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# The Writing Systems of the World

FLORIAN COULMAS

Basil Blackwell

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Ein A B C für Ulysses

## Preface

This book is one response to the disregard of writing prevalent in modern linguistics. Ever since de Saussure and Bloomfield, the two fathers of structural linguistics, presented powerful arguments for the primacy of speech, writing has been relegated to the final chapters of introductory textbooks. Most of these fail to acknowledge, let alone emphasize, the fact that linguistics itself would have been unthinkable without writing. Having been brought up in an alphabetic culture and trained by teachers who are used to looking at language through alphabetically tinted glasses, it took me a while to realize how utterly unsatisfactory and counterproductive the neglect of writing is for the study of language.

It was through my concern for non-alphabetically written languages that I began to see more clearly that languages are affected in various ways by the writing systems used for their visual materialization, and hence that writing should not only be accorded a proper place in linguistics as an object in its own right, but also be reckoned with as a factor of language change. To non-linguists and many non-Western linguists it is plainly evident that language attitudes and usage are influenced by the way a given language is written, and that, in the long run, through transmission from one generation to the next, the language itself is affected. What exactly it is that writing does to language is a question that linguists should try to answer (if anyone can). It is the contention underlying this book that a correct answer to this question depends on the nature of the writing system in question. Thus an attempt has been made here to present in some detail the major options of writing systems, past and present, and to demonstrate how they relate to language.

This book will have achieved its purpose if it helps students of linguistics

tics to see that writing is more than a garment which hides the true nature of language and should thus be stripped away before linguistic investigation can begin. It is presented to the critical reader in the hope that it will stimulate further research into the intricate relationships between writing and language.

In the spring of 1987, I had the opportunity of teaching a course on 'Writing Systems of the World' at Georgetown University which, significantly, was the first course on this subject ever taught there. This book has been built on my lecture notes, and it has benefited much from the keen questions of my students. Among them Shay Auerbach, Alexandra Casimir, Dimitri Katsareas, Katherine A. Langan, Sumiko Nagasawa and Katalin Nyikos were particularly eager to challenge me for greater clarity and often contributed valuable observations of their own, thus helping to convince me that it was worth the effort of turning the lectures into a book. In this regard I was most intensely encouraged by two of my colleagues, Richard J. O'Brien of Georgetown University, and Danny D. Steinberg of Rikkyo University. They were both kind enough to read the manuscript. I owe them a great debt of gratitude for their many suggestions and pertinent advice which have played a significant role in improving this study. When I wrote this book I was a recipient of a Heisenberg Fellowship of the Deutsche Forschungsgemeinschaft (DFG) which is also gratefully acknowledged.

F.C.  
Tokyo

PART I

Theoretical Perspectives

## What Writing Is all About

Writing is the single most important sign system ever invented on our planet. A skeptic may disagree and point out that speech after all is a sign system, too, and one which is clearly more important than writing. Such an objection, however, misses the point. Whether or not speech is a product of nature or of the human mind has been a hotly debated question since antiquity, but there is general agreement that writing is an artefact. Many linguists believe that human beings are born to speak, a belief strongly supported by the fact that there is no society known which lacks speech. If ever one should be found, somewhere in the hills of New Guinea or in the rain forest of Brazil, having escaped the anthropologists' attention so far, then we would be forced to alter our conception of humanity drastically, or else to exclude that society from our species.

Some tragic cases have been reported occasionally of individuals growing up in isolation without ever getting a chance to acquire language; but those are exceptions. Wherever people associate they have speech to communicate with and thus are able to organize their social lives. Writing, on the other hand, is absent from many societies, and we do not consider this an abnormality or essential defect. Writing is a cultural achievement rather than a universal property and as such is much less important than speech for our self-understanding. Anything that is an invention might as well not be there, and writing, unlike speech, falls into this category. Of course it was not invented in the sense that one day somebody decided that writing was what was needed, and sat down at a desk to invent it. None the less, it is an invention and a very extraordinary one at that which, for all we know, happened only two or three times in the history of mankind. As a matter of fact, its invention

created history in the technical sense. Historical knowledge, in other words, is closely linked with written records.<sup>1</sup>

#### A CULTURAL ACHIEVEMENT

It has often been said that writing is a very recent achievement which emerged late in cultural and societal history.<sup>2</sup> This is undoubtedly true although 'recent' is, of course, a relative notion. It is recent if compared with speech or the upright gait; recent in terms of the emergence of its earliest predecessors some 10,000 or maybe 12,000 years ago (Schmandt-Besserat 1978); and more recent still in terms of its almost universal spread in some societies (Oxenham 1980). Yet, despite its comparatively late advent, the invention of writing has had such pervasive effects on the development of civilization that for all of us who have grown up in a literate culture it is extremely difficult to imagine a world without writing.<sup>3</sup> Almost none of the familiar features of modern society would survive this test; there would be no books, no newspapers, no letters, no tax reports, no pay checks, no identity cards, no lecture notes, no street signs, no labels on commercial products, no advertisements, no medical prescriptions, no systematic education, no dictionaries or encyclopedias, no instruction manuals for radios, cars or computers, a very different kind of religion, a very different kind of law and no science in the proper sense of the word; there would be no linguistics either. A non-literate modern society is a contradiction in terms. Even though the dawn of the post-literate era has been proclaimed by scholars, such as McLuhan (1962) or Ong (1977), writing is, and will be for some time to come, one of the corner-stones of modern life. The entire civilization of the West as well as the East is unthinkable without it.

This is not to say that writing caused civilization, but the reverse is not the whole truth either. Rather, writing has to be seen as a result as well as a condition of civilization, as a product shaped by civilization and a tool shaping it. Writing was not invented for literary purposes, but its invention made literature possible – certain kinds of literature, anyway – and it also made possible a whole range of other complex communicative activities not found in non-literate societies. Why writing came into existence is a comprehensive question whose answer is shrouded in the mist of prehistory because, for obvious reasons, there are no written records about what life was like prior to the invention of

writing. Since it is rather difficult to trace writing back to its historical origin, its achievement is often associated with myths and legends (Jensen 1925; Firth 1930). In India, for example, Ganesh (the elephant-faced god of wisdom) is credited with the invention of writing. He is said to have broken off one of his tusks to use as a pencil. In spite of the importance attached to orally transmitting the sacred Vedic texts from one generation to another, writing was highly esteemed in ancient India, as this legend tells us. Moreover, it was considered a feat quite beyond human capacities. It took a god to create writing. The Egyptians believed that the god Thoth was the inventor of writing for which their king Thamus, according to Plato (in *Phaedrus*), both praised and criticized him. In the Islamic tradition, too, God invented writing, while in the Northern Saga its invention is attributed to Odin.

The widespread belief in the divine character of writing reflects an important aspect of its origin and early history. Once they had been developed into fully-fledged systems, early scripts were rather complex. It took a long time to master them, and therefore they were quite beyond reach for the vast majority of the population. The training of scribes was prohibitively expensive and thus restricted to a small class or caste of privileged people. Very often they were priests. For the masses engaged in productive labor, writing was a mystery, a secret code in the literal sense of the word. Not only were they unable to read or write, to a large extent they were not even aware of the practical function that writing serves. Its association with the divine is thus twofold: (1) if it was too difficult for most people to learn, it could not possibly have been created by men, but must be god-given; (2) only – or mostly – those nearest to the gods could handle the secret code, and this meant the priests. It is interesting to note that beliefs of this kind are most prominent in cultures where writing remained the privilege of a small class of specialists. The ancient Near East knows many myths and legends about the divine origin of writing. In Greece, on the other hand, where for the first time in history writing was made available to a large part of the population, such myths are conspicuously absent.

To those who cannot read and write, a book or any other written document manifestly demonstrates their own ignorance and powerlessness; of which fact the educated few can and, of course, do take advantage. One of the crucial consequences of the invention of writing becomes apparent here: it is a powerful instrument of social control.

Writing establishes the great divide between those who have and

those who do not have access to knowledge in objectified form. In oral societies, knowledge can be acquired only by experience or direct instruction by another individual. Literate culture, on the other hand, makes possible the storage and transmission of knowledge independent of the human individual who can verbalize it upon request. This was recognized by the earliest scribes who guarded their privilege jealously. Rather than promoting widespread literacy they stressed the divine character of writing, which was not meant for ordinary human beings. The skills of reading and writing provide access to knowledge, and knowledge is power.

While mass literacy may be regarded as a necessary prerequisite for building a modern society in our days, it was perceived as an acute threat to authority as late as the eighteenth century by those who were in power. In 1807 the president of the Royal Society in Britain argued against general literacy which, he said, would: 'teach [the poor] to despise their lot in life, instead of making them good servants in agriculture, and other laborious employment to which their rank in society had destined them; . . . it would enable them to read seditious pamphlets, vicious books, and publications against Christianity; it would render them insolent' (Oxenham 1980: 68).

However, from the invention of writing to the mere conception of mass literacy there was a gap of several thousand years. James Breasted, an ancient historian and Orientalist, once wrote in a frequently quoted passage of his book *The Conquest of Civilization* (1926: 53ff): 'The invention of writing and of a convenient system of records on paper has had a greater influence in uplifting the human race than any other intellectual achievement in the career of man.' While this is hardly an exaggeration, a more specific assessment of the consequences of writing for the civilization of humankind is by no means easy. We can start out by noticing that writing is present wherever societies develop an organization of moderate complexity, while it is absent in societies of lower complexity. This is not to say that higher or more complex forms of civilization were brought about by writing, but rather that they emerged concurrent with writing. And this cannot very well be a coincidence. It is no doubt true that societies which lack the technique of writing can none the less develop highly sophisticated social customs and beliefs, and therefore it is perhaps commendable that among cultural anthropologists they are no longer called 'primitive'.<sup>4</sup> Eventually, however, this is only a terminological quibble. Euphemisms such as 'traditional culture' or, more

obviously yet, 'oral culture' essentially mean the same thing: cultures that do not exhibit the typical features of complex societies. The only virtue of abolishing the term 'primitive' is that it carries certain negative connotations in ordinary usage. But so does 'dialect', and that does not hinder dialectologists from continuing to use the term 'dialect'. But whatever these societies are called, it is conspicuous that they fail to develop complex forms of industry, commerce, administration, technology, science and art. Those only emerge together with, or in the wake of, writing.

The most obvious function of writing is that it greatly enlarges the range of communication and, consequently, power. The communicative range of speech is severely limited. A message can be conveyed reliably only to those within earshot. The unaided human voice does not carry very far; more people than can gather in the market place of a hamlet cannot usually be reached. To be sure, messengers can be sent to other places, but they are hardly as reliable as direct face-to-face communication. The messenger may get killed *en route* or suffer from loss of memory. This may seem like a rather remote possibility, but the point is that the message is bound to the messenger if it is to be conveyed orally. Once it becomes possible to convey a message in writing, it is in principle separated from the messenger. The spoken message depends on the messenger, the written does not. Language itself is thus liberated from the spatio-temporal constraints of its ephemeral materialization in speech. The written message may be carried over thousands of miles by messengers who have no idea what the message is all about and who need not even understand the language in which it is phrased. Thus the message becomes an object which has very little to do with the message carrier. In terms of content an oral message, too, may have little or nothing to do with the messenger. However, its material realization or retrieval is bound to that person's physical existence.

Typically, communication in oral societies is face to face, which implies that the difference between oral and literate societies is, among other things, a difference in dimension. The city as a form of social organization is unknown in oral cultures.<sup>5</sup> The intricate social network and division of labor that emerges where masses of people settle in the same place brings with it and/or presupposes a means of recording information in an objective way: that is, independent of the message carrier. In those oral societies which have survived until the present time cities do not exist and, for all we know, no big cities ever existed in any



oral society. Just as the communicative range of the human voice is limited, so is the size of oral societies. The great empires of Persia, Greece and Rome are unthinkable without writing (Jensen 1969: 9). To exercise power over a distance of thousands of miles, to rule *in absentia* and to establish uniform standards of administration and law in an area stretching from the Peloponnese to the Indus valley would have been quite impossible without writing. Writing is a means of social control, and it creates social coherence.

What this means is easily understood if we compare the multiplicity and fragmentation of native American cultures with the unity of the Chinese empire which joins together hundreds of millions of people for whom a common writing system serves as a unifying bond. To fulfil this function not everybody, not even the majority of the population, needs to be literate (DeFrancis 1984). An administrative infrastructure can be built on a small number of scribes who set up a system of recording commercial transactions, credits, loans, prices and stocks. Thus more complex forms of economic exchange become possible.

#### CONSEQUENCES OF WRITING

The interdependence of the development of writing and modern civilization is well documented for the priestly city states of Mesopotamia in the third millennium BC.<sup>6</sup> They developed around the construction of great temples under the supervision of priests who organized the import of building materials, the employment of artisans and slaves for construction work and the agriculture that generated the surplus necessary to feed those who were engaged in the construction. These tasks called for a novel method of keeping records and transmitting human experience. Also, administering the wealth of the temple corporations made it necessary to give an account of receipts and expenses. In this way writing 'gradually emerged from accountancy' (Bernal 1954: 119). The priests were held responsible by their colleagues. Their records had to be accurate and intelligible and not simply to the official who made them. A private system of reminders like knots in handkerchiefs would not do. They had to be noted in symbols which not only reminded the official who was in charge of the transaction in question of time, place, quantity, etc., but which meant the same to colleagues or successors. What was needed was a set of signs, the meanings of which were agreed

upon by the consensus of all who used them. In speech this happens naturally as a child grows up in a community where signs with conventional meanings are in use. However, for those who were faced with the task of designing record keeping means of this kind, it was of course not at all clear that what they should, and eventually would, do was to link visual symbols for record keeping with *language*. That is why the invention of writing was such a marvelous feat.

The step from simple mnemonic devices such as tally sticks to the first conventional system of writing capable of recording information on clay tablets was immeasurably greater than all subsequent steps combined leading up to the modern technology of recording information on microchips. Basically, microchips are merely a technical improvement over clay tablets. The invention of writing, however, was the *invention* of an entirely *new technology*, 'the technology of the intellect', as Goody (Goody and Watt 1968) likes to call it. The complexity of this task cannot be appreciated if we look at it from our present point of view; that is, from the point of view of a literate society. It is difficult for us to conceive of life without writing, but to assume ignorance of *what writing is* is an even greater stretch of our imagination. But that was the state of affairs before the invention of writing. The invention of writing, in other words, was not a clearly defined problem such as, for instance, the construction of a digital code for computerized word processing. Rather, there were a number of practical problems (such as record keeping, accounting, conveying messages indirectly, etc.) whose common solution lay in a conventional system for visually manifesting language. This was not a clearly defined problem in the sense that there was no method for its solution. An understanding of what the actual task was only developed gradually, together with its gradual solution.

At the outset, people were hardly aware that the solution had to be found collectively. Agreement had to be reached on the meanings to be attached to visual signs by the society using them for its common ends. A convention had to be established. The establishment of a convention is a kind of *social problem solving* (Ehlich 1983), and that is what the invention of writing amounts to. Writing is a collectively created tool, a means of production whose invention answered certain needs and made possible a whole range of novel activities and modes of production, as well as kinds of societal communication and economic exchange.

Although this assessment is hardly an exaggeration, the overall contribution of writing to civilization and historical progress is a matter

of controversy. Recently a view has gained prominence, largely through Goody's work, that literacy is *the* decisive factor for the 'domestication of the savage mind', to use a phrase which is the title of his 1977 book. Writing, he claims, is closely connected to, or even enforces the development of, logical reasoning (Goody 1977), the distinction of myth from history and the emergence of complex social institutions and scientific thought (Goody and Watt 1968: 43).<sup>7</sup> Goody has repeatedly stated that his point of view is not deterministic. He does not want to argue that writing made all these things happen, but rather notices their concurrence with writing, a fact which needs to be accounted for by any theory of civilization. Yet he goes so far as replacing the traditional distinction between 'primitive' and 'modern' culture with the distinction between 'literate' and 'non-literate'. By thus stressing the importance of writing he lays himself open to the criticism of those who challenge 'the literacy myth', to use the title of a book by one of his opponents, Harvey Graff (1979), a social historian who favors a more socially based view of literacy. Literacy, he contends, should not be seen in isolation, and it should not be assumed that literacy of itself will lead to social improvement, civilization and cultural development.

This is particularly important with respect to literacy campaigns carried out nowadays in Third World countries (Coulmas 1984b) or, for that matter, in impoverished parts of industrialized countries like the US or UK (Street 1984). It would be cynical rather than just naïve to maintain that literacy education can overcome the social problems of race and class conflicts. The achievement of literacy cannot be correctly appreciated if it is seen as a mere technical skill. Its potential and consequences have to be assessed in the context of other social practices that determine how literacy is put to use. An isolated approach to literacy is more likely than not to produce a distorted picture of its historical significance and to raise unwarranted expectations of the effect of present-day literacy campaigns.

