Typography papers 7

The form of language

Giovanni Lussu

Typography papers 7 was edited, designed, and prepared for press
in the Department of Typography & Graphic Communication,
University of Reading (www.reading.ac.uk/typography) and
published by Hyphen Press, London (www.hyphenpress.co.uk).

This file is compatible with Adobe Acrobat 7.0 or higher.

Colour and greyscale images downsampled to 240 ppi with 'high'
image quality JPEG compression; monochrome images downsampled
to 400 ppi. Printing is enabled to 'high resolution'.

Minor copy-editing faults that may have occurred in the article,
as printed, have been silently corrected. Substantive corrections,
if any, are listed below.

Corrections

None.

Giovanni Lussu
translated by Karen Le Marquand

The form of language

0. The colour of thoughts

This article began life as a lecture given at the 2002 conference of the Association Typographique Internationale in Rome. It was then published as 'La forma del linguaggio' in *Progetto grafico*, no. 1, July 2003. This is its first appearance in English.

author's address
Jumblies s.r.l.
via Pompeo Magno 94
00192 Roma
ITALY

g.lussu@jumblies.eu

The issues for this discussion were summarized well in the two quatrains chosen by Pierre-Simon Fournier *le jeune* in 1764 for the opening of his *Manuel typographique*, reproduced here from the excellent edition of James Mosley. The first quatrain [1] brings together two longstanding clichés: the so-called evolutionary theory, which holds that graphical depiction lies at the origin of the process that led to writing ('signs from Nature'), and the conviction that the only 'real form' of writing is alphabetic.

Pour consacrer la mémoire des faits,
on emprunta d'abord les traits de la Nature.
Hiéroglyphes obscurs, signes trop imparfaits,
cédez la place à l'Ecriture.

(To preserve the memory of that which had been / man first borrowed signs from Nature. / Obscure hieroglyphics, signs that are too imperfect / give way to Writing.)

The second quatrain [2] is rather more semiological; though it is formulated in a somewhat suggestive way, it actually introduces a third cliché, that of writing as a representation of the spoken word. It is taken from a translation in rhyming couplets of the great Latin poem about the civil war between Caesar and Pompey, *Pharsalia*, by Lucan, the nephew of the philosopher Seneca. The translation was written towards the middle of the 17th century by Georges de Brébeuf, nephew of the Catholic Saint, Jean de Brébeuf, missionary with the Hurons in Canada.

C'est de Dieu que nous vient cet Art ingénieux
de peindre la parole & de parler aux yeux,
et par des traits divers de figures tracées,
donner de la couleur & du corp aux pensées.

(It is from God that this ingenious Art comes / of painting the word and speaking to the eyes / and through the different strokes of drawn figures / of giving colour and substance to thoughts.)

1, 2. The two quatrains at the beginning (p. iv) of the *Manuel typographique* by Pierre-Simon Fournier *le jeune*.

2

Fournier has taken some liberties, by substituting God for the Phoenicians, who are the true protagonists in Brébeuf's version. What is more, Brébeuf had himself taken considerable liberties, as his four verses actually correspond to just two much more concise verses by Lucan (*Bellum Civile* [*Pharsalia*], III, 220–1).

> *Phoenices primi, famae si creditur, ausi*
> *mansuram rudibus vocem signare figuris*
>
> (The Phoenicians were the first, if the story be believed, to dare represent the voice with rudimentary signs)

In both the Brébeuf and the Lucan version, these lines are immediately followed by a comparison with Egyptian hieroglyphics as 'natural' signs holding esoteric meanings, thus bringing us full circle.

> Memphis auparavant sur de rudes métaux
> donnoit à ses secrets l'air de ses animaux,
> et des lyons sans âme, ou des aigles müettes,
> de ses conceptions étoient les interpretes
>
> (Then the people of Memphis, on rough materials / carved their secrets in the form of animals / so soulless lions or mute eagles / became the interpreters of their ideas)

> nondum flumineas Memphis contexere biblos
> noverat et saxis tantum volucresque feraeque
> sculptaque servabant magicas animalia linguas
>
> (Before Egypt had learned to fasten together the reeds of her river, and when only the figures of birds, beasts, and other animals, carved in stone, preserved the utterances of her wise men.)

