the creation of the letter J with a diacritic hook attached to the letter I. Modern European alphabetic writings have a huge amount of diacritics to conform the spelling to different phonetic sounds that are not traditionally associated to the (27) basic alphabet letters. This excess of diacritics represents a misunderstanding on how the writing systems works.

**DRAWING:** A drawing becomes a writing unit when it represents a language word. If the figurative graphic representation is related to objects and beings from the world, it is not a writing unit, instead it is just a drawing. We do not read a picture neither a painting, although we can make a discourse based on what we see or we feel in front of them, as in the same way we can produce a text just looking a real landscape. The figurative aspect of ideograms and pictograms is secondary as far as the writing systems are concerned. More important is the reference they make to language words.

**ESTELA:** An estela is a stone in which a text has been carved. Most of the ancient people left different kinds of message carved into stones that were

located in special places, like monuments, palaces and temples. Special estelae were made to commemorate special events and people's achievements .

**FUNCTIONAL CATEGORISATION:** In the phonographic systems and particularly in the alphabetic writing, the relationship between letters and sounds creates functional categories defined and controlled by orthography. The functional categorisation makes the alphabetic principle based on acrophony weaker, because in the name of the letter there is then only one of the several possible phonetic values for it. The functional categorisation takes into account all accents and dialects of the language to define which sound a letter has. A letter will have all possible sounds found in the language, in the context where the letter occurs in words. Functional categorisation makes reading easier but creates severe difficulties for writing. In ideographic systems the functional categorisation controls the linguistic meaning attributed to the ideograms.

**GRAPHIC CATEGORISATION:** Because a letter is an abstract unit, its graphic form may vary up to the point where the symbol is recognised as occupying the place of the letter in the spelling form of the word. Although there are limitations for the letter shape to vary, it can assume very different graphic forms. The whole alphabet system will tell which letter that shape represents or it is assumed to be regarding a cultural tradition. The graphic categorisation is the property that allows the variation in the graphic form of the characters, setting up different letters styles or fonts. It also allows the use of handwriting with drastic graphic reduction caused by idiosyncratic writings.

**GLYPH:** The term 'glyph' means a character, but it is used more commonly to label writing units from systems that are not well known. The printed units in the Phaistos disk are referred to as being glyphs, like the units of the Mayan writing. Now, they have been deciphered but we still refer to Phaistos and Mayan glyphs.

**HIEROGLYPHS:** The Egyptian characters are called hieroglyphs, a label invented by Herodotus with the meaning of 'sacred script'. We also use this term for a few other writing systems, like the oldest Hittite writing.

**ICON:** An icon is another name for a pictogram. Icons usually come in sets of a kind, like the icons that indicate Olympic Games, or the icon sets found in computer software.

**IDEOGRAM:** An ideogram is a character or a writing unit in ideographic systems. By its nature, an ideogram is directly associated to the linguistic meaning of words. In compound words, it is associated to individual meanings of them. An ideogram may depict the drawing of an object or may be an 'abstract' representation of the meaning. In all case, it is necessary to have a convention to rule the relationship between the graphic form and the meaning associated to it.

**IDEOGRAPHIC WRITING:** The ideographic writing systems represent the linguistic meaning of words in a graphic form. The phonetic counterpart of the words is associated to the linguistic meaning taken from writing because the reader knows the language. Any word can be represented by an ideogram in a figurative or conventional form. For example, because we know English, we can associate the ideogram 7 to the sounds of the corresponding word in English. In Chinese, this can be done to any kind of word not only to numbers.

**LETTER:** A letter is a writing unit in the alphabet system that is associated to the consonant and vowel sounds in words. In the old Semitic alphabet, the letters were associated to consonants only. In a syllabic system the letters are associated to clusters of consonant plus a vowel like in the Japanese syllabaries. In the Indian alphabets the letters are associated to a special syllabic pattern, usually composed of a consonant plus the vowel 'a'. The system has also separate letters for some vowels without reference to consonants. In the Greek and Roman alphabets, the letters are associated to consonants and vowels individually. In some languages, the orthographic



system has not some of the traditional letters, like Italian that lacks J, K, W, Y and X. Other languages have invented new letters or letters with diacritics, like German ß or the French Ç. In all languages the relationship between letters and phonetic sounds is controlled by the orthography not by the acrophonic principle.

**LIGATURE:** In the history of writing some letters were amalgamated resulting in a special design for them. Cursive writing makes use of this procedure and more typically all kinds of handwriting. The German ß is the result of two contiguous S with ligature. Monograms represent an artistic use of ligature, assembling two or more letters artistically.