It seems premature to venture a general answer to the question of how and how much literacy of and by itself shaped history and can help to shape social development now. However, this is not the place to resolve this issue. To put writing into perspective, it will have to suffice in the present context to register the fact that the invention of writing was a cultural achievement of fundamental importance, and that its social possession can make a great difference for societal institutions, customs and socialization practices. Writing is a tool which, like any

other tool, serves as a means of extending the power of people over nature and their fellow human beings. Its invention answered certain social needs and made possible a whole range of novel activities and modes of production, as well as kinds of social communication and economic exchange. The availability of this tool does not, however, imply that all its potential is made use of in every given society. It is well known that, for a long time, the Chinese knew of gunpowder without using it to kill each other. Similarly, within a society the use of writing may be restricted to certain functions. The Tuareg, for instance, of North Africa have known of writing for a long time, but have used it for little else but love letters, charms and occasional poems (Friedrich 1966: 94ff). It is quite possible, as this example shows, that the introduction of writing does not affect the culture and social organization of a people in such a dramatic way as would be suggested by its enormous importance in our society. It seems, therefore, that writing is a necessary but not a sufficient condition of higher forms of social organization. Once it is widely used, however, it fulfils a number of functions that make a difference for society, culture and also for language. What we have to keep in mind here is that writing, by meeting certain functional requirements, may at the same time bring about certain effects which go quite beyond the initial requirements.

#### FUNCTIONS OF WRITING

Consider now some of the more important functions of writing that can be deduced from the way it is used in modern literate societies.

1 Maybe the most obvious function of writing is memory supportive (Goody 1977: 78; Ong 1982: 96). I call this function the *mnemonic function*. Cultural anthropologists always marvel at the memory of non-literate people of traditional cultures. They are able to recite from memory long genealogies and legends that would fill several volumes. This is remarkable, indeed, but none the less hardly comparable with a mnemonic device such as, say, the catalogue of a university library. For the development of writing its mnemonic function was most important. Lists<sup>8</sup> played a major role as a device extending the human memory which is vast but also limited. What happens here and now can be remembered for some time, and such memories may even be passed on

to the next generation, but that is where legend and memory become indistinguishable. If an event is recorded in writing, however, it can be 'recalled', more or less exactly, for ever. Almost everything we know about the Sumerians, the Hittites, the ancient Chinese or the Greeks is through information that they themselves committed to writing. History becomes possible thanks to the mnemonic function of writing, as well as the accumulation of knowledge.

2 A related function is that of expanding the communicative range, as mentioned earlier. Communicating in speech requires the presence together of speaker and listener. Writing, by contrast, enables communication over any distance in space or time (Street 1984: 20). This function will therefore be referred to as the *distancing function*. The written message read by the receiver 10,000 miles away or two millennia later can be the very same document produced by the sender, and it can also be reproduced exactly, word for word, phrase by phrase. The three essential components of linguistic communication – the speaker, the listener and the utterance – can be spatially and temporally separated from each other. The conceiver can thus become the receiver of his or her own message, and the same message can be received by many in different places and at different times. Writing is a distancing medium not only with respect to sender and receiver, but also as regards the sender and the message.

3 By distancing the message from the sender and making it available to others or the originator at a later time, the *medium* of transmission comes to the fore. More obviously than its oral counterpart, which disappears as soon as it materializes, the written message assumes the qualities of an object. This function may be called the *reifying function* of writing. The spoken word is ephemeral and spontaneous in its very essence. In writing, on the other hand, words become stable and tangible. As objects in their own right they become, moreover, depersonalized.

The interpretation of a spoken utterance is first and foremost the interpretation of the speaker's intended meaning. The focal question is *what the speaker means by the utterance*. Once words are engraved in stone or clay tablets, inscribed on parchment and paper and thus given a stable physical presence, the focal question about their interpretation becomes *what do the words mean*. The meaning no longer resides in the

speaker but in the text. This point has sometimes been overdrawn, especially by Olson (1977). However, it can hardly be doubted that strategies for interpreting written and spoken utterances differ on several counts. Written words possess meaning by virtue of the conventional relationship between linguistic forms and meanings. This is, of course, also true of spoken words. But their interpretation depends to a much greater extent on both context of situation and the assumed intentions of the speaker. Speech is bound to the 'here', 'now' and 'I' (that is, to a specific deictic center, relative to which it is to be interpreted). The written word, on the other hand, is subsequently detached from the 'here', 'now' and 'I' of its production. In order to be fully interpretable, it must therefore be self-sufficient and explicit. All the information that can be inferred from reference to a common deictic field in speech has to be made explicit in writing. Reification thus means that a linguistic message becomes interpretable as detached from, and independent of, its conceiver. It also means that the code itself becomes an object. Language becomes visible, and as such assumes a physical existence which can be investigated and consciously regulated. In speech language is in flux; in writing it is stable. To study language without analysis and record is quite impossible. Writing provides the means of analyzing language because it turns language into an object.

4 Another aspect of the permanence of writing is its potential for regulating social conduct (Lévi-Strauss 1955: 354ff).<sup>9</sup> This is the *social control function*. The notions of law and right, of standard and correctness, are closely linked with writing. It is, after all, *the letter of the law*. By committing laws to writing they are given a depersonalized authority in their own right.<sup>10</sup> (Notice, incidentally, that the words *author* and *authority* have the same etymology.)

Other socially important forms of written communication include government decrees and announcements, and inter-individual contracts. 'Can I have this in writing?' (Stubbs 1983), is an expression that very clearly testifies to the fact that people – in Western cultures – tend to trust the written word more than the spoken. Social control is exercised through writing because the 'letter-craft' has always been carried by privileged elites who could refer to written documents as seemingly objective standards of human conduct. Even in a fully literate society many more people read than write, and the naïve credence of what is written in books is still widespread.

Writing also serves as a means of social control in a very concrete and technical sense through registering the members of a community for purposes of taxation, military draft and voting. One's identity is certified in writing. To a large extent one's entire social existence depends on written records.

Yet another side of the social control function of writing is related to language. Language behavior is a part of social conduct. The elites who write obviously write their variety of the language in question. By virtue of their social position and of the permanence of written documents this variety is strongly favored over others which, in many cases, leads to its establishment as the standard. Writing may thus become a model of speech. That a standard language has important ramifications for society is generally recognized. The part that writing plays in its making is manifold and complex (Coulmas 1987c). At this point, we cannot go into it in more depth, but we will come back to it occasionally.

5 A somewhat derived function of writing is *interactional*. By liberating linguistic communication from the constraints of speech, writing makes possible novel kinds of coordinated action. Letters and wills are directed at particular addressees whose behavior is influenced by the message they convey. Similarly, instruction manuals, recipes, style sheets, etc., directed at an unspecified readership, serve to regulate behavior. Whereas coordinating interaction by means of speech presupposes the presence together of speaker and listener(s), it may be mediated and achieved indirectly where writing is available.

6 Finally, the *aesthetic function* of writing should be mentioned. The very word *literature* is self-explanatory in that it refers to the medium of verbal art (Ong 1982: 10ff). There is, admittedly, oral poetry, and recently much attention has been paid to its peculiarities and distinctions as compared with literature proper (Duggan 1975). The question of the orality of Homer is hotly debated,<sup>1</sup> and there can be no doubt that the aesthetic function of language is realized in oral as well as in literate cultures. Yet some *genres*, such as novel and drama, and certain kinds of poetry, too, are quite unthinkable without writing. Moreover, the medium itself is cultivated and can be turned into the highly sophisticated art of calligraphy which, by making a verbal message beautiful to look at, appeals both to the intellect and the sense of visual beauty.

## CONCLUSION

More could be said about the aesthetic function of writing and about the others as well. This sketchy overview is, however, enough for present purposes to put writing into perspective and to illustrate that it is one of the major signs of civilization. Everywhere in the ancient world, writing was the invariable accompaniment of certain sociocultural conditions that led to higher forms of civilization. Outstanding among these conditions are: the development of government; the division of labor; the appearance of specialized professions in agriculture, industry, commerce and transportation; the domestication of animals; the production of goods for a market; the growth of cities and empires. Wherever these conditions develop writing is always present. Complex civilizations cannot exist without writing. As pointed out earlier, the invention of writing can be seen as a kind of social problem solving, and any writing system as the common solution of a number of related problems.

An important feature of such solutions is their *conventional character*. This implies that there is a variety of solutions. The main purpose of this book is to give an overview of the most important and most interesting such solutions. It presents an introduction to the great multiformity of writing systems, scripts and orthographies, and then goes on to investigate their relative merits and demerits and to discuss the question of whether and how criteria can be defined for the evaluation of writing systems, scripts and orthographies. In so doing it focuses on the systematic make-up of writing systems. One of the central questions to be pursued is how the various writing systems relate to language. How far are they adapted to particular languages, and how do they differ as regards their suitability for representing that language? In some cases it will be necessary to go into rather technical details to see how writing systems work. In the context of this book this question is of interest, however, only inasmuch as it enhances our understanding of how writing represents language, and whether and how it affects language.

## NOTES

1 'Writing . . . ushers in *civilization* and initiates the historical record' (Childe 1982: 31). 'Looked at in the perspective of time, man's biological evolution

- shades into prehistory when he becomes a language-using animal; add writing, and history proper begins' (Goody and Watt 1968: 27).
- 2 'All writing, in fact, is a relatively recent invention, and has remained, almost to our day, the property of only a chosen few' (Bloomfield 1933: 13). The same point is repeated in Hockett (1963: 7).
  - 3 Bernal (1954: 119) calls writing 'that greatest of human manual-intellectual inventions'.
  - 4 Goody (1977) is, for the most part, a discussion of the 'great divide' between societies that have been variously labeled as 'primitive' v. 'advanced', 'traditional' v. 'modern', 'hot' v. 'cold' or 'oral' v. 'literate'.
  - 5 Childe (1982: 31) thus called writing 'a necessary by-product of [the] urban revolution' and refers to the oldest 'historical' cities as those 'in which legible written documents occur' (1982: 98).
  - 6 Cf. Chiera (1938), still a classic; Kramer (1981); Oppenheim (1964); Green (1981).
  - 7 Cf. also Feldbusch (1985: 285ff, *passim*). 'Written language provides the opportunity to plan the language-thought process exactly and subject it to critical control' (Feldbusch 1985: 285).
  - 8 Lists were at the beginning of scientific inquiry. Von Soden (1936) introduced the term *Listenwissenschaft* in his treatment of Babylonian science. Cf. also Goody (1977, chapter 5).
  - 9 'La lutte contre l'analphabétisme se confond ainsi avec le renforcement du contrôle des citoyens par le Pouvoir. Car il faut que tous sachent lire pour que ce dernier puisse dire: nul n'est censé ignorer la loi' (Lévi-Strauss 1955: 355).
  - 10 Stratton (1980) explores the impact of writing on the concepts of 'law' and 'justice' in Greek society. He offers the interesting hypothesis that writing so strongly affected Greek society because it was perceived in Greece without any religious overtones, and was not guarded as a privilege by the powerful.

I would like to suggest that one of the most important reasons for the rapid flowering of written Greek thought was the early lack of governmental control of literacy. As a result of this lack, the Athenian government, in spite of all its late attempts, was unable to stop the rapid development of moral and ethical debates which were directly related to the increasing secularisation of the idea of social order. This, in turn, led to the rapid development of an idea of law based on control and therefore on exercised power. (Stratton 1980: 117ff)

- 11 Ong (1982) provides an overview of the work by Parry, Lord, Havelock and others.

## 2

## From Icon to Symbol: The General Trend of Evolution

Instead of giving a formal definition of writing, let us discuss three of its fundamental characteristics:

- 1 it consists of artificial graphical marks on a durable surface;
- 2 its purpose is to communicate something;
- 3 this purpose is achieved by virtue of the marks' conventional relation to language.<sup>1</sup>

Given these characteristics, we can identify forerunners of writing which have some but not all of them. We know of quite a few such precursors whose analysis has contributed greatly to our understanding of the history of writing because they provide essential clues to the question of where writing came from.

### PRECURSORS OF WRITING

Even in the most restricted culture, people had to do some communicating with others who were beyond the range of hearing. They needed some means of transcending the spatio-temporal confines of the face-to-face speech act. This could be achieved in several different ways. Signs of a non-graphical nature can be found in all cultures. A rock placed on a grave somehow means something, be it as a reminder of a deceased person or as a precaution to ward off that person's return to the living. Places can be marked for other purposes too; a branch placed in a certain way can indicate the direction of one's path, or stones may claim ownership of a piece of land. Such marks are erected for the purpose of

communication, but do not exhibit the other two features of writing: the marks consist of natural objects and they do not relate to language.

Similarly, tally sticks fail to qualify as writing proper, because the signs that are incised on them, while being produced artificially, have no linguistic reference. They are signs, nevertheless, but the semiotic relation they exemplify is a rather simple one holding between a sign and an object. Tallies, or notched sticks, are known in many parts of the world, in Australia as well as in pre-colonial America, in Africa, in Europe and in China too. They were used for counting cattle or for economic transactions such as the recording of debts, or simply for taking stock. An interesting interactional aspect is seen in those notched sticks that are split in half so as to provide each party of a loan or delivery transaction with an identical record of the agreement in question. Any attempt at changing the record would be discovered when the halves are held together. The custom of carving notches in rifle butts is another analogue of the tally stick, if a rather gruesome one. A somewhat elaborate version relates to the messenger sticks that were commonly used among the aborigines of Australia, where every notch or line carved into the stick referred to a part of a message. The message, however, could not be 'read' by the receiver. Rather it had to be conveyed to him by the messenger for whom the stick was a memory aid. The messenger stick does not relate to language, however, and thus cannot be considered as writing.

A similar but more complicated mnemonic device is the knot-string notation that was used by the Incas, apparently the only forerunner of writing developed in the Andean region (Prem and Riese 1983). These *quipus*, or looped ropes, as they are called, were used as a rather complicated system of accounting and recording. The length and color and the number of knots of a string were given a particular significance. Some scholars have claimed that quipus were used as memory aids for legends and even laws, and certainly for 'propositional contents' rather than objects, while others insist that they served statistical purposes only. The issue seems to be unresolved.

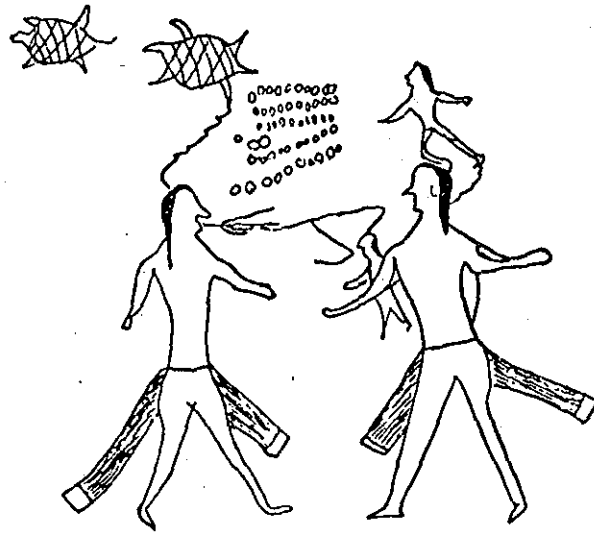
Other objects are reported to have been used as mnemonic devices, such as pebbles or cowrie mussels. Usually they relate in a simple and straightforward way to the things for which they stand: ten pebbles for ten goats and so on. Also common is the method of communicating meaning by indexical signs – that is, signs that bear a contiguity relation to the objects for which they stand – such as a few grains of rice for food,

a feather for fowl, etc. An interesting case of transmitting messages by objects is reported from the Yoruba in Nigeria (Gelb 1963: 5). It involves cowrie mussels and language and a purely linguistic relation, namely the homonymy of certain number words. The Yoruba word *efa*, for instance, means 'six' but also 'attracted', and the word *eyo* means both 'eight' and 'agreed'. Thus, by sending someone six cowries, you can convey the message that you are attracted, and the receipt of eight cowries as a reply would indicate 'OK, let's have an affair.' The interesting point here is that there is no intrinsic relation between the sign and its referent. For anyone who does not speak Yoruba, the relationship between eight cowrie mussels and the notion of 'agreement' is quite impossible to guess by virtue of the perceptible features of the sign. It cannot be decoded without linguistic mediation. None the less, for several reasons, this peculiar usage of signs does not constitute writing. The signs are natural objects rather than artefacts. They are used for the purpose of communicating, and this purpose is achieved through linguistic mediation, but the linguistic relation exploited here is rather coincidental and cannot be extended systematically. To say that six cowries are used to write the word *efa* which means 'attracted' would be rather misleading.