The traditional western ideology of 'the tyranny of the alphabet', as defined by Roy Harris (*The origin of writing*, Duckworth, London 1986), is actually supported by three pillars of thought:

1. Writing is, above all, the representation of the spoken word;
2. 'Real' writing was developed from pictograms; signs used to depict things in nature;
3. The alphabetical system is the most perfect.

Over the course of two and a half thousand years, not much has changed of this ideology.

Let us now quickly review these three assumptions.

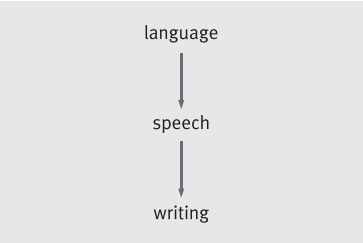
1. Is writing the representation of the spoken word?

This belief can be traced back to Aristotle, who expressed himself very clearly on the subject:

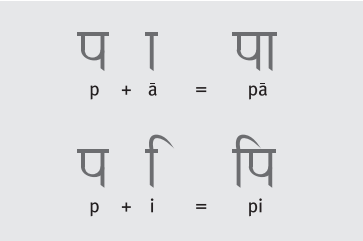
> Words spoken are symbols or signs of affections or impression of the soul; written words are the signs of words spoken (*De interpretatione*, 16a, 3–4).

By the beginning of the 1900s, Ferdinand de Saussure, one of the great founders of modern linguistics, does not express himself very differently:

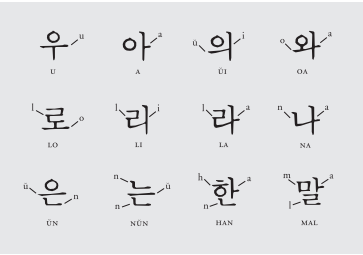
> Language and writing constitute two distinct systems of signs: the second exists for the sole purpose of representing the first (*Cours de linguistique générale*, 1916).



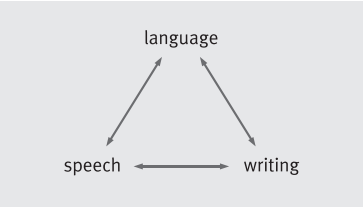
3. Relations between language (Saussure's *langue*), oral expression (his *parole*) and writing, according to the Western tradition, from Aristotle to Saussure and beyond: writing as merely a transcription of speech.



4. The composition of written syllables in Devanagari, the national Indian script developed from ancient Sanskrit. Devanagari is written from left to right, and so is the sequence of the consonant and the vowel in the syllable /pa:/; but in the syllable /pi/, for merely graphic reasons, the vowel precedes the consonant (in /pu/ the vowel is placed beneath and in /pe/ is above).



5. The Korean alphabet was invented as a logical system in the 15th century by Korean scholars who had a profound knowledge of their spoken language and knew a variety of writing systems (Chinese, Arabic, Mongolian).



6. The model introduced by Jack Goody in *The domestication of the savage mind* (1977): speech and writing, in their mutual interaction, are expressions of *langue* at the same level.

For Leonard Bloomfield, father of the American linguistic tradition, things are not much different:

> Writing is not language, but merely a way of recording language by means of visible marks (*Language*, 1935).

These beliefs can be summarised with a simple diagram [3]: language (the *langue* of Saussure), as a set of rules and as a mental fact is represented by speech, which interacts with it; writing is really a lesser form of representation, a mere representation of the spoken word. A one-to-one association is claimed between sounds and letters, which are then laid out in a sequential line, simulating the linear flow of speech.