**NUMERAL:** an ideogram of conventional character to write arithmetical quantities or natural numbers.

**ORTHOGRAPHY:** The orthography is the definition of which character (ideogram formation, letters, etc.) must be used and in which location they must occur in words. It means the fixed order of the characters in words. Orthography has the essential function to neutralise the linguistic variation to allow an easier reading for all speakers of the language, irrespective of the dialect they use. The orthographic principal is the heart of all writing systems, controlling the functional and graphic categorisation. In the case of the alphabet, orthography has made the acrophonic principle less important and has introduced an ideographic characteristic to it. With orthography, spelling turned out to be more difficult for the writers. Orthography controls the characters in all types of writing systems, not only in the alphabetic writing. In ideographic systems orthography controls how an ideogram must be built with the right strokes and how the semantic is present in writing. For instance, 7 is different from 1 because the strokes are different and because the ideogram 7 means 'seven' and not any thing else. 71 is 'seventy one' and not 'seven plus one' because the latter is represented by  $7 + 1$ . On the other hand, orthography

does not eliminate ambiguities, on the contrary, it is a favourable environment for ambiguities.

**PETROGLYPH:** A petroglyph is a graphic form on a rock that represents an intentional will to transmit some information outside a writing system. Therefore, it is not a proper writing, even when who makes the marks associates what he does with ideas and so with words. In most cases, they are doodle marks that cannot be read, differently from scrawl or scribble that are careless real writing. Petrogram is another word for it.

**PICTOGRAM:** A pictogram is a writing unit in an ideographic system that is not intended to be used to write texts but short messages. A pictogram makes direct reference to a word or expression. Pictograms are usually figurative, but the drawing does not need to picture the object related to the word it represents, as we see in the toilet doors. Trade marks and symbols, flags, etc. are pictograms as well, and in these cases, the pictograms are usually of conventional graphic forms.

**PHONOGRAPHIC WRITING:** The phonographic writing systems represent the speech sounds of words in a graphic form. In the history of writing, most of the systems are phonographic systems that represent the syllables and they are called syllabic systems. The alphabet started as a consonantal system, becoming later a fully alphabetic with the vowels incorporated to it. The Korean Han'gul system is a feature system, because the minimal writing units are associated to articulations not to vowels and consonants directly. Those units are assembled in phonetic segments and further displayed in a syllabic structure. Rebus is also a phonographic system because it represents the sound string of part of a word.

**PUNCTUATION MARKS:** Writing has in addition to the characters a set of typographic marks that fulfil the function to orientated syntactically and prosodically the reader to get a better understanding of the text. Punctuation marks are not integrand parts of the basic system, in the sense that writing does

not need them. Their first function is to be devices to improve the layout of the written material. They are not diacritics because they do not modify the phonetic or semantic value of the characters. Common writing does not represent prosody in a systematic manner as it represents the segmental phonetic units or the meaning of the words, but sometimes this function is indirectly associated to punctuation marks. In this case, a full stop indicates an intonational pattern of a falling pitch and an interrogation mark is usually associated to a rising intonation pattern, and so on. The modern use of punctuation marks is more typically associated to syntactic segmentation and to discourse segmentation. However, prosody is the phonetic elements that are associated to those segmentations. Once prosodic units are present through these marks, they must be considered part of the writing system. This is a particular case in which the utterance is more important than the word in writing. Some typographic marks and symbols, however, have the precise value of an ideogram like ¶ and § to indicate a 'paragraph'.

**REBUS:** Rebus is a Latin word that means 'by means of an object'. It refers to the use of pictorial drawings with the picture of objects which have names that form part of a word. For example, with the drawing of a bee and a leaf it is possible to recognise the English word 'belief'. Rebus is a writing based game. Rebus is made of characters of a phonographic writing system and it is specific of an individual language.

**TABLET:** The most important writing support for cuneiform writing was the clay tablets. A common tablet had the shape of a small cushion that a hand could hold. The characters were pressed with a stick when the clay was still wet. Tablets were also the support for printing seals in antiquity. The word tablet has been used to name small pieces of wood with writing like the ones found in Vindolanda.

**WRITING:** Writing is the process of representing language words in graphic support. A word is built up by two linguistic components: a meaning and a

sequence of phonetic vowels and consonants. The writing systems are of two kinds: the ones that represent the sounds graphically, leaving to the reader to disclose the meaning; and the systems that represent the meaning graphically, leaving to the reader the task to associate the correct language sounds to the written meaning. The first type is called phonographic system and the latter is called ideographic system. All writing systems have a compromise that makes use of both kinds of writing systems to cope with all the necessity that a society has to write.

**WRITING SUPPORT:** We use the term 'writing support' to indicate the material on which writing is fixed. The most usual writing support in Mesopotamia was the clay tablets. In Egypt, the most common writing support was the papyrus. Parchments and other kind of skins have also been used. The stones are the most impressive writing support because of the monuments. Boards, metal and ceramic have been used to support writing as well. But the most common of all is paper, another Chinese invention. The Chinese used paper since the II century AD and it was in use in Japan and Korea since the VII century AD., but in Europe it started to be used only from the XII century AD. Now the electronic screens are the writing support for computer and other machines.



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