Writing is done by engraving or drawing, scratching or incising surrogational signs<sup>2</sup> by motor action of the hand. In this sense, too, the exchange of objects, even if they are surrogates for other objects or ideas, does not constitute writing. It is impractical and can hardly be elaborated into a full-fledged system. The etymology of various words for 'write', such as Greek *gráfein* (to carve) and Latin *scribere* (hence German *schreiben*, English *scribe*, *inscribe*) among others testify to the physical origin of writing. In Semitic languages relations between the words for 'write' and 'cut' or 'excavate' are apparent by common roots. The root *shf* in South Semitic languages, for instance, meant both 'to write' and 'to hollow'.

Another way of communicating messages visually which resembles writing in some respects is by drawing pictures. Where this is done in a more or less systematic and iconographic way, the term 'picture writing' has been used to describe it. The American Indians have used this method extensively. Mallery (1893) has collected many samples, such as the Cheyenne 'letter' reproduced in figure 2.1.

This composition consists of a number of hand-drawn signs on paper and serves the purpose of communicating an explicit message. The



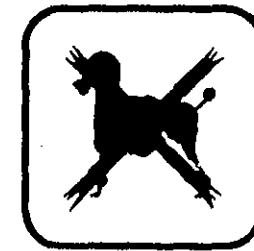
2.1 A Cheyenne Indian letter (from Mallery 1893: 364)

message is as follows: Turtle-Following-His-Wife, a Cheyenne Indian, wants his son, Little Man, to come home. To pay for the trip, he sends \$53.00. Apparently, the recipient of the letter, Little Man, had no trouble understanding it. Two of our three conditions are met by this document: it consists of artificial graphical marks, and its purpose is to communicate something. However, if there is any relation to language at all, it is very loose. Any message can, of course, be put into words, but that does not mean that any message is linguistically coded. The 'letter' cannot be read. Not just anyone can look at it and say 'Aha, what this letter says is this: "Dear Son, please come home. I am sending \$53.00 for your travel expenses. Your father."' This is the content of the message, but it is not transmitted linguistically. Even though we have a case here of a specific message being communicated by graphical means, this is not writing. It is interesting, in this connection, that a message with a propositional content can be conveyed by graphical means, but non-linguistically.

Pictures were also used as memory aids. The Ewe of Togo, for example, used to record proverbs by means of pictures. These pictures do relate to language; their purpose is to communicate something; and they consist of artificially produced graphical marks. In the literature

these and similar signs have therefore sometimes been called *sentence writing* (Meinhof 1911; Friedrich 1966: 12). This terminology has been criticized, rightly, by Gelb (1963: 50) as being inappropriate and misleading. Why is this, and why are we reluctant to call pictures of this kind writing? The reason is that they stand for the respective proverbs only in the sense that they remind someone who already knows the proverbs. There is no way to decipher the message for someone who does not, because there is no systematic relation between parts or aspects of the graph and parts of the sentence. Moreover, the signs are not conventional. Their primary semiotic function is iconic: that is, they depict certain concrete objects which are also referred to by the proverb. The semiotic relation is from sign to object to sentence rather than the other way round. Also, proverbs are proverbially oral being fixed in form and memorized as units of speech.

There are many iconic signs in present-day use for a variety of purposes, such as shop signs: a picture of a book for a book shop; a pair of glasses for an optician; a brush for a paint shop; and so on. In public places, especially where many foreigners are expected such as airports or hotels, fairs and expositions, we find many iconic signs, such as little figures with trousers or skirts; pictures of drinking fountains, little running figures for indicating escape routes, or partly iconic signs such as pictures of crossed-out dogs indicating that a store or a room is off-limits for dogs (see figure 2.2); pictures of flames to warn the illiterate that a container holds inflammable liquid, or pictures of a glass used as a label on packages communicating the message 'handle with care!' Recently, the use of such icons has increased. An interesting question that poses itself in this regard is whether this increase is a reflection of the fact that illiteracy seems to be a growing phenomenon in industrialized countries (Copperman 1980; Street 1984).



2.2 An example of a partly iconic sign

Mass tourism has also contributed to the spread of modern pictorial symbols. More people than ever come to places where they cannot read what is written, or cannot speak the language of the country. International expositions, sport competitions and so on are places where one can find an abundance of such icons. They can tell us something about the difference between pictorial signs and writing proper. We could, of course, say with some justification that *I* means 'handle with care' and should therefore be read as such. The whole point of this sign, however, is that it can be understood – or at least is meant to be understood – not only by speakers of English but by speakers of all languages. Its *raison d'être* is that it is *language independent*. When the parcel arrives in Paris, *I* should neither be taken to mean something like *à votre santé*, nor should it stand for an English phrase incomprehensible to the Algerian who works at the post office there. Thus its meaning should be fixed, but its being fixed must not depend on its conventional relationship to a linguistic expression of a given language. There is both an element of conventionality and language independence. The sign is iconic in the sense that it designates an object by means of depicting its actual physical appearance. However, no intrinsic feature of the picture forces us to interpret it as meaning 'handle with care!', or 'don't throw!' A glass could mean several different things. What meaning the pictogram actually has is thus a matter of convention.

Conventions can be established by conscious decision and agreement, as is nowadays the practice of international terminology committees. People can decide, for instance, that a camera with through-the-lens focusing and a range of movements of the lens plane should be called a *land camera*. In ancient times, however, terminology committees did not exist. Conventions developed naturally and nowadays, too, new conventions come into existence without any formal procedures. It does not seem likely that the sign of the glass was first introduced by mutual agreement. That it assumed a conventional meaning as a sign to be careful or attentive has to do with the *context of situation* in which it was first used. As a label on a parcel an interpretation such as 'glass, handle with care!' or anything to this effect is much more likely than, say, 'glass, have a drink!' The same label may be put on parcels not actually containing glass but other fragile things. It bears no iconic relation any more to its referent, then, and assumes a derived character which is entirely conventional, the meaning being reduced to 'careful!'

This is still not writing in the strict sense, but it comes close, and it

will be useful to keep in mind the two decisive factors of the making of this sign: its introduction in a particular context of situation, and its becoming conventionalized. Also important for signs of this sort as well as for writing is the fact that they become graphically stylized. While at the outset the iconicity of the sign (that is, its resemblance with the referent) is the most important feature of the sign by virtue of which it conveys a certain meaning, the stylized form becomes the most important aspect once the meaning has become fixed and conventionalized.


























Graphical conventionalization is a process quite analogous to the historical development of words and phrases (Coulmas 1981a). In the beginning it was quite important that a particular meaning was conveyed with the phrase (*May*) *God be with you*. Eventually, however, it became a conventional and formally fixed formula for a particular communicative function. It was generally understood what this function was, and it was also understood that the phrase 'God be with you' was the appropriate means for fulfilling this function. To indicate one's willingness to fulfil this function gradually became more important than the verbatim meaning of the phrase which, therefore, became ever more stylized and cursivized. Nowadays, few people remember that *goodbye* was originally a wish referring to the benevolence of a superior being. Similarly, in many cases of the development of written symbols out of pictorial signs, the pictures became linearized, stylized and conventionally associated with a particular meaning whereby the iconic meaning was supplanted. Thus we can observe a gradual transition from icon to symbol.

#### TOKENS AND IMPRESSIONS

At the basis of all writing, it is often said (for example, Gelb 1963: 27), stands the picture, and this is certainly a reasonable assumption. However, recent research has shed light on yet another possibility. In 1978, Schmandt-Besserat published an article entitled, 'The Earliest Precursors of Writing'. It is the result of a meticulous study of certain artefacts that were used for accounting throughout Asia Minor as much as 10,000 years ago. Those objects were little stones and pieces of baked clay of various different shapes, as can be seen in figure 2.3.

Initially these tokens or counters, as they are commonly called, were used for computation and record keeping. The semiotic relation between sign and referent was a very simple one, one token for one



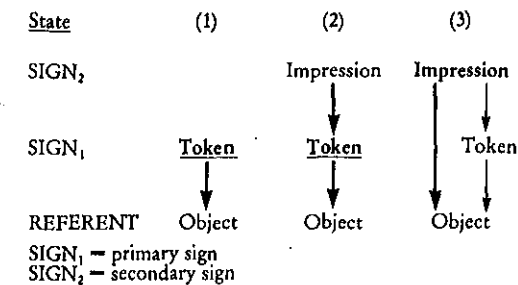
Token type I	II	III	IV	V
 Sphere	 Disk	 Cone	 Tetrahedron	 Biconoid
Tokens Sumerian pictographs	Tokens Sumerian pictographs	Tokens Sumerian pictographs	Tokens Sumerian pictographs	Tokens Sumerian pictographs
  Numeral 10	  Seat	  Numeral 1	 	  Good sweet
  Numeral 10	  Garment, cloth	  Numeral 60	 	  Legal decision, trial, peace

2.3 Tokens matched with earliest Sumerian characters (from Schmandt-Besserat 1978. Copyright© 1978 by Scientific American, Inc. All rights reserved)

object. However, differently shaped tokens were used for different kinds of objects. Furthermore, to avoid confusion and to systematize the inventory, the tokens were put into little clay containers, called *bullae* (Schmandt-Besserat 1980). These containers could then be used to convey messages, either to the successor of a record keeper or to the other party in a commercial transaction by sending the container. The problem with the containers, of course, was that items could be added or taken away from them. Presumably for this reason, people started to seal the containers<sup>3</sup> which brought about another disadvantage, however: once sealed, one had to break them in order to check the contents. The solution to this problem was most likely of enormous consequence for the development of writing.<sup>4</sup> By impressing the tokens on the shell of the container before it was sealed and while the clay was still wet, it was possible to indicate on the outside what was contained inside and thus check the record without breaking the container.

The important point here is that, all of a sudden, a new semiotic relation was introduced into the method of record keeping. The relationship between the impressions of the tokens on the outside of the containers and the objects was an indirect one. While the tokens themselves stood in a direct relation to their referents, the clay impressions referred to

the objects only by virtue of representing the tokens. They were *signs of signs*, in other words. This novel semiotic relation was not necessarily recognized immediately in its full significance by those who first used this technique of representing objects indirectly. However, it proved to be of major importance for the development of writing because gradually the impressions on the outside of the containers assumed the function of the primary signs, the tokens, which in turn became less and less important. Thus a direct relation developed between the impressions and the objects. The transformation of the relation between sign and referent can be depicted schematically as shown in figure 2.4.



2.4 The relation between a token and an object is superseded by the relation between the impression of the token and the object

The crucial point of Schmandt-Besserat's work is the discovery that the impressions of the tokens are graphically identical with the earliest pictograms of what would become the most important script of Asia Minor, the Sumerian cuneiform writing.<sup>5</sup> If her analysis is correct, and the available evidence is quite convincing, many Sumerian pictograms are direct descendants of the impressions of the tokens. A technical innovation thus led to a semiotically more complex system of record keeping, namely a system of secondary signs. This device was used for several thousand years (approximately from 9000–2000 BC). At the same time, the Sumerians developed a numerical system, also used for accounting (Schmandt-Besserat 1981). 'Count stones' were used to represent numerical values. A numerical system is a major intellectual achievement because numbers are totally abstract entities. They cannot be perceived as such in the physical world; rather they have to be deduced from perceptible sets of objects. The representation of numbers thus transcends the representation of physical objects. Interestingly, the abstractness of numbers is reflected in the non-iconic shapes of the

'count stones' that had a numerical denotation: spheres, cylinders, cubes, etc.

Number signs are also more complex than simple icons representing physical objects. They can be justly called *ideograms*, because what they stand for are ideas; abstractions, that is, of sets of things. That these ideas came to be represented by means of graphical marks was again mediated through the process of impressing the abstract 'count stones' on the outside of the bullae. It is likely that the Sumerians also had number words at this stage, but there was no necessary connection between the number words and the graphical figures with the same numerical value. In this sense too the number signs were truly ideographic (Schmandt-Besserat 1981: 341). They could be manipulated and calculated without any direct relation to language. It was, however, more likely that through calculating and accounting a link was established between the graphical number sign and the corresponding linguistic sign. In the beginning, people were not necessarily aware of this linkage which was a result of the identity of the signs' referent, but gradually it became fixed and the ideographic sign developed into a linguistic sign of secondary order.

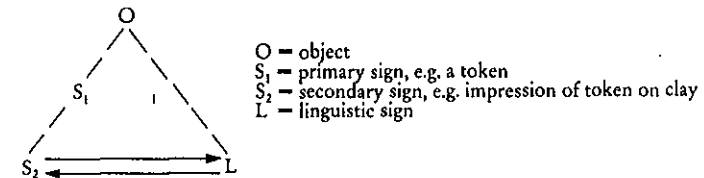
#### THE MISSING LINK

By the same token, so to speak, the graphical signs of objects, originally derived from the impression of tokens with concrete referents, came to be associated with the linguistic signs of the same objects. This process is called *phonetization*.<sup>6</sup> The visual sign of the object acquires a linguistic interpretation. In the case of count stones, or rather the graphical representations of them that stood for concrete objects such as cattle, dogs, lions, beds, pots, etc., this was most obviously a word. The establishment of the missing link in the semiotic relation between object, graphical sign and linguistic sign constitutes the beginning of writing proper.

Notice that Feldbusch (1985: 126, 139ff) interprets Schmandt-Besserat's findings quite differently, emphasizing the language-independent origin of the system of graphic signs constituted by the impressions of the tokens. While Feldbusch relies on the Sumerian tokens and their impressions as key witnesses in making a case for the non-derived nature of written language,<sup>7</sup> Schmandt-Besserat (1981: 341) takes a more pragmatic position. Whether or not the earliest impressed signs constitute writing, according to her, 'depends upon the definition

of writing adopted. Some scholars place the dividing line between pre-writing systems and writing when the signs take a *phonetic* value, others at the emergence of *graphic* symbols.'

Schmandt-Besserat is probably right about the beginning of writing proper being basically a question of definition and one should not, therefore, belabor it too much. As stated at the beginning of this chapter, a conventional relation between graphical sign and linguistic unit is considered crucial for writing. The reasons for this assumption are as follows. Language is the most elaborate symbolic system that human beings control. While it may be possible, in principle, for a group of people to develop a graphical code which is independent of their language and which reaches the same complexity and expressive power as a natural language and would thus be a genuine written language, it is highly unlikely that any group of people would engage in such an uneconomical endeavor (developing, as it were, language again from scratch). Sooner or later any system of visible signs that grows into a writing system must therefore be assumed to be provided with a linguistic interpretation: that is, with a conventional, structurally motivated link with a language.



2.5 The relation between an object, its primary and secondary sign and its linguistic sign

The important point here is that 'the missing link' is a mutual mapping relation, as shown in figure 2.5. The representation S<sub>2</sub> is recognizable as a representation of the object O by virtue of its visual features. Its association with the linguistic sign L (the word designating O) makes S<sub>2</sub> in a fundamental sense *readable*. The inverse relation – that is, that between L and S<sub>2</sub> – also holds and is equally important, because on account of it the spoken word becomes *writable*. Only where the mutual relation has been firmly established can we speak of writing in the strict sense of the term.

## FROM MEANING TO SOUND

There is no reason to believe that phonetization was achieved suddenly. It seems more likely that it only gradually supplanted the use of pictorial ideograms for record keeping and accounting. People continued to represent *objects* by means of graphical marks, and it must have taken many generations to accomplish the shift from object representation to word representation. Once this was done, important consequences quite beyond accounting and calculating followed. The transmission of societal knowledge, which so far had been a mental operation (memory) relying on the use of particular language forms being taught by one generation to the next, became objectified and could be handled as the transmission of material goods. Language could be engraved in stone or clay and handed over to subsequent generations, thus defying the volatility of the individual speech event.

However, when graphical marks were first used to represent linguistic signs rather than their material referents, the change from an oral to a literate tradition was only a potential awaiting realization. The novel technique of writing linguistic units had yet to be expanded into a full-fledged *writing system*. The first step of the solution of the problem brought with it other possible problems which in turn called for a solution. The first step, as pointed out earlier, was the establishing of the missing link between graphical sign and acoustic sign. The referents of these signs were physical objects on the one hand, and numbers on the other hand. The corresponding language unit was a name: that is, a *word*. The written sign thus created visualizes the basic relation constituting a linguistic sign in the Saussurean sense: namely, the relation between a *sound image* and an *idea*, as represented in figure 2.6 (de Saussure 1972: 99).<sup>8</sup> This was a straightforward solution for those linguistic signs referring to material objects.