But those who are concerned with the form of letters are quite conscious of the fragility of this connection. The English language, with its twelve vowels for only five letters and with its infinite spelling exceptions, already poses a number of problems: letters are pronounced in different ways (for example the 'a' in *cat*, *bath*, *able*, *quality*, *all*, *care*) and sounds can be represented by different letters (the /i:/ sound in *tea*, *see*, *key*, *me*, *siege*, *seize*). Each of the other languages transcribed from the Latin alphabet, with its own diacritic marks and variations on pronunciation, has its peculiarities and more than a few flourishes. Non-Latin alphabets also have innumerable idiosyncrasies: to give just one example, the Devanagari alphabet, despite being written from left to right like the Latin alphabet, dictates that the sign for 'i', when forming a syllable, must be positioned in front of the consonant [4]. In the Korean alphabet, which is actually considered particularly efficient, letters are set out to visibly form syllables, without corresponding in any way to the sequence of sounds [5].

In fact these are all conventions that have very little to do with spoken language; they have evolved independently and are part of a different, graphical, history. Are upper and lower case letters pronounced in different ways? What of italics, or small capitals? And indentations, different type sizes, tabulations, the blank spaces on a page, to what do they correspond? Is it not true that Garamond and Futura, in certain circumstances, are different forms bearing different messages?

The British anthropologist Jack Goody, in 1977 (*The domestication of the savage mind*, Cambridge University Press, Cambridge), finally introduced a more correct model, which was revolutionary for its very simplicity [6]: speech and writing are two distinct representations of language as a mental process and as a set of rules, interacting with it as they do with each other. In recent years the myth of 'primary orality' has finally been brought into question. In the words of Roy Harris (*Signs of writing*, Routledge, London 1995, p. 163):

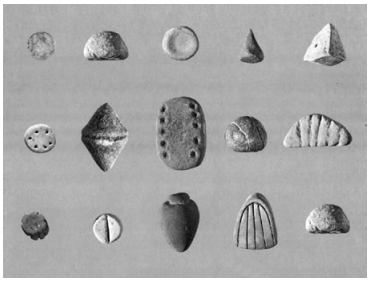
> The new technology offers a form of communication which explodes the myth of writing as an ancillary recording system subservient to speech. It both vindicates the view of writing as a mode of communication *sui generis* and opens up a future in which writing is the essential, systematically creative process and speech merely oral commentary on what writing has created.

2. Did 'real' writing evolve from graphical depiction?

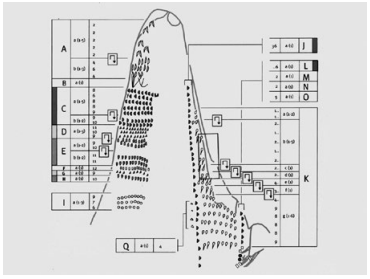
Academic convention holds that, by a process of progressive stylisation, such as with Mondrian's famous tree, primitive representation (the 'traits de la Nature' of Brébeuf and Fournier) slowly became the arbitrary signs that configure the notational codes of *real writing*. In the past few years, however, we have come to realise that perhaps things did not quite happen that way.

The well known *tokens* studied by Denise Schmandt-Besserat (*How writing came about*, 1992) led to a belief that these small clay objects, which despite being non-representational and of arbitrary shape, managed to denote the type and quality of goods that circulated on the old Middle Eastern trade routes, actually preceded real writing by thousands of years [7]. In-depth scientific research is revealing previously unsuspected complexity in the great collections of stone and bone carvings from the Upper Palaeolithic age: signs and systems of signs all seem to have the appearance of notations, whether they are computational, calendarial, ritual or other [8]. Can it really be plausible, that the extraordinary depictions of animals at Altamira and in the Dordogne, just appeared from nothing, without tens of thousands of years of preceding graphic practice? We are beginning to consider the hypothesis that, contrary to the well-respected and commonly held belief, figurative representations were actually preceded by notational ones.