Material objects could be readily represented by graphical means. At this point in the development of writing what has been achieved is *word-*



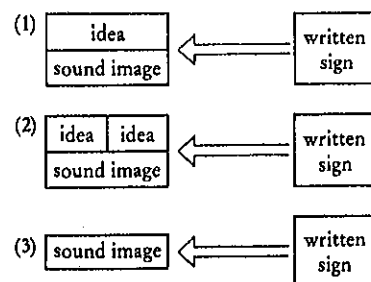
2.6 De Saussure's linguistic sign

*picture writing*, or *ideographic writing* as it is sometimes called because of the close relation the written sign has to the meaning which it still represents iconically. Indeed, if we look at the written signs of this stage, the relation between sign and meaning is more obvious and hence stronger than that between sign and sound image; or, to put it differently, the sign body bears no intrinsic relation to the form of its linguistic correlate (its phonetic shape), but it does relate directly, by virtue of its graphical shape, to the meaning side. There is no equilibrium of the two sides of the Saussurean sign, because the written sign continues to have iconic features with respect to the represented object while the relation to the word is totally arbitrary, the relation between the word and the object itself being arbitrary. The details of the graphical shape do relate to parts of the referent, but they do not relate to parts of the acoustic shape of the linguistic sign which is represented only as a totality.

The primary use of writing in the early stages of development was for economic purposes (Powell 1981), therefore, and also, in the interest of clarity and reliability, conventionalized and stylized signs were preferred. In many cases, this meant abstraction and a consequential reduction of iconicity. The Sumerian ideograms, for example, were reduced to abstract symbols as early as 2500 BC, almost all of them having lost their iconic features. To the extent that visual iconicity was reduced, the relation of the sign to its linguistic form attained equal weight. Gradually the graphical sign thus came to stand for a linguistic sound unit (Green 1981). Initially, this unit was a word, and the words which could thus be visualized were restricted to those having a concrete referent, such as *ox*, *grain*, *fish*, *mat*, *bird*, *donkey*, etc. For the most important practical purposes of writing this was quite enough. But words with more abstract meanings, such as *brother*, *go* or *dear* were still impossible to write. Generally speaking, properties, movements, states of affairs, events and relations could not be represented easily by means of pictorial signs. Hence the system was severely limited and could not yet unfold its full potential for handing down societal knowledge from generation to generation.

However, phonetization coupled with graphical abstraction opened the path to a solution of this problem too. As the relation between graphical sign and phonic word form became more stable and prominent, it became conceivable to use graphical marks for sound configurations only, irrespective of their meanings, because the meanings were no longer self-evident by the icon. In Sumerian (Chiera 1938: 63) as well as

in Chinese,<sup>9</sup> at the time of the beginning of writing, most words consisted of few syllables only, and many were monosyllabic. This implies in a rather strict mathematical sense that there were many homonymous words. As the graphical signs stood for word forms, they could be used to write one word as well as another identical in form but different in meaning. Graphically, the process which led to this kind of representation (known as 'rebus sign') can be represented as shown in figure 2.7.



2.7 The transition from (1), word writing resting on a unique relation between word form, word meaning and written sign, via (2), rebus writing based on homophony, to (3), sound writing

Gradually, the meaning side of the linguistic sign as a denotatum of the written sign was canceled out. Thus phonetization progressed one step further. The primary value of the written sign had become a sound. It had been transformed from icon to symbol.

Among the reasons that made phonetization necessary was the demand for signs representing proper names to which no meaning could be assigned (foreign names of kings or other dignitaries fall into this category). A phonetic device was needed for their written representation. Names were very early recognized as words of a special kind, as magical aspects were attributed to them. Knowing the name of a thing or a person was to have some power over the thing or the person. Replacing names by definite descriptions, such as 'the king of so-and-so', was no satisfactory substitute for the names themselves. The obvious strategy for doing so was to use word signs with a similar sound value. This strategy has been employed in all word writing systems, in Sumer and Egypt as well as in China, and even in the hieroglyphic system of the Aztecs in Mexico.

# THE REBUS PRINCIPLE

The Aztec system is a picture-word writing system in which the initial steps towards phonetization had been accomplished, but which never developed into a full-fledged system, however. It remained at the threshold of writing proper. The same may be said of the Maya writing system. In both systems we find a marked contrast between graphic complexity and sophistication and low systematic development. It is easier to talk about the Aztec system, as the Maya hieroglyphs are only poorly understood. Nevertheless, most scholars agree that neither of them are fully developed phonetic systems (Thompson 1968; Vollemaere 1971; Prem and Riese 1983). The Aztecs had a rich stock of inscriptions on stone, hide and even on a kind of paper, but most of it was destroyed by the Spanish conquerors. Most of the remaining texts are written in ideographic picture writing which can be understood, given the appropriate context of situation, without linguistic mediation. Most of the time the pictures speak for themselves. There are, however, also word signs which are occasionally used in rebus fashion for representing meaningless sound configurations, and this combination of both strategies is the typical case. Consider an example from the often quoted Codex Boturini (figure 2.8).

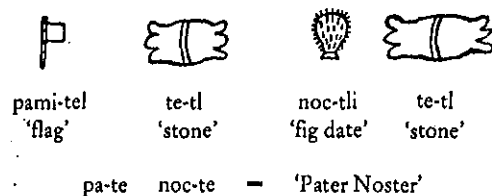
It tells about the migration of the Aztecs (Jensen 1969: 222). Four Aztec tribes come to a sacred place to bid farewell to their kinsmen of eight related tribes. The names of the former are indicated by symbols over the heads of the four figures on the left. The names of the latter, however, are given in 'phonetic' writing. Word signs in combination



2.8 Aztec writing from the Codex Boturini

with the sign for 'house' give a hint as to the pronunciation of the names. Thus, the word sign for *matla-tl* which means 'net' (the one on the right) refers to the *Matlazinco* tribe; the word sign for *te-tl*, 'stone' (second from right) refers to the *Tepaneca*, etc. In principle, this procedure of using word signs for their phonetic value only, if systematically applied, can lead to the development of a fully phonetic system. The pre-Columbian systems did not reach this stage, however.

Applying the rebus principle to foreign proper names or words is likely to bring about new problems to be mastered. Without difficulties it can be applied only to words of a language with a very similar phonetic structure as that for whose representation the writing system is used. We will have occasion to come back to this problem more than once. At this point, consider for illustration an example of the Aztec script (figure 2.9).



2.9 The beginning of the Pater Noster in Aztec writing

Spanish missionaries were very active in Mexico. As Christianity is a book religion, they felt the need not only to convey their spiritual message to the poor native heathens but also to teach them the very words of the Latin bible. Presumably, in lieu of some magical formula, they wanted the converts to read the Lord's prayer in Latin. Thus they used Aztec word signs to write Latin. The native language of the Aztecs is, however, quite different from Latin in its phonological make-up, and therefore this was not an easy task. It has, for instance, none of the phonemes /f/, /g/, /r/ and /d/. Rebus writing of Latin with the Aztec script could at best be a rough approximation. Consider the example. Only the beginnings of the Aztec words – that is, their initial syllables – are functional in the transcription. Reading it requires some ingenuity on the part of the reader. This particular use of word signs employed by missionaries did not develop systematically in Aztec writing, and is usually called the 'acrophonic principle' (Jensen 1969: 46, 250),<sup>10</sup>

whereby a word sign acquires the phonetic value of the beginning of the whole word for whose writing it was originally used. For the transition from word to syllable writing it was of some importance. The Aztec system, however, never reached that stage.<sup>11</sup> To put it differently, the relation between graphical symbol and the phonetic side of the linguistic sign remained rather loose, because to a large extent meaning was conveyed by more or less iconic or allegorical signs. In so far as an association between graphical sign and linguistic sound was established it illustrates the important point that phonetic writing is language specific. 'Phonetic' is not used here in a technically specific sense but rather in the general sense of 'sound-based'. For the development of writing in general and for the adaptation of writing systems the language specificity of writing systems is very significant, as will become clear in several particular cases.

Proper names, especially foreign names, are words whose graphical representation enhances the phonetization of a word script. This can be observed in the Aztec systems as well as in Sumerian or Chinese. They play a similar role for the converse process of deciphering a script whose tradition has been interrupted or, rather, broken off by the destruction of a culture such as the Egyptian, Sumerian or Hittite. Deciphering an unknown script is rightly recognized as a profound achievement of scholarship (cf. chapter 11), but it is no more than an intellectual pastime if compared with the collective intellectual achievement of writing as a novel technique which had not previously existed.

#### CONCLUSION

The decisive step in the development of writing is *phonetization*: that is, the transition from pictorial icon to phonetic symbol. The ultimate consequence of phonetization is the alphabet, which is often praised as the finest and most highly developed writing system.<sup>12</sup> From an abstract point of view it would seem that it is a natural consequence of phonetization. This viewpoint, however, pays too little attention to two important points; (1) that writing systems are artificially created historical constructs (in technical terms artefacts, rather than naturally developed objects); and (2) that every writing is language specific in the sense that phonetization means to create systematic relations between graphical signs and the sound pattern of a given language. Phonetic writing

was not developed to represent speech sounds in general but to represent the sounds of a particular language.

There is, no doubt, an internal logic in the development from the earliest iconic precursors of writing over increasingly more stylized and abstract pictograms to purely arbitrary phonetic symbols that has to do with simplicity and flexibility. However, for the very reason that writing systems are artificially created by people, there is always an element that interferes with this internal logic. More than that of language, the development of writing is subject to conscious interference as well as dependent upon the ingenuity of the creator.

The general tendency of development is roughly from pictogram to alphabet via word writing first and then syllable writing. Because of the history of writing there is, however, no natural law causing every attempt to write to go through every one of these phases and to complete the evolutionary scale to its logical conclusion. Language specific as they are, various writing systems have terminated the evolutionary process at transitory stages somewhere in between to be further elaborated, systematized and standardized on the achieved level.

Returning now to the three characteristics of writing stated at the outset of this chapter, it is clear that they are of a rather general kind and open to more specific interpretation. What kind of information is felt to be necessary to communicate in writing depends on the general level of cultural development. For simple listings a rather crude system is sufficient; the graphical marks' conventional relation to language can be held at a coarse-grained level. Committing every linguistic expression to writing requires a more refined system whose units relate more minutely to the units of language.<sup>11</sup> The writing systems of the world present a variety of solutions to this problem, most of which are of a systematically mixed rather than pure kind. The details of the relations between units of speech and units of writing are discussed in the next chapter.

## NOTES

- 1 Most definitions of writing encompass the same elements while varying with respect to the emphasis attributed to them. Gelb's (1963: 12) definition of writing is as follows: 'a system of human intercommunication by means of conventional visible marks'. Jensen (1969: 17) singles out two features of writing proper: (1) its production by means of drawing or scratching on a

- hard surface, and (2) the purpose of communication. Friedrich (1966: 11) states: 'Writing may be characterized as a medium of communication which people use in order to bridge spatial and temporal distance by means of readily understandable or agreed upon signs' [my translation].
- 2 The view that written signs are surrogational signs has a long tradition which can be traced back to Aristotle (McIntosh 1956; Ludwig 1983). Recently, this tradition has been attacked zealously by Feldbusch (1985). I have myself argued against the surrogationalist position in so far as it has obscured the view on fundamental differences between *spoken* and *written language* (Coulmas 1981b). However, I do not think that Feldbusch is right in considering the conventional relation of the written sign with the speech sign as a contingent feature of writing (Feldbusch 1985: 384, *passim*). Even if they did not come into existence as such, most written signs that are elements of full-blown writing systems are surrogates of spoken signs, but this does not imply that written language is a surrogate of spoken language.
- 3 The practice of putting tokens into containers which is attested for the fourth millennium, later developed into enclosing clay tablets in envelopes for safe keeping with identical texts inscribed on the outside. Cf. Chiera (1938: 70ff).
- 4 Schmandt-Besserat (1981: 322) credits Jordan (1932) with first realizing that imprints on clay tablets and their envelopes were the first step in the evolution of writing.
- 5 In this way Schmandt-Besserat's work is a specific reconfirmation of Speiser's (1939) flamboyant remark that writing was 'the by-product of a strong sense of private property'.
- 6 Although the definitions of writing cited in note 1 make no overt reference to language, phonetization is generally considered a critical criterion for recognizing a system as writing proper. Cf. Chiera (1938: 57), Gelb (1963: 64ff), Friedrich (1966: 17), Jensen (1969: 44) and Sampson (1985: 31).
- 7 Cf. my review of Feldbusch's book (Coulmas 1987b) for a more detailed argument about why she does not succeed in exploiting what is known of the Mesopotamian development for her attack against what she calls the 'dependency dogma'.
- 8 I use de Saussure's notion of a linguistic sign here, but I do not want to suggest that it was used in a similar way in de Saussure's analysis of writing, which is quite different.
- 9 The question of the often stressed monosyllabism of classical Chinese is discussed in more detail in chapter 6.
- 10 Gelb (1963: 111, 141) rejects the acrophonic principle as a productive mechanism in the development of writing.
- 11 The Zapotec, whose culture occupied a prominent position in Mezzo-America between 500 BC and 700 AD, are said to have possessed a true form

- of writing. Marcus (1980: 46) claims that their 'glyphs were' at least indirectly related to a spoken language'. So far very little is known about this system, however.
- 12 E.g. Diringer (1943: 77). Powell (1981: 419) argues 'that cuneiform was not as difficult as usually assumed' and 'that the superiority of the alphabet over cuneiform has been exaggerated'. I have made a similar point with respect to the often claimed superiority of the alphabet over Japanese writing (Coulmas 1981b, 1987a).
- 13 Of course, writing systems can go beyond that by developing expressive possibilities unparalleled in speech. Such possibilities are discussed occasionally, and especially in the context of Chinese writing.

## 3

## Units of Speech and Units of Writing

As far as is known, no graphical system of communication ever developed that was independent of, and more powerful than, speech. In this sense writing is derived from speech although, as pointed out in chapter 2, historically it is not. The present chapter deals with the question of *how writing represents language*. To this end it is necessary to take a systematic look at units of speech and units of writing.

## TERMINOLOGY

To begin with, some terminological definitions are in order. Terms such as 'writing', 'writing system', 'script', etc., are often used rather loosely. Henceforth, the term 'writing system' will be used to differentiate systems depicting linguistic units of different structural levels. These units are words, syllables, and phonemes. Accordingly it makes little sense, *prima facie* at least, to talk about the 'English writing system' or the 'Dutch writing system'. Dutch writing and English writing make use of the same system: that is, the alphabetic writing system. They also use the same *script*, namely the *Roman alphabet*. Scripts are thus graphical instantiations of writing systems. The alphabetic writing system is instantiated by several different scripts, such as the Roman alphabet, the Greek alphabet or the Russian alphabet, each of which may be used for writing several different languages. Moreover, they may be used in various ways to write one and the same language. The Roman alphabet is used to write English, for example. However, the rules for applying it vary (W. Haas 1969). Thus we have a British English *orthography* and an American English *orthography*. Similarly, the rules for writing the German language in Switzerland deviate slightly from standard German orthography. Chinese is written

rather differently in Taiwan and in China, although the same writing system and the same script are used in both countries. Orthographies are always language specific, writing systems less so and in a different way.

The term 'script' is often used as if scripts were inherently related to a given language, which is partly true. Thus some people would talk about the Balinese script, the Arabic script or the Cambodian script. In some cases no confusion arises, because some scripts just happen to be used for one, and only one, language. Such is the case with the Korean *Han'gul*. No other language is written with *Han'gul*. Many other scripts, however, are used for several different languages such as, for instance, the *Devanagari* script which is used for a variety of languages of India. To avoid confusion, it is important to differentiate those aspects of writing concerning individual languages from those that are independent from any particular language while relating to language in general on a more abstract level. Words, syllables and phonemes are units of every language. The corresponding types of writing systems are independent, therefore, of particular languages.

Scripts are more than simply the material forms of writing systems. Not all scripts of the same systemic type are isomorphic. This is because they were not developed in the laboratory but in the context of a language for whose writing they were and are employed. 'Word writing', 'syllable writing' and 'phoneme writing' are thus very general terms. 'Script' is more specific, and 'orthography' is more specific yet. Orthographies are language specific, but they can be even more specific than that. Like languages they are, in principle, subject to historical change and geographical variation. What this means for the relationship of writing and speech will become clear as we discuss several specific instances.

For the purposes of discussing the relationships between writing and speech, a threefold distinction will be observed: *writing system*, *script* and *orthography*. The relationships between them can be stated as follows.

Proto-writing	Picture writing Idea writing
Writing system	Word writing Morpheme writing
Every writing system makes a selection of the linguistic units to be graphically represented (not language specific)	Syllable writing Phoneme writing Phonetic writing

### Script

Every script makes a specific selection of the possibilities of a given system in accordance with the structural conditions of a given language

Chinese script  
Arabic script  
Greek script

### Orthography

Every orthography makes a specific selection of the possibilities of a script for writing a particular language in a uniform and standardized way

Chinese/Taiwanese orthography  
Standard German/  
Swiss-German orthography

### STRUCTURE MAPPED OR STRUCTURE IMPOSED?

To say that a script makes a selection of the possibilities of a writing system, or that a writing system makes a selection of linguistic units to be represented, is, of course, a purely analytic statement which disregards the fact that the objects which are 'selected' are not necessarily given. To some extent, they are also created. Writing, in other words, not only maps, but also imposes structure. Part of the general problem of defining linguistic categories and units is that often no proper attention is paid to the important differences between spoken language and written language.

Fries (1952), for instance, collected 200 different definitions of *sentence*. Several scholars have commented on the obvious dependency of the notion of a sentence on written language, especially in the Western grammatical tradition (for example, O'Donnell 1974; Harris 1980: 18; Linell 1982: 63ff),<sup>1</sup> and called into question its applicability to the analysis of speech (Chafe 1979; Beaugrande and Dressler 1981; Pawley and Syder 1983).<sup>2</sup> In the Eastern tradition, too, the sentence must be considered an artefact of writing (Kindaichi 1957: 181).

The notion *word* poses similar problems. A very simple and seemingly naïve definition of the notion *word* is 'a part of speech which is separated by two spaces from other such parts when written down'.<sup>3</sup> Non-linguists would not find such a definition all that strange because as members of a literate culture they know where to turn to in matters of language: dictionaries, grammar books and other written sources (Harris



1980). Any attempt to use such a definition when faced with the problem of selecting the units of a language to be written with a word writing system is, however, futile because of obvious circularity: the major criterion of the definition is the written form of a word. A more useful notion of *word* is, however, rather difficult to construct. Not only laymen's conceptions of what a word is depend to a considerable degree on language as it is written; as Linell (1982: 83) points out, 'it is hardly a mere coincidence that the notion of the morphological word corresponds well with the unit of conventional writing, ... a sequence of letters surrounded by empty spaces but containing no internal spaces.'<sup>4</sup> Bierwisch (1972) tries to deal with the problem of a consistent definition of *word* by suggesting that there are several non-congruent notions: that is, the orthographic word, the phonetic word and the semantic word. Further evidence for the dependency of the notion *word* on written language is provided in Goody (1977: 115), where he observes that there are no words for 'word' in LoDagaa or Gonja, two West African languages without a literary tradition.<sup>5</sup>

The phoneme, too, is a precarious unit of linguistic analysis, as it is determined by contrast only. Individual realizations of phonemes are both contextually and articulatorily so variable that there is no physical basis for class formation. It is not altogether unreasonable to argue, as Lüdtke (1969) does, that phonological theory is an offshoot of alphabetic writing rather than the other way round.<sup>6</sup> The notion 'phoneme', in other words, is modeled on the letters of the alphabet which, in turn, are the results of historical coincidences rather than systematic analysis. Without pursuing this line of thought any further, it can be stated here (1) that the independent existence of the units supposedly depicted by a given writing system cannot be taken for granted, and (2) that in mapping language, writing systems, scripts and orthographies are as much based on analytic perceptions as they form them and the resulting conceptualizations of the structural units of language. It is important to note, furthermore, that the alphabet is no less prone to imposing structure and determining language awareness than other more coarse-grained systems.

#### ANALYTIC DEPTH

The historical development from pictogram to alphabet has been described as a process of increasing abstractions of graphical signs con-

current with an advance in the analytic penetration of language.<sup>7</sup> Pictures are very concrete and convey meaning directly; letters, on the other hand, are very abstract entities conveying meaning indirectly: that is, through mediation of sound or sound image. Every writing system is based on an implicit analysis according to which language is segmented into units of different size. Differences between writing systems are thus differences between the underlying analyses, differences about what is and what is not represented of the segmental units and how they are graphically mapped (W. Haas 1976). The segmental unit of the alphabet is smaller, and its analytic level higher and more abstract than that of a word writing system. These differences reflect differences in analytical depth, on the one hand, and typological differences between languages, on the other.

Syllables are clearly more abstract and more difficult to conceive of than words, and accordingly syllabic writing appears historically later than word writing. The conditions for the transition from word writing to syllabic writing also differ from one language to another. Syllabic systems are not equally well suited for representing every language, because syllable structures vary considerably across languages.

A consistent syllabic script has the syllable as its basic unit and is capable of representing a given language without too much distortion and without leaving too much unrepresented. A syllabary is like a grid. Those parts that do not fit cannot be represented. Therefore the inventory of necessary signs varies with the syllabic structure of the language to be written: the more complex the syllable structure, the greater the number of necessary elements. Some languages have a very simple syllable structure, but others are highly complex in this regard. Consider a language with syllables as complex as these: CCVCC (where C stands for consonant and V for vowel), as in /grips/ or /knaks/; CCCVCC as in /strumf/, or even CCVCCCC as in /krankst/. Those are monosyllabic German words. It is clear that a syllabic writing system for a language that allows for syllables of such high complexity would have to be very intricate indeed. The advantages of a syllabic script over a word script would not be nearly as great for German as for a language with a less complex syllable structure. The chief advantage of syllabic writing over word writing is the reduction of the number of necessary elements.

In every language, the number of words is far greater than the number of syllables. Synchronically, the latter is fixed, while the former is open.

At any one time only the structurally possible syllables can be used productively, whereas the potential to create new words by composition and derivation is part of the synchronic grammar of a language. Even the words in current usage in a given language at a given time by far outnumber the syllables of that language; but the relation between both varies from one language to another. The syllable structure of Japanese is very simple. A system of less than 50 basic syllable signs plus a few diacritical marks can represent the language quite faithfully in writing. The cuneiform syllabary comprised about 100 signs, still a manageable number. For writing German with a syllabary, however, the number of necessary signs would have to be much greater than that. If there have to be signs for syllables with an internal complexity as high as that of *krankst* (CCVCCCC), it is obvious that many hundreds of signs would be needed. Such a calculation is based on the assumption that a genuinely syllabic script is one where the syllable is the smallest unit of analysis and every syllable is given its sign.

On the other hand, the advantage of replacing a syllabary with an alphabetic orthography may be very minor for a language with a simple syllable structure such as Japanese, whereas a language with a complex syllable structure would make this advantage very noticeable.

#### LANGUAGE DEPENDENCY

The fact that writing systems reflect structural differences between the respective languages in whose context they developed is most obvious when we consider what happens when a script is adapted to another language. Typically, certain modifications ensue in accordance with structural features of the new language. The biggest problem, for instance, of adapting the Sumerian cuneiform script to Hittite was representing consonant clusters. In Sumerian and Akkadian simple sequences of vowels and consonants prevailed, and therefore the application of the syllabary that was developed for these languages to Hittite made it unavoidable to write vowels which were not there. Conversely, the adaptation of the Arabic script for writing Persian, Urdu and Malay led to the creation of new letters.

Borrowing the script from another language is a process which has happened many times in history. It is a rather difficult operation presupposing a clear understanding of the nature of writing, at least in so far

as writing and language (or rather *a* script and *a* language) are recognized as two different and, in principle, independent things. This is by no means self-evident. Whenever illiterate peoples wanted to write, they usually borrowed the written language of a neighboring people. Only gradually did bilingual individuals grasp the possibility of writing their own mother tongue, too. Thus the Hittites in their first written documents around the beginning of the second millennium BC used the Sumerian and the Akkadian languages from which the cuneiform script was subsequently borrowed, and they continued to write in these languages even after Hittite had become a written language also. Very similar conditions accompanied the adaptation of the Chinese script for writing Korean, Annamese and Japanese. The first written documents produced in Japan were in Chinese, and for a long time a peculiar mixture of Chinese and Japanese was typical of the written language in Japan which makes it very difficult to read.

A syllable is an abstract linguistic unit, and obviously the same such unit may occur in many different languages. If a graphical sign is available for a given syllable it can be represented, no matter to what language it belongs. Simple as this insight may seem from our point of view, it was not so obvious to those who first applied a fully developed script to a hitherto unwritten language. For the intellectuals who would eventually carry out the adaptation of a script to their mother tongue, writing must have been intimately linked with language, if only because the first time they ever learned the art of reading and writing it was through, and together with, another language. Borrowing the script only and adapting it to the respective native language might have been more trouble than borrowing the script *and* the language for whose writing it was used in the first place. In any event, the technical problems of adapting a script to another language were considerable, and the solutions not always satisfactory.

It is unlikely that the systematic make-up of the earliest scripts was clearly understood by those who used them (Gelb 1963: 110); after all, only few people understand the systematic make-up of alphabetic orthographies nowadays. More often than not, solutions to adaptation problems therefore had a makeshift character. Systematic coherence was never in itself important. It is noteworthy, for instance, that none of the Mesopotamian syllabaries are complete in the sense that they contain signs for all possible syllables in the language for which they were used. They do not even provide signs for all actually occurring syllables, a

number which is smaller than that of the phonologically possible ones, since languages do not usually exhaust all the structural possibilities of their phonological systems. The representation of the phonetic shape of a language by means of a cuneiform syllabary was, therefore, invariably incomplete or redundant. Solutions tended to develop naturally, not by conscious design.

#### STANDARDS OF EXCELLENCE

In the ancient Near East the general development was from word to syllable writing and further to consonant writing and eventually to phonemic writing. Abstractions increased, and at the same time the inventory of necessary elements was drastically reduced. The alphabet has fewer elements than any syllabary, and syllabaries have fewer elements than word writing systems. Therefore, according to a common argument (Diringer 1943; Gelb 1963: 72, *passim*; McLuhan 1962), the alphabet is superior to syllabic scripts and the latter are, in turn, superior to logographic scripts (Pulgram 1976: 15). The logic behind this is straightforward enough, but it is also somewhat simplistic. Surely it cannot explain why the great alternative to the alphabet, the Chinese script, has not been replaced by a simple system long ago. There must be rival standards of excellence that favor the Chinese script. 'What is a good script?' is a very intricate question with many different aspects, and any simple and uniform answer is almost certainly wrong.<sup>8</sup>

#### ECONOMY, SIMPLICITY, UNEQUIVOCALITY

In principle, the alphabet is the most economical system. However, it cannot be applied to all languages equally well. Unlike Greek or the Semitic languages, Annamese, for example, is a tone language, and tones are phonemic. In an alphabetic representation of this language the tones cannot, therefore, be ignored. Significant modifications were thus necessary for adapting the Latin alphabet to Annamese. The letters ⟨f⟩, ⟨j⟩, ⟨w⟩ and ⟨z⟩ were deleted because there are no corresponding phonemes. The letters ⟨â⟩, ⟨ã⟩, ⟨đ⟩, ⟨ê⟩, ⟨ô⟩ and ⟨ú⟩, on the other hand, were added. Furthermore, an adequate representation of the rather complex tones made the introduction of another five diacritical marks necessary: ơ, ô, ô, ô, ô.

They are used in various combinations with each other and with the new letters to produce a great many derived signs. The letter ⟨a⟩, for instance, appears in 18 different variants. The paucity of vowel signs in the alphabet bears witness to its Semito-Greek origin, a fact which is often played down by those who emphasize the universality of the alphabet.

The application of a given writing system to a new language always bears the risk of badly adjusted scripts, because typically scripts are borrowed in a process of 'natural' adaptation rather than on the grounds of linguistic analysis. Moreover, languages are subject to historical change, and therefore a script that was once a faithful mapping may become gradually distorted unless it is changed accordingly.

Writing systems are 'only rarely the result of conscious linguistic analysis,' yet they are the expression and materialization of linguistic consciousness. In writing, linguistic utterances are detached from their source and must stand for themselves. Written language, therefore, has to be (and usually is) more explicit than its spoken counterpart. For example, in speech, the sentences

*Elle se lève toujours à cette heure,*  
[She always gets up at this time]

and

*Elle se lève toujours à sept heures,*  
[She always gets up at seven o'clock]

are indistinguishable; in writing they are disambiguated. Disambiguation is achieved by virtue of the analysis implicit in the written representation. Clearly it is desirable that we have clarity as to whether the time referred to is 'this hour' or 'seven o'clock', especially in writing when we may not be able to ask for reconfirmation. However, the price to be paid for clarity here is reduction of economy. There can be no doubt that economy and simplicity are virtues of writing systems and can thus serve as a standard of comparison. Then again, writing systems are abstract entities. Applying their underlying principles in specific scripts for writing specific languages invariably leads to corruptions. Also it must be noted that several different criteria of goodness compete with each other. Economy is one, simplicity is another and unequivocality a third.

*Economy* means that the number of necessary signs is kept small. *Simplicity* means, among other things, that the relation between the signs and their values is simple and straightforward. *Unequivocality*

means that the meaning of a written expression is determined by its form. It seems that maximizing one of these criteria to some extent is always at the expense of the others. It is not economical or simple to have different graphic representations for units of identical sound shape. *Cette heure* and *sept heures* are homophonous and could both be written like this /set' œ:r/, which is very economical and very simple, but ambiguous. By giving up a little economy, we can disambiguate the expression as in standard French orthography. Simplicity is also reduced, because we no longer have a system where one sound is represented by one and only one graph:<sup>10</sup> that is, the principle of sound writing is undermined, and a little bit of word writing creeps in with a direct relation between graph and meaning.

In word writing the criterion of unequivocality can be carried to its extreme: every word is assigned a distinct graphical sign. Take an expression, such as *his book*. In Chinese this is *ta de shu*. In speech this phrase is ambiguous as it also means *her book* or *its book*. In writing the ambiguity disappears because the gender of the pronoun is graphically differentiated:

他的书                  她的书                  它的书

It is well known that homophony is pervasive in Chinese. Owing to the phonetic poverty of the language, there are large numbers of homophonous morphemes, the three words /shēn/, for instance, meaning 'to extend', 'body' and 'deep'. These meanings preclude an analysis of one word with three readings. In Chinese writing this is absolutely clear as the words are graphically distinct: 伸, 身, 深. This is both simple and unambiguous, but it is not economical as one sound configuration corresponds to several different graphs.

Economy has to be measured on different levels. Relative to the level of a logographic system a one-to-one correspondence between words and graphs is economical, but the logographic system itself is not economical if compared with more abstract writing systems.

#### ABSTRACTNESS

Every writing system is an abstraction to a certain degree, because what their units represent is not concrete objects but abstract classes of

objects. Written symbols stand for types rather than tokens of linguistic units. The abstractness of writing is possible and functional because the typical reader – that is, the reader for whom the script is made – knows the language in which the written message is coded, and can thus rely on the redundancies of the language as an aid for deciphering (reading) written expressions which represent speech only incompletely or vaguely. Therefore it is possible, for example, to leave the tones of Tibetan unrepresented in the Tibetan script, or the vowels in Semitic scripts. The alphabet is the logical conclusion of a development of ever-increasing abstraction. As its units are minute and highly abstract it is, in principle, universally applicable.

#### FAITHFUL MAPPING

It is a generally accepted view that the alphabet is the teleological goal of the history of writing. That alphabetic writing was never achieved in a number of cultures in spite of their long literary tradition must be due, according to this view, to external factors which interfered with the natural course of evolution. This evolution, where it took its predetermined course, allows us to infer a regular correlation: the more abstract the elements of a system, the fewer their number. Moreover, accuracy of mapping increases with fineness of segmentation: the smaller the segment, the more flexible the system; or, to put it the other way round, 'the more minute the level which is reflected in a script, the more constrained the script by the spoken language' (Henderson 1982: 54). The alphabet, therefore, appears to be the simplest, the most abstract and the most efficient system. This seems to be an obvious enough statement, but actually it is a gross simplification.

The underlying assumption which is taken for granted is that a good writing system is an isomorphic mapping of speech. This is, however, a very daring proposition, to say the least. It ignores three important things, namely (1) that this ideal has never been achieved for any script, and it is doubtful that it ever will be; (2) that the requirements that an ordinary user puts on a writing system are not the same as those of the linguist who needs an instrument of precision; and (3) that an orthography is a normative device. Also, the script user is not necessarily interested in isomorphism. Faithful mapping is not the user's primary concern. For the user writing is a medium or a mode of communication

which follows rules partly different from those of speech. This is too often ignored, and therefore it is easily taken for granted both that the economy of the inventory of signs is an absolute measure of goodness; and also that the optimal writing system consists of symbols standing for sounds which are concatenated in such a way that the relation between written sign and meaning is always mediated by sound (Klima 1972).