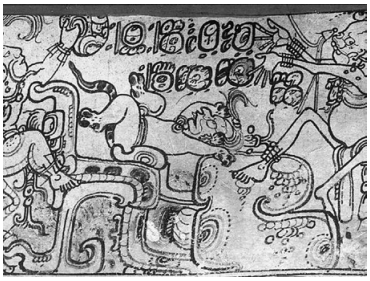
Recent studies of Mesoamerican writings reveal mixed systems, with a typical 'graphic plasticity' that inextricably weaves together representational and notational signs [9]. The vain search for models referring to the alphabet has long prevented these systems from being considered 'real' writing. We now know that Mayan writing used a complete series of syllabic phonetic signs, but with a number of alternative forms, and they could be composed in various ways to form words [10, 11]. It was not until the death of Eric Thompson, the indisputable elder statesman of Mesoamerican studies and pre-eminent champion of alphabetical prejudice, that the proposals made by the Russian scholar Yuri Knorosov (Michael D. Coe, *Breaking the Maya code*, Thames & Hudson, London and New York 1992) could be pursued and the Mayan calligraphic tradition finally be recognised as



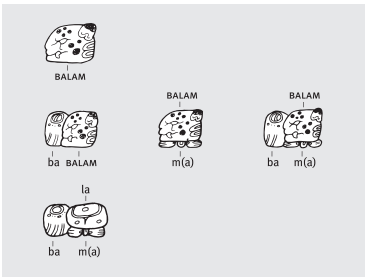
7. The 'tokens' studied by Denise Schmandt-Besserat (*How writing came about*, University of Texas Press, Austin 1992). These little clay objects were used in Near East (the oldest are 8000 BC) as notation marks, each shape representing a type of goods. The shapes of the tokens are abstract, i.e. notational rather than pictographic.



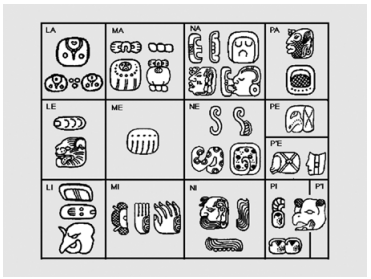
8. Analysis of signs carved on a reindeer antler found in the Paleolithic site of La Marche (about 11,000 BC). The complexity of patterns suggests a notational function, presumably intended as memory aid (Francesco d'Errico, 'A new model and its implications for the origin of writing: the La Marche antler revisited', *Cambridge Archaeological Journal*, 5, 2 1995).



9–16. Mayan writing system (from Michael D. Coe & Justin Kerr, *The art of the Maya scribe*, Thames and Hudson, London 1997). Primary signs are for syllables, to be combined in quadrangular forms for composing words.



10. Five ways to write the word *balam* (jaguar), from pictographic (top left), to picto-phonetic (central line) and entirely phonetic (bottom).



11. The same syllable could be written using different signs.

12

13. A slate mirror back of Late Classic period, presents a scribe with a basket of books (to the left) being instructed by his elder brother.

14

15. One word, phonetically expressed.

16. One word, phonetically expressed.

one of the greatest [12–14]. What is more, these were open systems, in which the scribe was able to insert modifications and innovations, confident of being understood, and therefore they escape from the conventional definition of code as a closed system. In Mayan writing, notation and representation are inseparable as 'real writing' and bearers of phonetic values: the surprising representational strength of the glyphs [15, 16], unquestionably notational signs (each one a word), forces us to reconsider all the clichés regarding the relationship between 'image' and 'writing'.

Today we can start to claim that there has never been a wholly pictographic system of writing, just as there has never been a wholly phonetic system.

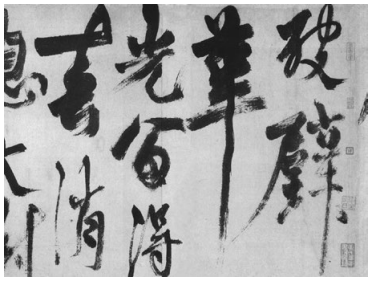
3. Is the alphabetic system really best?