These presuppositions rest on the familiar belief that the human brain is better at combining than storing units. To put it differently, it is assumed that minimizing the mnemotechnic load while at the same time maximizing the combinatorial complexity is what makes a writing system good. As a matter of fact, no existing script works in accordance with this abstract principle. Minimizing the inventory of signs is valid only as a relative criterion of goodness. The Morse code consists of only three basic signs – a dot, a dash and a space – but it is hardly superior to the alphabet.

It is also noteworthy in this connection that the letters of the alphabet stand for phonemes in a broad sense. Alphabetic scripts do not usually go further in the analysis towards representing distinctive features. This is quite unnecessary for the reason already mentioned: typical readers are already familiar with the particular sound qualities of the units of their own language. It is easy to conceive of a system that is sensitive to the phonetic peculiarities of a language. IPA, the international phonetic alphabet, is such a system; but as an orthography such a system is impractical because it is highly redundant. Thus both economy and faithfulness are relative virtues only. A script cannot be called superior because it maps a phonetic feature which in another is easily inferred, or because it has ten signs less than another.

However, there can be no denying that a word script makes use of an inventory of signs of an altogether different magnitude as it operates on an open-ended level. Again, this is a rather general statement, because word writing systems have usually made use of homophony and other systematic features which make it unnecessary to provide original signs for every lexical item; that is, they tend to assume certain properties of sound-based systems.

It should be obvious from the foregoing observations that scripts do not embody writing systems in a pure form, but are often distorted and of a mixed character with respect to their systemic levels.<sup>11</sup> There are no pure word writing scripts, or syllabic scripts or phonemic scripts.

Usually information on more than one level is made use of (W. Haas 1970). *Word writing*, *syllable writing* and *phoneme writing* are thus very abstract categories. Scripts can be assigned to these categories, but this does not mean that their application in writing a particular language makes use consistently of only one unit of segmentation and structural principle.

#### THE LEVEL OF A SCRIPT<sup>12</sup>

There are only a very few distinct levels to which a given script can belong. Basically, four levels of analysis can be distinguished: the lexemic level, the morphemic level, the syllabic level and the phonemic/phonetic level. These four levels can be assigned to just two types, as there is an obvious difference between the first two which operate on the level of sense-determinative (that is, meaningful) elements, and the second two which operate on the level of sense-discriminative elements. With terms borrowed from Hjelmslev, W. Haas (1983) calls the former 'pleremic' and the latter 'cenemic'.<sup>13</sup>

As the difference between elements that carry meaning and elements that distinguish meaning is well motivated, there seems to be nothing contentious with such a division. Nevertheless it is a non-trivial question, and sometimes a matter of dispute, as to what level a given script belongs. Haas, one of the few modern linguists who has always recognized writing as an important object of linguistic theorizing, has tackled this question in several of his many works. His major point (W. Haas 1983) is that the level of a script cannot be determined by simply looking at its elements because linguistic units often belong to more than one level. In *a book*, /əbuk/, for example, /ə/ is a phoneme, a syllable, a morpheme and a word; in *books*, /bʊks/, /s/ is a phoneme as well as a morpheme. In the French example above, /set/ is two morphemes and two words which are graphically distinguished. If we look at Chinese and make a list of all Chinese morphemes, it appears that almost every one is a syllable and many are words. Should we conclude from these observations that in English, French and Chinese we have mixed systems?

Two issues must be distinguished here: (1) the level of the basic operational unit of a given system; and (2) the information that is conveyed, by design or accident, about units of other levels. For (1) it is decisive to

discover the rules by which units of a certain level are assigned their graphic symbols. Although certain units, such as, the /ə/ in /əbuk/ or the /s/ in /bʊks/ may be units on more than one level, the rules by which they are assigned a graphical symbol do not operate on more than one level. /ə/ in /əbuk/ is assigned the letter ⟨a⟩ according to phoneme-grapheme correspondence rules. The fact that /ə/ also happens to be a morpheme and a word written with the letter ⟨a⟩ does not interfere with these rules, and cannot justify the assumption that English writing is pleremic. Similarly, the fact that (1) most Chinese morphemes are monosyllabic and (2) Chinese characters are occasionally used for their syllabic value which is partly predictable on the basis of certain graphical elements does not make the Chinese script a syllabic script. The Chinese script is not cenemic because it is morphemes rather than syllables which are assigned characters.

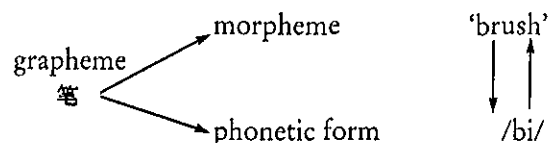
#### SOME PRACTICAL ISSUES

Let us consider, briefly, how the signs of cenemic and pleremic writing systems are employed. The rules relating linguistic units and written symbols are bidirectional. They are rules for writing down (that is, assigning to a linguistic unit a written symbol), and rules for reading aloud (that is, for assigning to a graphic unit a spoken unit). The latter are easier than the former, which is only to say that reading is easier than writing. Still, from a systematic point of view, it is no simple task to show how the written symbols of a script are to be pronounced (that is, phonologically interpreted).

First, we have to identify the basic written units, a task which is not as trivial as it may seem. In a pleremic script the basic pattern is as follows:

grapheme → morpheme → phonetic form  
for example, 笔 → (bi) brush → /bi/

For a skilled reader, however, this simple mapping relation may be supplemented as follows:



There may be a direct link between grapheme and phonetic form, but none the less the basic operative relation is that where the phonetic form is determined by a morphemic unit.

In cenemic scripts the fundamental relation is the other way round:

grapheme ----> phonetic form ----> morpheme (meaning)

The units of cenemic scripts are smaller than those of pleremic scripts, and therefore the above is only a very general picture. Meaning is accessible by a combination of cenemic units only. The phonetic interpretation of the symbols of a cenemic script works basically like this:

grapheme ----> phoneme/phonetic form

What is the fundamental unit of a cenemic script? In syllabic scripts it is a syllabic sign, but the mapping function between syllabic signs and syllables is not usually one to one because most syllabic scripts (such as Akkadian or Japanese) consist of fewer signs than the number of syllables of the language for which they are or were used.

In alphabetic writing the basic graphemic unit is, obviously enough, the letter. The fundamental correspondence is between a letter and a phoneme.

grapheme	t a n k
phoneme	/t/ /æ/ /ŋ/ /k/

But this is an ideal case, not at all typical of the rules governing the relation between graphemes and phonemes in alphabetic scripts. Consider next the word *thank*. Here the relation we have observed for *tank* does not hold any more.

grapheme	t h a n k
phoneme	/θ/ /æ/ /ŋ/ /k/

In the English orthography the letter combination ⟨th⟩ is a digraph. It is obviously made up of two elements, ⟨t⟩ and ⟨h⟩, which may each correspond to a different phoneme, for instance in *bat*, /h/, /æ/, /t/. The letters ⟨t⟩ and ⟨h⟩ will have to be listed therefore as different graphemes. But in *thank* no separate phonemes correspond to ⟨t⟩ and ⟨h⟩; rather in combination they correspond to the phoneme /θ/. There is no systematic reason of course why there should not be a letter for /θ/, but for historical reasons there is none. A digraph fulfils the function of a

letter here instead. This is another example of the contamination of a simple principle and the difficulty of identifying the basic units of a cenemic script. ⟨h⟩, ⟨t⟩ and ⟨th⟩ have to be included into the list of elementary graphical signs of English writing, and contextual rules have to be given that determine when ⟨t⟩ is to be treated by itself and assigned the phoneme /t/ and when, on the other hand, it has to be treated as part of the digraph. Unfortunately it is not sufficient to state that ⟨t⟩ is to be treated as part of the digraph whenever it occurs in combination with (that is, before) ⟨h⟩ because that would give us *θailand* and *θoməs* and the like. In all probability, the cases where ⟨th⟩ is not to be treated as the digraph for /θ/ or /θ/ have to be enumerated in a list of exceptions. The source of such inconsistencies is usually historical. Alphabetic scripts differ greatly as regards the simplicity of the mapping relations between letters and phonemes, and the faithfulness of the mapping.

The examples discussed here are sufficient to show that the relative economy of sign inventory is only one characteristic feature distinguishing writing systems of different structural levels which by itself cannot serve as a measure of goodness. The system with the fewest elements is not necessarily the simplest and the best, because the number of necessary elements says nothing about the complexity of the mapping relation between graphical sign and linguistic unit. What an ideal system of writing would be like is a multifarious question whose answer must be more specific in so far as it has to state 'ideal for what?'

Those features that make a system good for a learner are not necessarily ideal for the user. To be sure, an alphabet of 25 odd letters is easier to learn than a system consisting of several thousand signs such as the Chinese. But the information load of a sign that is one out of several thousand distinct signs is much higher than that of a sign or even a combination of signs belonging to a very small inventory. Therefore reading Chinese is much faster than reading English for those who know both systems equally well (Chao 1968: 111ff).

From the point of view of reading it is quite impractical that the sound stream of speech is broken up into units corresponding only in a complex way to phonemes, because the skilled reader of an alphabetically written text does not read letter by letter anyway but by larger units (F. Smith 1973; Frith 1980; Henderson 1982). A morphemic or word-sign system can be processed faster than a system operating on a cenemic level of smaller units. Because of its higher information load, a Chinese character sticks out on a page and is easily detected if looked

for. An alphabetically written word is not so prominent because of the uniformity of the letters. It is, of course, another question as to whether it is worth the great effort of learning an uneconomical system such as the Chinese for the benefit of eventually more convenient use. From the point of view of writing, on the other hand, a logographic system such as the Chinese asks much more of its users than a rational and regular cenemic orthography.

To conclude, the merits and demerits of scripts of different levels must be specified relative to different purposes. Readers and writers, native and foreign language users, dialect and standard speakers, linguists and poets do not all have the same needs, and their respective demands on a suitable writing system are sometimes in conflict. To some extent all writing systems appeal to the linguistic knowledge of the user. How this is done, what aspects of linguistic knowledge are employed most intensely in cenemic and pleremic systems and how they differ in this regard is to be shown by examining some examples of every type in greater detail.

## NOTES

- 1 Akinnaso (1982) and Bieber (1986) provide the most comprehensive overviews of recent research on differences between spoken and written language. The latter presents a carefully worked out 'multi-dimension' approach, making possible a better appreciation of earlier findings.
- 2 Lyons, while pointing out that there are 'important grammatical and lexical differences between [spoken and written languages]' (1977: 69), nevertheless maintains that the term 'complete sentence' which 'for written English is reasonably clear, ... can be made applicable in essentially the same sense to the spoken language' (Lyons 1977: 29).
- 3 Notice Cowgill's (1963: 120) self-critical remark concerning his interpretation of Modern Greek data: 'In the matter of word boundaries I have probably been over-influenced by whether or not a space was left between letters by the editor of the text I was using.'
- 4 Cf. G. A. Miller and Johnson-Laird (1976: 3) who discuss from a psycholinguistic point of view the problem of furnishing a definition of *word* that is better than 'a textual unit consisting of consecutive letters bounded at both ends by spaces'.
- 5 Similarly, it is obvious in Beck's (1964: 156) discussion of the problem of word division in some East African Bantu languages that the word is partly

an artefact: 'We will have to be careful that words do not become confusingly long, but we should on the other hand be free from the misunderstanding that a multitude of partial words, some of them not amounting to more than one letter, are easier to read than fewer words which are a little longer.'

- 6 Morais et al. (1979) contend that familiarity with alphabetic writing induces more analytical awareness of phonological contrasts.
- 7 'In the beginning, then, was not the word but speech . . . Writing changes this situation; at the cultural level, it enables people to analyse, break down, dissect, and build up speech into parts and wholes, into types and categories, which already existed but which, when brought into the area of consciousness, have a feedback effect on speech itself' (Goody 1977: 115).
- 8 'A broadly phonetic ("phonemic") transcription is regarded as the ideal alphabet. Any orthography, established or proposed, is judged against this standard of excellence. This view has rarely been challenged; but it is, to say the least, a gross oversimplification' (W. Haas 1970: 3). While Haas deals with alphabetic orthographies only, the point he makes can be extended to a comparison between the alphabet and other writing systems where the former is usually taken as the yardstick. Cf. also Sampson's discussion of evaluating writing systems, especially his account of the readability of logographic versus phonographic systems (Sampson 1985: 163f).
- 9 The Indic Brahmi script and the Korean Han'gul are exceptions in this regard, as their set-up testifies to great systematic insight into the phonetic systems of the respective languages.
- 10 W. Haas (1970: 4) makes it very clear that economy cannot be the only criterion of goodness: 'though . . . "phono-graphic divergence" must distract from the script's economy, it need not constitute a flaw in its overall efficiency'; and 'there seems to be no simple scale for measuring the disadvantages of phono-graphic divergence'.
- 11 Sampson (1985: 42) also notes that many writing systems are not pure exemplars of the two basic types he distinguishes, that is, logographic and phonographic systems.
- 12 In this section I draw heavily on W. Haas (1970) and (1983).
- 13 Sampson (1985: 31), who like Haas (1983) argues that the basis for classification of a writing system should be the linguistic units mapped by its graphic units, makes a similar distinction between 'semasiographic writing' and 'glottographic writing'.

## PART II

# Writing Systems



language for which Sumerian writing was used prior to Sumerian (cf., for example, Reiner 1966). However, it seems to me that other reasons could be given for the imperfect fit. After all it is the earliest writing system that is at issue here. Its imperfect fit with the phonological form of the language could be due to the fact that there was no model for a better solution, or that it was standardized at an early stage before a satisfactory fit was achieved, or that there had been drastic phonological changes between the time when writing conventions became stabilized and the time of the earliest documents that allow for phonological reconstruction with any degree of certainty.

- 2 Several attempts have been made to link Sumerian with other languages such as Basque or Tibetan (Bouda 1938). A relation with the Caucasian languages has also been suggested (Bork 1924). The evidence for any of these claims is hardly compelling, however (Falkenstein 1964).
- 3 The first epic poem of world literature recorded by a Babylonian writer during the final period of Sumerian splendor in the third dynasty of Ur (about 2000); see Pritchard 1958.
- 4 The precursors of writing that Schmandt-Besserat has described also testify to the economic origin of writing in Mesopotamia. The title of her 1979 article, interestingly, reads like a pedagogical directive for present-day literacy programs: 'Reckoning before Writing'.
- 5 Roughly 3300-2900. Dating is conventionally made by referring to excavation sites. A chronology of the ancient Near East is to be found in appendix I.
- 6 The question of when and why the rotation occurred is not yet fully understood. For an overview of the literature and a fresh view on the problem cf. Powell (1981).
- 7 Capital letters represent cuneiform characters with sound values assumed to be close to the standard values of these alphabetic letters.
- 8 Cf. chapter 3 for a discussion of the dependency of the notion *sentence* on written language.
- 9 Chiera (1938: 65), for instance, speculated that 'it is not that they did not know how to carry the development further but that they refused to make further changes in their system of writing.'
- 10 Hittite was also written with another system known as 'Hittite hieroglyphic' between 1400 and 1200 bc. Hittite hieroglyphic was deciphered by Gelb (cf. Gelb 1931; 1963: 81ff).
- 11 The ruins of the city of Ugarit were discovered in 1929 at the excavation site known as Ras Shamra (cf. Herdner 1963).

## 6

## An Alternative to the Alphabet: The Chinese Writing System

p. 98 is important

The Chinese writing system serves the longest uninterrupted literary tradition of all living languages and forms an essential part of one of the incontestably greatest and most original cultures of humankind.<sup>1</sup> It has been used continuously for more than 3,000 years, connecting the present with the past as no other writing system does. It has been admired for its beauty and its unifying power for the Chinese empire by some, while being criticized as cumbersome, imperfect, even primitive, by others who keep predicting its replacement by the more efficient alphabet. Yet the triumph of the alphabet came to a halt at the Chinese wall where it met its most important and successful rival. Therefore, and because in East Asia Chinese writing has created a cultural universe of its own, this system is deserving of special attention.

### HISTORICAL BACKGROUND

Like Sumerian and Egyptian, Chinese was first used in writing by a people that settled in a river valley. Chinese writing appeared no later than the Shang dynasty which is traditionally said to have begun in 1766 bc<sup>2</sup> when the Yin people established the first complex political organization in China; but archeologists are still searching for evidence of the evolutionary stages of Chinese writing. At the end of the nineteenth century, excavations in the area of modern Anyang in the bed of the Yellow River brought to light the remains of the first city culture in China, and with it the earliest Chinese graphs generally acknowledged to be true writing (Chang 1963). They were found on bits of tortoiseshell and on ox and sheep scapulas; but the characters of these 'oracle bones'

had already moved far from a purely naturalistic representation of objects. Judging by the extent to which these signs were conventionalized (Tsuen-hsuein 1962), it is reasonable to assume that in China writing was present considerably earlier.








The shell and bone inscriptions were used almost exclusively in divinatory texts of Shang rulers. Questions were inscribed on bones and on



6.1 An early Chinese inscription on a scapula

the tortoiseshells which were then exposed to intensive heat. The resulting cracks in the surface supplied the oracular answers whose significance court diviners then interpreted. Figure 6.1 displays a typical oracle bone inscription.

Many of the characters of the earliest inscriptions closely resemble their modern equivalents. So far, out of a total of more than 2,500, some 1,400 could be identified as the models of standard Chinese characters and hence be interpreted unequivocally (Wen-Pu Yao 1981: 25). The first line of figure 6.2 lists some Shang characters; the modern equivalent of each of these characters is displayed immediately below.

	ox	sheep	tree	moon	earth	water	tripod
Shang							
modern	牛	羊	木	月	土	水	鼎

6.2 Ancient Chinese characters of the Shang period and their modern equivalents

Bone and shell are very durable materials, and it cannot be ruled out that writing was practised earlier for purposes other than divination on different materials that did not survive.<sup>3</sup> Interesting indirect evidence for this assumption can be seen in the presence in the earliest documents of a character for 'book'; it consists of a picture of bamboo strips held together by two lines of cord (Needham 1978: 29). This suggests that surfaces other than bone and shell were also used for writing. Recent excavations at Banpo have, moreover, uncovered pottery with etchings on them which have been interpreted as predecessors of Chinese characters (Ho 1976). This may necessitate a revision of the view that the earliest writing in China dates from the middle of the second millennium. According to Wang (1980) it may reach back as many as 60 centuries.

Earlier scholars have sought connections between the Chinese script and that of Mesopotamia, and some of them (such as Ball 1913; Ungnad 1927) postulated the direct derivation of the former from the latter. But these assumptions have never been corroborated by hard archeological

evidence. The only thing that can be said with confidence is that both systems had their origins in drawings of natural objects, but there is no such resemblance between early Chinese and pre-cuneiform Sumerian signs which would make it necessary to assume any historical relation between the two systems. Rather, while the question of its earliest emergence remains to be answered, it is clear that Chinese writing has to be considered a genuine independent development.

#### THE OUTER FORM

There is no doubt that pictures of concrete objects stood at the beginning of Chinese writing. These pictures never seem to have been as minute as the Egyptian glyphs. Instead, as with the Sumerian signs, linearization, reduction and conventionalization of the imagery set in early. This was essential because in the Shang period characters already numbered in the thousands. Hard surfaces like bone and shell favored an angular rather than rounded appearance of the characters, a design feature that was preserved in brush writing.<sup>4</sup>

Many of the characters on the oracle bones are pictographic, but they usually single out the conspicuous features of the object depicted while reducing the unimportant parts. For example, the character for 'cow', 牛, highlights the U-shaped horns, and that for 'sheep', 羊, the curved horns. In writing 'baby', 兒, the early scribes focused on the large head. When they wanted to represent the verb 'to see', 見, they drew a single eye on a rump, a man looking.

Since the early system operated on the pleremic level, even more characters came into use, and there was little conformity in their creation. According to Barnard (1978), an expert in Chinese paleography, there was a great deal of unsystematic variation in the forms of the Chinese characters as they evolved in the Shang dynasty. First attempts at stylistic simplification were made during the Zhou period, but the characters of the 'great seal script' that evolved then still exhibit many variants. Standardization was impeded by the political and administrative disunity of that period.

The writing reform of Qin in 221 BC, when the empire was once again unified under a central government, was more successful and significant. Karlgren (1923) considers it the most important break in the history of the Chinese script, a history which he divides into two epochs: (1) the

period from the beginnings to the Qin dynasty, and (2) the period from the fixing of the 'small seal script' by Li Su (about 200 BC) to modern times. Two changes of relative importance can be noted within the latter epoch. In the Han dynasty from which Chinese characters derived their name *Hanzi*, the small seal script gave way to the 'scribal script' first and then to the 'regular script' which is still used today in many publications. In a recent reform many characters were simplified, however (see Coulmas 1983). Figure 6.3 illustrates the metamorphosis of two characters from the Shang dynasty to the present.

	Shang	Great seal	Small seal	Scribal	Regular	Simplified
lái						
mǎ						

6.3 Historical metamorphosis of the characters for lái ('to come') and mǎ ('horse') from the Shang dynasty to the present day

The regular script incorporates the fundamental graphical principles of Chinese characters. They are taught and memorized in this canonical form, and nowadays other writing styles are accessible only through the regular script. Calligraphy was cultivated early in China and has always been held in high esteem. In addition to the archaic small seal and the scribal scripts, three styles are used for calligraphy: the regular, the running and the cursive script styles. All of these were already extant during the Han dynasty and are still practised today. As illustrated in figure 6.4, the cursive style is much harder to read than the regular style.

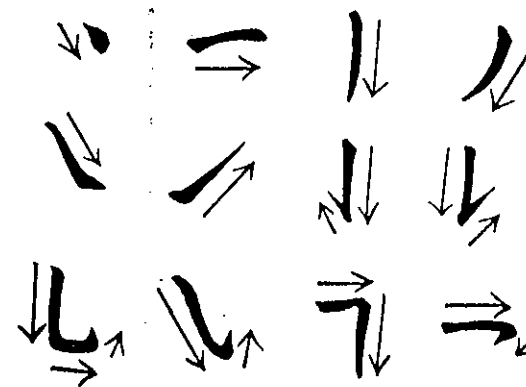
For writing Chinese characters it is important to observe the principles of their graphic composition. In the simplified script of modern Chinese, each character consists of between one and twenty-five strokes. Formerly, the maximum number of strokes was even higher. This high complexity makes it immediately apparent why careful writing has always been very important. In order to determine the number of strokes of a given character, it is essential to know what counts as one stroke. The eight basic strokes<sup>5</sup> of which all characters are composed are listed in figure 6.5. Figure 6.6 indicates the directions of writing for the basic strokes.



6.4 The sentence jīn shēng lì shuǐ ('Gold can be found in Lishui') is often used for practising calligraphy, because it contains both very simple and complex characters. The five columns illustrate five styles of writing in order of increasing cursivity (from left to right): small seal, scribe, regular, running and cursive

Stroke	Name		
丶	点	diǎn	dot
一	横	héng	horizontal
丨	竖	shù	vertical
丿	撇	piě	left-falling
㇏	捺	nà	right-falling
㇀	提	tí	rising
㇆	钩	gōu	hook
㇏	折	zhé	turning

6.5 The eight basic strokes of Chinese characters



6.6 The directions of the basic strokes

In writing, it is also important to observe the order of strokes for each character because otherwise cursive writing is not legible. The general rules are from top to bottom, from left to right and from the outside to the inside. Some examples in figure 6.7 illustrate.

Example	Stroke order		Rule
十	一	十	First horizontal, then vertical
人	ノ	人	First left-falling, then right-falling
三	一	三	From top to bottom
州	丶	州	From left to right
月	丿	月	First outside, then inside
四	丨	四	Finish inside, then close
小	丨	小	Middle, then the two sides

6.7 The order of strokes of some simple characters

Chinese characters can be analyzed as configurations of individual strokes. Many of these configurations recur as the building blocks of more complex characters; that is to say, some characters can be parts of other characters. Thus, like the Sumerian signs, Chinese characters form a system based on double articulation where a number of signs serve a double function. For example, the character 語 ('word') is composed of the three parts 言, 五, and 口, all of which occur independently as characters in their own right. When occurring by themselves, they serve the sense-determinative function of designating a word; but when occurring as parts of other characters, they serve the sense-discriminative function of differentiating the composite character from others that are similar (cf. Coulmas 1984a). The economic advantage of double articulation is obvious: a limited number of elements provide the stock for forming a much larger, potentially infinite number of signs on a higher structural level. These elements are variously called 'keys', 'classifiers', 'determinatives' or 'radicals'. While the last term is the most common one, it is not used in this book because it suggests, wrongly, that this element is in some sense basic as a root is in Semitic languages. 'Classifier' describes the nature of the semantic elements more appropriately. They provide the basic principle for the organization of dictionaries, 540 in Xu Shen's etymological dictionary *Shuo wen jiezi* of some 10,000 characters compiled about 120 AD, and 214 in the great *Kang Xi* dictionary of 1716 which comprises more than 40,000 characters.<sup>6</sup> These 214 classifiers are still in use today. What role the classifiers fulfil in determining the linguistic value of a character is a question concerning the inner form of the characters which is discussed in the next section.

#### THE INNER FORM: THE PRINCIPLES OF CHARACTER FORMATION

The traditional classification of Chinese characters established 2,000 years ago in the *Shuo wen jiezi* distinguishes six classes of characters called *liù shū*, 六書 'the six writings'. They represent six different principles of formation or use.

- 1 The *pictographic* principle is presumably the oldest. It yielded characters which in their ancient form were simple pictures of concrete objects such as the characters for 'tree' and 'moon' in figure 6.2 above.

- 2 The *simple ideographic* principle underlies characters designating abstract notions such as numbers or the notions of above and below: 一 '1', 二 '2', 三 '3', 上 'above', 下 'below'.
- 3 The *compound ideographic* principle is next. The meaning of the characters in this group is a function of the meanings of its parts. For example, 信 (*xìn*) 'honest' consists of 人 (*rén*) 'man', and 言 (*yán*) 'word'.
- 4 The *phonetic loan* principle is what is otherwise known as the 'rebus principle'. The characters in this group resulted from being used, by error or convention, for their phonetic value. They have been borrowed from writing the word for which they were originally created to another, homophonous one. A stock example of this type is the Shang pictograph 來 for a kind of wheat at the time called *lāg*, which came to stand for the homophonous word *lāg*, 'to come'.
- 5 The *semantic-phonetic compound* principle is an extension of the previous principle. In this class each character consists of a classifier and a phonetic: that is, an element indicating meaning and another indicating sound. For example, the character 糖 (*táng*) 'sugar', consists of the classifier 米, 'cereal', and the phonetic 唐 *táng*, which as a character is used as a proper name.
- 6 The sixth principle, called *chuan chù* or 'mutually interpretive symbols' in the *Shuo wen jiezi*, is a matter of dispute.<sup>7</sup> Rather than being a formation principle, it is a principle of use which can be described as semantic extension: one character is used to represent a word of the same or similar meaning, but different pronunciation, thus acquiring an additional pronunciation, for instance, 樂 (*yuè*) 'music', which was also used for 樂, 'pleasure'.

Of these six classes those of the fifth type – that is, characters consisting of a classifier hinting at its meaning and a phonetic hinting at its pronunciation – is by far the most numerous. According to Karlgren (1923) some 90 per cent of all Chinese characters belong to this class.<sup>8</sup> It is, therefore, worthwhile taking a closer look at it.

The formation of the characters of the fifth type clearly relies on sound, yet Chinese writing is not cenemic because these characters also refer to meaning. Rather, Chinese writing is a complex fusion of cenemic and pleremic principles. It is interesting to compare the early development of cuneiform and character writing. Both systems started with

pictographs which were interpreted as logograms. With the need to refer to words rather than objects, the pictographic principle was soon relegated to a position of insignificance. The number of word signs nevertheless increased as other formation principles took over, the general tendency being to shift from pleremic to cenemic writing. Sound became ever more important as a reference plane. So far the developments in Mesopotamia and in China are comparable; but as regards the specific realization of this general tendency, both systems took a different course.

The total number of cuneiform signs is estimated to have been a little more than 2,000 (Friedrich 1966: 44). When phonetization began to be applied systematically in the ancient period, this number was reduced quickly to between 800 and 900 signs and further to about 400 in the common cuneiform of later periods. In China, by contrast, the number of characters increased from about 2,500 on the Shang oracle bones to almost 10,000<sup>9</sup> in the Han dynasty. By the twelfth century AD it had soared to 23,000 and to as many as 49,000<sup>10</sup> in the eighteenth century. Although this last figure includes many variants and obsolete characters, and although only a limited subset have been in common use at any one time,<sup>11</sup> it follows from these purely numerical observations that the development of cuneiform signs and Chinese characters proceeded along fundamentally different lines.

In the context of cuneiform (or Egyptian hieroglyphs, for that matter), phonetization meant that signs were stripped of their meaning and reduced to the representation of sound. The ensuing problem of ambiguity was countered, so to speak, in a pleremic digression by the introduction of a new kind of sign. Determinatives were employed to ensure unequivocal indication of the meanings of syllabically written words. As pointed out in chapter 5, determinatives indicated broad semantic categories and were quite limited in number. The obvious counterpart to cuneiform determinatives in the Chinese system are semantic classifiers. For instance, the word *táng* can have various different meanings. By phonetization 唐 had come to stand for the syllable *táng*. A semantic element 米, 'cereal', was added to single out the word *táng* meaning 'sugar'. However, while in cuneiform this semantic element would stand by itself, in the case of Chinese it became an integral part of the character. This had two important consequences for the character inventory and the structural make-up of its elements. First, the modification of extant characters by additional elements led to an

enormous increase of their number. Second, rather than being reduced to the representation of a syllable, each character continued to stand for a word or morpheme.

As the economic advantage of sound writing was not fully exploited, it was necessary in principle to have a character for every word or morpheme. Thus the introduction of character inherent determinatives – or, putting it differently, the expanding of the 'semantic-phonetic compound principle' – was the most consequential step in the evolution of the Chinese system. By applying the principle of determination differently, leaving the semantic element separate instead of making it part of the character, the Chinese system might have become cenemic.<sup>12</sup> The actual course of development, however, resulted in a heavily pleremic system.

The relative importance of the cenemic and the pleremic aspects of Chinese writing is a matter of considerable dispute. Why this should be so can be appreciated if we inspect the respective roles of the semantic and of the phonetic components of characters. Consider once again *táng* as an example. As pointed out previously (p. 100), there are several homophonous words *táng* as listed in figure 6.8.

If all characters for words with the phonetic shape *táng* incorporated the phonetic 唐, the mapping relation between sound and graph would be straightforward and simple. This is, however, not the case. The character 堂 is also used, independently and as a phonetic, to write homophonous words: for instance, *táng*, 螳 'mantis'. Here the classifier 虫 denotes an insect. In combination the phonetic for *táng* and the classifier

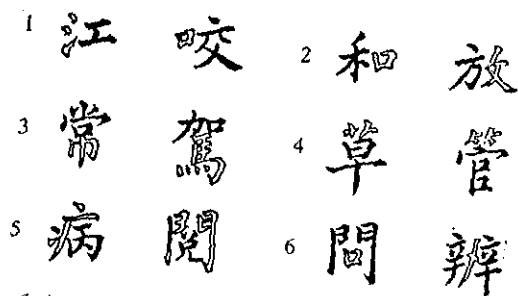
Phonetic	Meaning	Classifier*
唐 <i>táng</i>	糖 'sugar'	米 (cereal)
	塘 'embankment'	土 (earth)
	搪 'to block'	手 (hand)
	溏 'pond'	水 = 氵 (water)

\* The shape of characters varies slightly depending on whether they occur independently or as a part of another character.

for 'insect' make it clear what insect is referred to. It would be more economical to have just one phonetic for *táng* – that is, a one-to-one syllable/graph ratio – but these sound indicating elements can still be useful unless the same syllable is indicated by too many different such elements.

With respect to some syllables the syllable/graph ratio is very disadvantageous. For example, in current usage there are more than 10 different phonetics each indicating the syllables *ji*, *xi* and *shi*; and it would be difficult to find a syllable that is represented by one phonetic only. Mandarin Chinese has 1,277 tonal syllables. Karlgren (1923) has identified 1,260 phonetics under which he has classified some 6,000 of the most common characters. These two figures suggest a neat correspondence of an average one-to-one syllable/graph ratio; but a simple comparison is misleading, because both sides of the equation are multi-valued with respect to each other. The second phonetic for *táng*, 堂, for example, also stands for *chéng*. In 瞠 (*chéng*) 'to stare', it is the phonetic, while 目, 'eye', is the classifier.

Another difficulty is the absence of any graphical or positional specialization corresponding to the functions of the elements combined into semantic-phonetic compounds. A simple character may thus serve as a phonetic in some complex characters and as a classifier in others. The character 刀, 'knife', for instance, is the classifier of more than eighty compounds and the phonetic *dao* in more than a dozen (Alleton 1970: 38). The resulting difficulty of determining the classifier and phonetic in a given compound character is further aggravated by the fact that there is no general rule for positioning the phonetic (or classifier) in the compound. The various possibilities are illustrated in figure 6.9.