James Boswell, famous as the biographer of Samuel Johnson, the most authoritative English intellectual of his time, recorded one of their conversations (*Life of Johnson*, Friday, 9 May 1778):

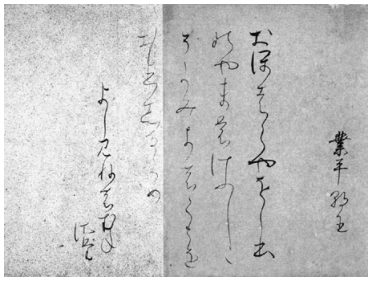
> Johnson called the East-Indians barbarians. Boswell: 'You will except the Chinese, Sir?' Johnson: 'No, Sir.' Boswell: 'Have they not arts?' Johnson: 'They have pottery.' Boswell: 'What do you say to the written characters of their language?' Johnson: 'Sir, they have not an alphabet.'

Chinese writing is finally starting to seem less bizarre and unreasonable than it was for the Eurocentric Doctor Johnson. All those quibbling comparisons between the alphabetic system and the Chinese system are rendered futile by the evident operating efficiency of Chinese, with which it is possible to write excellent literature and at the same time manage sophisticated technology (and for the Japanese, who use a more complex system, things are even more obvious). Recent research, for example, showed that the learning period for Chinese children is actually shorter than for 'alphabetical' children. The reason may be that decisively associating a word with the form of its written representation is far more structured a system than has been believed, and turns out to be an advantage from the point of view of the cognitive processes involved.

The Chinese tradition has always been aware of the graphic nature of writing [17, 18]. In the 6th century the scholar Liu Xie, making a distinction between 'bony' characters (made up of just a few strokes) and 'plump' characters (with many strokes), argued that 'if sentence after sentence contains a host of bony words, the lines will be thin and sparse, ugly to look at; if, on the other hand a piece is filled with plump characters the whole piece will be dark and blotted. One who



17, 18. Examples of Chinese calligraphy.



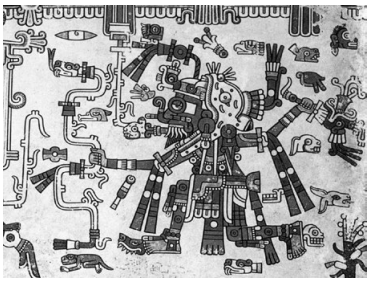
18

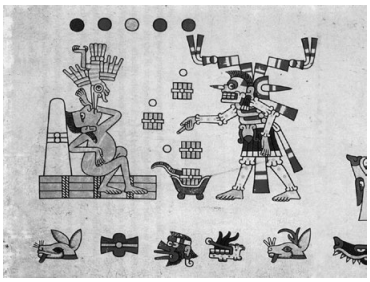
19. *One of the eight immortal drinkers*, poem by Du Fu (712–70), with alphabetic interlinear transcription in Pinyin: 'Li Bo could turn sweet nectar into verses fine. / Drunk in the capital, he'd lie in shops of wine. / Even imperial summons proudly he'd decline, / Saying immortals could not leave the drink divine' (*Golden treasury of Tang and Song poetry*, ed. Xu Yuan Zhong, Peking University Press, Beijing 1995).

can choose words well, will use the simple and the complex in so harmonious a pattern that visually they will form a string of pearls' (*The literary mind and the carving of dragons*, translated by Vincent Shih, The Chinese University Press, Hong Kong 1983). This means that, when creating a new piece of work, the author must not only think of the meaning and the sound of the words, but also the visual appearance. It would be useless to look for similar considerations about the relationship between text and graphic expression in Aristotle's Poetics. Unicode though has since given full technological plausibility to Chinese. On the other hand, since the introduction of the Pinyin system of alphabetic transcription [19], even the Chinese system is starting to become mixed. Today we are starting to glimpse signs that the evolution of writing leads to the recognition and integration of its components.

But let us return to Central America, to the Mixtec and Aztec traditions [20, 21] and compare a page from the Zouche Codex (also known as the Nuttall Codex, drawn up in Mexico in the 15th century), in which there are no phonetic symbols as we conventionally intend [22], with a brief alphabetic transcription in English [23, 24]. In what way is the Mexican text different, if not in its form? It contains exactly the same content, is equally unambiguous and decipherable and has form we might describe as considerably richer and more suggestive. There is no doubt whatsoever that each specific sign corresponds to a specific word with specific pronunciation, and therefore the transcriptive aspect of the spoken word is intrinsically present.

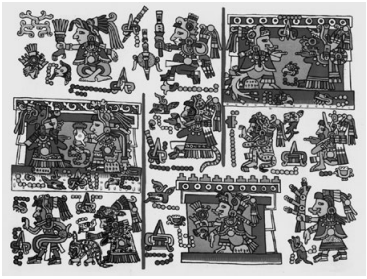
Of course, it is not possible to write everything with the Mexican system, but then we are not able to write everything with our alphabet





20, 21. Details from Codex Laud (Mexico, before 15th century).

21



22. P. 26 of the Codex Nuttall (Zouche), written in Mexico using the the Mixtec system during the 14th century. The page is read from top right, down and then up between the two vertical lines, finishing at bottom left.

Lord 5Crocodile "Sun of Rain" and Lady 9Eagle "Garland of Cacao Flowers" married in the day 7Eagle of the year 6Stone [a.d. 992]. Three children were born: 12Motion "Bloody Jaguar", in the year 7House, 3Water "Heron", and a daughter, 3Lizard "Jade Ornament". In the day 6Deer of the year 10House [a.d. 1009], Lord 5Crocodile married a second wife, 11Water "Bluebird Jewel", who gave him three new children: 8Deer

23, 24. English translation of p. 26 (*The Codex Nuttall*, edited by Zelia Nuttall, Dover Publications, New York 1975).

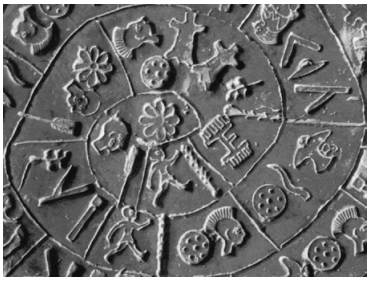
"Jaguar's Claw", born in the day 8Deer of the Year 12Cane, 9Flower "Copal and Arrow", born in 3Cane, and a second daughter, 9Monkey "Clouds-Quetzal of Jade", born in 13Stone. In the day 12Serpent of the year 13Cane, 8Deer "Jaguar's Claw" married 13Serpent "Serpent of Flowers", and two chidren were then born: 4Dog "Tame Coyote", in 7Rabbit, and 4Crocodile "Serpent Ball of Fire", in 9Stone.

24

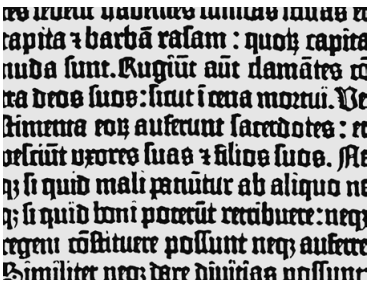
$$X \ominus B = \left[\bigcup_{x \in C_0} X \cap \mathscr{L}(x) \right] \ominus B = \bigcup_{x \in C_0} \{ [X \cap \mathscr{L}(x)] \hat{\ominus} B \}$$

$$X \oplus B = \left[\bigcup_{x \in C_0} X \cap \mathscr{L}(x) \right] \oplus B = \bigcup_{x \in C_0} \{ [X \cap \mathscr{L}(x)] \hat{\oplus} B \}$$

25. From J. Serra, *Image analysis and mathematical morphology*, Academic Press, London 1982.



26. Detail of the Phaistos disc. An ancient exemple of typographical writing: the signs, which occur in the same shape, are impressed in clay from metal stamps (Louis Godart, *The Phaistos disc – the enigma of an Aegean script*, Itanos Publications, 1995).



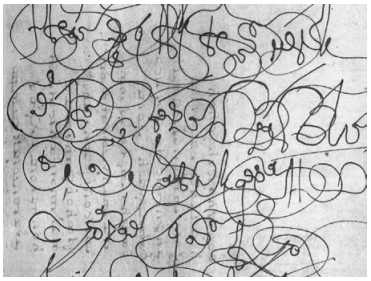
27. Detail from the 42-line Bible printed by Johannes Gutenberg.

and have to resort to specialised notations, in which the incidental presence of alphabetical symbols has no phonetic value at all [25], and without which science and technology would certainly not have got as far as the computer. And we can also reflect on the fact that there is also a representational aspect to notations, for what is a mathematical formula if not a depiction of the logical processes being represented?

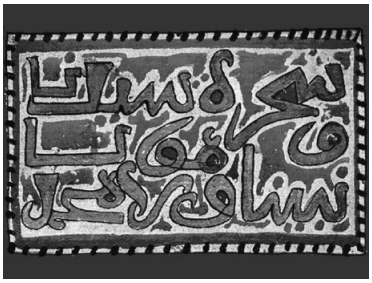
4. And what of typography?

Typography is primarily writing with type, and even the Phaistos disc from the 3rd millennium BC [26] is undoubtedly typographic, having been made by pressing stamps into the clay, one for each different sign, so that they are always the same. We know well how essential the introduction of printing with movable type into Europe in the 1400s was to the development of modern society, and how the same procedure (laying out type, archiving and then placing next to the other in order to write) later passed almost unchanged into digital printing. But typography is eminently alphabetic: its juxtaposing mechanism is perfectly modelled on the arbitrary segmentation that the alphabet carries out on the spoken word [27]. It is not by chance that the Chinese and Koreans abandoned it at the time, because it was so unsuited to the characteristics of their systems.

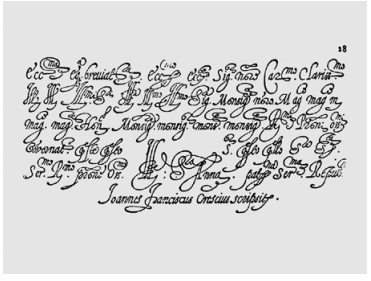
With the introduction of typography we have lost all the most expressive traits of writing, from the *monocondiles* of Byzantine calligraphy [28] to the sumptuousness of Arabic script [29] and the elegant ligatures of Giovan Francesco Cresci [30]. Perhaps we can start wondering if today, at the dawn of the new millennium, typography is still so essential, or if instead it can be considered in the same way as Ludwig Wittgenstein's ladder, which it is possible to do without once you have got to the top.



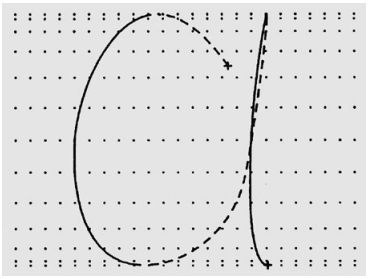
28. Byzantine calligraphy, 14th century (Paris, Bibliothèque Nationale, Manuscrits, grec 2988).



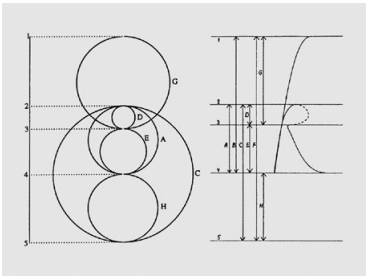
29. Work by the Maghrebine calligrapher Al Qandusi (19th century).



30. Page from *Il perfetto cancellaresco corsivo* by Giovan Francesco Cresci (1579).



31–5. Non-typographical computer writing in the *Heliscript* (E. H. Dooijes, E. Hamstra-Bletz, *A topological approach to handwriting understanding*, ICDAR '91, St Malo, 1991; http://staff.science.uva.nl/~edoh/MijnPublicaties.html).



32

33

34

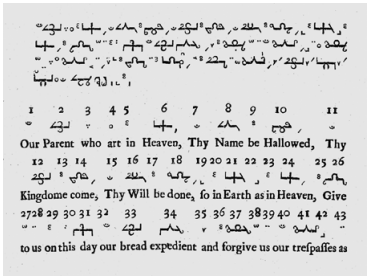
35

36, 37. 'Mother' and 'fruit' in LIS, Italian Sign Language.

37

Digital technology has now reached a phase in which it is capable of simulating analogical processes satisfactorily. The programme Heliscript, developed by the Dutch mathematician Edo Hans Dooijes in 1991, for example, features a simple mathematical model capable of providing an acceptable representation of cursive script. The process is not typographic in any way, because the letters of the Latin alphabet are described from a topological point of view, as the paths of a point moving on the surface of a system of tangent cylinders [31, 32]. The letter 'a', for example is generated by a quarter of a negative turn and six quarters of a positive turn, the letter 'b' by a quarter of a positive turn followed by a six further quarters of a turn in a positive direction, distributed though on three different cylinders, and so on [33]. The final result is perhaps not particularly exciting [34, 35], but a good designer could use it to create something very interesting: a process in which, just by altering the parameters, the forms of writing can be varied without limit.

The sign languages developed by the deaf, on the other hand, have shown us 'real' writing that is entirely non-phonetic (and therefore non-typographic), based on movements in a three-dimensional space, capable of conveying any meaning whatsoever [36, 37]. And why not reclaim the many marvellous experiences of the past? Why not move forward, why not look for new ways to represent thought other than



38. Detail from *Essay toward a real character, and a philosophical language* by John Wilkins (1668). One of several tries at a universal means of communication during the 17th and 18th centuries.

the spoken word? And what use today is the illusory representation of spoken language? Do we perhaps instead need to reconsider the universal writing systems of the seventeenth and eighteenth centuries, the 'pasigraphies' of John Wilkins [38] and Joseph De Maimieux?

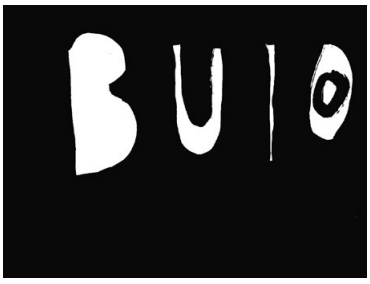
A writing workshop I held a number of years ago for children between the ages of 9 and 10, not yet completely subject to alphabetical prejudice, left me convinced once and for all of the extraordinary potential for new approaches. After a few days of working with the children, they were asked to think of words that could be written in way that represented their meaning. Though I have shown these results on numerous previous occasions, I still find them fascinating: created using large brushes and liquid paints, with quick strokes on a large piece of paper, here are 'vulcano' (volcano), 'buio' (dark), 'pulito' (clean), e 'albero' (tree) and 'vento' (wind) [39–43].

I will conclude with a highly imaginative premonition by an author of whom I am particularly fond. It is from *The divine invasions* (1981) by Philip K. Dick, known to the general public for *Blade runner* and *Minority report*:

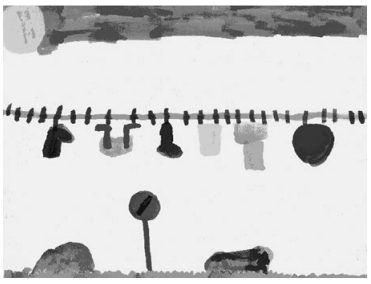
> The total structure of Scripture formed, then, a three-dimensional cosmos that could be viewed from any angle and its contents read. According to the tilt of the axis of observation, differing messages could be extracted. Thus Scripture yielded up an infinitude of knowledge that ceaselessly changed. It became a wondrous work of art, beautiful to the eye, and incredible in its pulsations of color.

Typographers of the world! Onwards, let us go beyond typography!

39. 'Vulcano' (vulcano), written by children aged 9–10 years during a workshop held in a school in Rome. 40–43 show others.

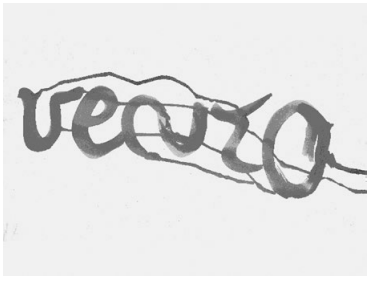


40. 'Buio' (dark)



41. 'Pulito' (clean)

42. 'Albero' (tree)



43. 'Vento' (wind)