6.9 The position of phonetics (solid) and classifiers (traced) in compound characters (adapted from Alleton 1970: 38)

The functional load and efficiency of phonetics in compound characters varies. Optimal efficiency could be defined as the property of a phonetic to designate unambiguously the same syllable in all characters of which it is a part. Even this criterion furnishes only a relative measure, however, because of the variable frequency of different phonetics: some occur in scores of characters, others only in a few. Keeping this in mind, three kinds of phonetics can be distinguished: (1) those that indicate the same syllable (including tone) wherever they occur; (2) those that indicate the same syllable except for tone wherever they occur; and (3) those that indicate critical features of a syllable, but not always the same. For example, 皇 occurs in at least six characters as the phonetic *huáng*, always indicating the same tonal syllable; the character 馬 is used as a phonetic in several characters indicating the syllabic value *ma*, irrespective of tone; and 堯 can best be described as indicating a syllabic value *Cao*, where 'C' can be a number of different consonants such as *y*, *j*, *x*, *q*, *n* or *r*, and where the tone is indeterminate. In a sense, therefore, 皇 is more efficient as a phonetic than 堯, for it is more accurate. This is not to say, however, that the latter is useless because, while it is less accurate, it provides a hint for the pronunciation of a great many characters.

The function of classifiers in semantic-phonetic compound characters can be described in a similar way. Some carry a high information load as regards meaning whereas others only give a vague hint. The general question is this: as every character has a meaning attached to it, how much does the classifier contribute to the identification of this meaning? Assuming that every classifier has a fixed meaning, it is necessary to distinguish between different kinds of classifiers as well as different kinds of occurrences of any given classifier. In some characters a given classifier indicates an essential semantic component of the morpheme represented; in others it provides only a dim clue; and in a third group it has no apparent relation whatsoever to the meanings of the morphemes for which they stand. In the third case the classifier only serves to differentiate the character from others that are similar, while in the first two cases it actively helps, in varying degrees, to identify the meaning. Similarly, some classifiers are semantically informative in all or most characters of which they are a part, whereas others are indicative only in some but not in others.

To measure the semantic information value of the classifiers objectively and compare them with respect to this is difficult because their distribution among characters varies greatly. In modern dictionaries

with about 12,000 characters some classifiers, such as: 9<sup>13</sup> ('man'), 30 ('mouth'), 120 ('thread') or 140 ('grass'), head as many as 500 characters, but others serve only a handful or fewer characters as classifiers. Classifiers 204 ('to embroider') and 213 ('turtle') even seem to be listed as such only because the lexicographers did not know how to decompose and thus assign them to other classifiers (Alleton 1970: 44). Given that there are only 214 classifiers, some of which are practically useless as regards determining the meanings of characters, it is clear that the classifiers play only a limited role in semantic decoding. While their contribution to this process is hard to measure, it is possible to compare it with that of the phonetics. As the latter outnumber the former by a rate of between 5:1 and 8:1, depending on what count of the phonetics one takes as the basis,<sup>14</sup> the overall contribution of the phonetics to the decoding of characters must be greater than that of the classifiers. DeFrancis (1984: 128ff) reports on a study comparing the relative values of phonetics and classifiers of compound characters. He concludes that 'the phonetic element is far superior in predicting pronunciation than is the semantic element in predicting meaning.' If this is so, what then is a suitable term for describing the structural properties of Chinese characters appropriately?

#### LOGOGRAMS, IDEOGRAMS OR WHAT?

Most commonly Chinese characters are referred to as ideograms. Among those who make use of this term are (1) some who use it out of tradition or for lack of a better one, and (2) some who use it with meaningful intent. We need not deal with the former group here, but the latter cannot be ignored because this notion is, indeed, too full of meaning and speaks of a preconception.

One of the reasons why Western intellectuals have long been intrigued by Chinese writing is that it has been conceived, mistakenly, as many would argue today, as a system that speaks almost directly to the mind by means of visual images without mediation by the sound shapes of linguistic units; a system of ideograms similar to Arabic numbers or the ampersand &. Inaccurate reports by Christian missionaries have fostered this belief. Leibniz, for instance, in his quest for an alphabet of human thought – a topic which haunted him throughout his whole life – was led to think that an analysis of the system underlying the Chinese

characters would prove to be fruitful for a better understanding of human thought.<sup>15</sup> In spite of his failure to construe a universal language and his eventual disillusionment regarding written Chinese as a potential model, these expectations did much to establish the common view that Chinese characters are ideographs, each one of which 'represents an idea' (Russell 1922: 35).

The most prominent defender of the notion that Chinese writing is ideographic in modern times is Creel who, in the 1930s and 1940s, engaged in a famous controversy with his colleague Boodberg. He was convinced that in the development of writing the Chinese preferred 'to continue along the pictographic, symbolic and ideographic path rather than to specialize on phonetics' (Creel 1936: 91). Although they knew the phonetic principle and used it to some extent in their ancient writing, they rejected it (Creel 1936: 94) because they found it insufficient (Creel 1936: 160). The Chinese developed ideographic writing, however, not only out of preference, but also driven by necessity (Creel 1938: 266). Even if their preference had been to develop a fully phonetic method of writing, they could not have done it because of the phonological poverty of their language and its predominantly monosyllabic words. The many homophonous words were bound to lead to ambiguities. 'The meaning could be made clear only with the help of ideographs' (Creel 1938: 267).

Creel's position, which is based largely on etymological considerations, has been challenged by Boodberg (1940) and Kennedy (1951) and, more recently, by DeFrancis. In his 1984 book DeFrancis synthesizes the arguments of his predecessors and the results of his own research in a forceful attack on what he calls 'the monosyllabic myth' and 'the ideographic myth'.

The 'monosyllabic myth' is a pillar on which the 'ideographic myth' stands. It says, briefly, that words in classical Chinese were monosyllabic and, because there were so few distinct syllables, therefore naturally favored an ideographic script.<sup>16</sup> It can be argued, however, as DeFrancis does, that 'monosyllabism' is really an artefact, a product of Chinese writing and lexicography, rather than a determining factor of the development of the characters. In modern Chinese the majority of words consist of two or more syllables. DeFrancis argues that, in speech, this tendency was already present in ancient times. Only in the terse and extremely compact style of Chinese writing did words occur in the truncated form of a single character denoting a single syllable. The



Western idea of a close relationship between written and spoken language may also have contributed to the monosyllabic myth. A favorite argument of its adherents is that Classical Chinese poetry, when read aloud, very often does not make much sense, while being quite intelligible in writing. This does not, however, prove that what was not comprehensible in speech had to be made so in writing by introducing distinctions on the graphical level which had no counterpart on the phonetic level; rather it suggests that poetry was composed on paper and that writing was considered as a form of communication with functions different from those of speech. Different things can be done with language when writing and when speaking. This is especially true under the conditions of a writing system whose units are more than mere visual substitutes of sounds, denoting as they do both sounds and meanings.

Chinese dictionary making is yet another factor contributing to the belief in monosyllabic words, because traditionally dictionaries list individual characters as entries. DeFrancis (1984: 181) cites Kennedy's observation that, of the 373 characters listed in a standard dictionary under the *insect* classifier, '186 are given dictionary meanings, while 187 are listed as undefinable except in association with other graphs.' In other words, half of the entries are bound morphemes rather than independent lexemes. This shows how misleading it is to look at characters as representing words. For DeFrancis (1984: 124) Chinese writing is, however inadequately, primarily syllabic but, since most characters also contain a semantic classifier, he cannot call it a syllabic system.

An argument often cited in support of the ideography notion has to do with Chinese dialects. It is noted with wonderment by many Westerners that what is written in Chinese characters can be read throughout China, in spite of the pronounced differences between the dialects which in speech are mutually unintelligible. For two reasons this argument is not very pertinent. First, until recently, mastery of the Chinese script was the prerogative of a very small elite, and this mastery was invariably acquired in conjunction with learning Mandarin. Second, to find mutually unintelligible dialects sharing a common written norm one does not have to restrict one's attention to non-alphabetically written languages; English is a perfect example. A speaker of Indian English from Bombay will be hard put to understand the broad drawl of a southern Texan, and the latter will find the dialect of Glasgow quite difficult to comprehend. Yet neither of them has any problems reading

standard British or American English and relating it in some way to their own dialect. From this observation, no one would want to draw the conclusion that English orthography is ideographic. The fact that Chinese characters can be used across dialect boundaries cannot be taken to imply that either. Rather what it implies is that the representation of sound by the characters is not very accurate and that dialectal sound change is systematic.

Where do these observations leave us? We cannot avoid the conclusion that Chinese characters are inadequately described as either ideograms, logograms<sup>17</sup> or syllabograms. How then can they best be described? What is it that Chinese characters represent?

Jensen's (1925: 33) term *Formlautzeichen*, 'form-sound signs', and Friedrich's (1966: 19) notion of 'picture-idea writing' lack clarity. In recognition of the twofold nature of the great majority of all characters Cohen (1958: 49) describes the Chinese system as *une écriture idéophonographique*, which is preferable to Benvéniste's (1966: 24) *morphématique* because the latter could also be taken as referring to meaning only. Chao's (1968: 102) term 'morpheme-syllable writing' is much more to the point. Every Chinese character stands for a morpheme and for the syllable into which it is clad (cf. also Sampson 1985: 39).

In principle, there is a one-to-one mapping relation between characters and morphemes, while that between characters and syllables is a set of many-to-one relations since there are more characters than syllables. In most native Chinese individuals' mental dictionary there are probably also more morphemes than characters. To the extent that this is so and these individuals engage actively in writing, the syllabic aspect of writing is bound to become more dominant. But even though most present-day publications are supposed to represent 90 per cent of their content with the 1,000 most frequent characters, the system is far from being purely syllabic. While the phonetics are not nearly as vague in indicating the sound shape as the classifiers are in indicating meaning, there is still considerable vagueness on the level of sound signification. As distinguishing elements the classifiers are indispensable. Thus the Chinese system is best described as a 'morpheme-syllable writing system' in which classifiers and phonetics serve mutually diacritical functions: each determines the exact nature of the other which is only hinted at by the respective element itself.

From this description it appears that Chinese writing is intolerably vague and cumbersome, yet the ease and efficiency with which the

system is used by those who have mastered it speaks against such a judgement. After all, the principle on which most Chinese characters are based, that of presenting cues simultaneously to both the sound and the meaning of a morpheme, may turn out to be a very practical foundation for an orthography.

#### CONCLUSION

The Chinese writing system has often been criticized as cumbersome and uneconomical, yet it has survived from antiquity to the present day, serving as it does the greatest literary tradition that has ever existed. As the only original development of writing in the region it had a more lasting effect on the cultural identity of East Asia than any other culture trait (cf. chapter 7). The significance of the Chinese system for the development and functioning of writing can be summarized in three points.

1 Historically the evolution of the system since the incorporation of semantic classifiers into the individual characters demonstrates that, contrary to what has often been suggested, there is no finality, nothing absolutely necessary, in the development of writing. More particularly, the alphabet or phonetic writing in general cannot simply be considered the evolutionary, let alone teleological, peak of the development of writing. Rather, it must be noted that the Chinese system, by an accident of history or by deliberate choice on the part of its users, retraced the course toward cenemic writing on which it was set early in its history and continued to unfold along pleremic lines. Phonetic writing was known in China for many centuries. It existed in India, from where other culture traits had been adopted. That it was not accepted by the Chinese literati testifies to the conservatism of the Chinese civilization and to the fact that, once established, writing systems are extremely persistent.

2 The Chinese writing system is suitable for Chinese, or if this is saying too much, it is at least more suitable for Chinese than it is for other languages, for Chinese is an isolating language, and the need for cenemic signs is felt less in writing such a language than one which has an intricate morphology with many grammatical morphemes. Like all original creations, the Chinese writing system thus reflects certain features of the language for which it evolved. This structural fit may be considered another reason why the Chinese system never changed its

type during the past 2½ millennia. A change of type – from pleremic to cenemic – was brought about only when it was applied to an unrelated language, Japanese (to be discussed in the following chapter).

3 Systematically, Chinese writing is a peculiar mixture of pleremic and cenemic principles. Although it is undoubtedly hard to learn, its proficient users emphasize its efficiency and speed as well as the fact that it adds a dimension to the visual manifestation of language which has no counterpart in purely phonetic writing. Appealing simultaneously to the reader's abilities of phonetic and semantic decoding, it operates in a way that only alphabetic systems with a long history such as the English approximate; simple phonologically defined phoneme-grapheme relations have been superseded by a great deal of etymological writing whose units map onto the morphemic and lexemic levels.

#### NOTES

- 1 Creel (1943: 15) estimates that until the middle of the eighteenth century more books had been published in Chinese than in all other languages of the world put together.
- 2 This date reflects traditional chronology rather than accurate historical record (cf. Levenson and Schurmann 1969). See appendix II for a Far Eastern chronology.
- 3 Wood and bamboo plates with inscriptions in black ink are known from the Qin dynasty. They contain legal texts and other official documents.
- 4 The Chinese writing brush was also introduced during Shang times (cf. Needham 1978: 29).
- 5 Traditionally, eight basic kinds of strokes are distinguished, but some specialists of the art of brushmanship list as many as 64 (Alleton 1970: 26). Counting strokes for the purpose of finding characters in reference works, however, is based on the eight strokes listed in figure 6.5.
- 6 In character dictionaries characters are arranged by classifier and number of strokes. Looking up a character thus involves at least two steps: (1) identifying the classifier and locating it in the dictionary, and (2) finding the character in question among those with the same classifier and consisting of the same number of strokes. The modern classificatory system of character dictionaries which is based on 214 classifiers is rather cumbersome. As more than half of all characters belong to one of the twenty most frequent classifiers (Chao 1948: 63), the entries for these classifiers are exceedingly long.
- 7 Wieger (1932: 10) explains the principle as 'acception du caractère dans un sens plus étendu, dérivé, généralisé, métaphorique, approprié, figuré, etc.'

## From Word to Syllable II: Chinese Characters for other Languages

- Creel (1936: 95) translates it as the *mutually explaining* principle and raises doubts whether this was a clearly defined category for the author of the *Shuo wen jiezi* himself. Chao (1968: 103) likewise calls it 'obscure', and DeFrancis (1984: 79) simply omits it from his discussion.
- 8 Saeki (1966: 56) gives the following percentage breakdown for the six categories: 1: 3%, 2: 0.4%, 3: 6%, 4: 0.5%, 5: 90%, 6: 0.05%.
  - 9 As recorded in the *Shuo wen jiezi* of 120 AD.
  - 10 In the *Kang xi* dictionary of 1716.
  - 11 The total number of all the characters that have ever existed is impossible to ascertain, but it is said that it would reach 80,000 (DuPonceau 1838: 7; Alleton 1970: 47).
  - 12 As a matter of fact, it has been argued that Chinese writing once was cenic. Kennedy, aprovingly quoted in DeFrancis (1984: 84), suggests that 'at some period shortly after or coincident with the oracle bone period Chinese writing became an organized system of syllabic writing.' If that were indeed to have been the case, the history of Chinese writing would be an interesting example of abandoning a simple structural principle for the sake of a more complicated one.
  - 13 There is a standard order of classifiers in Chinese and Western character dictionaries. The 214 classifiers are ordered for ascending number of strokes from one to seventeen. Within the 17 groups the order is arbitrary but standardized.
  - 14 As pointed out above, Karlgren (1923) lists 1,260 phonetics, whereas Soothill (1942) only counts some 900.
  - 15 'Cette recherche [des caractères Chinois] me paroît d'autant plus importante que je m'imagine, que si nous pouvions découvrir la clef des caractères Chinois, nous trouverions quelque chose qui serviroit à l'analyse des pensées' (Leibniz 1768, vol. 5: 484).
  - 16 Bertrand Russell, one of the most learned men of his day, though not a specialist on matters of Chinese language, gave succinct expression to the myth: 'What is peculiar in China is the preservation of the ideographic system throughout thousands of years of advanced civilization – a preservation probably due, at least in part, to the fact that the spoken language is monosyllabic, uninflected and full of homonyms' (1922: 36).
  - 17 DuPonceau (1838) seems to have been the first to promote the term 'logographic' as a better choice than 'ideographic'. But for the reasons just stated, this is not satisfactory.

In view of the pre-eminence of Chinese culture, it is not surprising that, like other cultural achievements, the Chinese writing system was borrowed by neighboring peoples in the Far East, either living under Chinese sway or in independent countries. Like Sumer, China was a center from which writing radiated to other lands (Liu 1969). The possession of writing was both the result and an expression of China's cultural superiority, and Chinese writing was probably the most important single factor for exporting China's culture and establishing a common cultural bond throughout East Asia. However, it was not only or even primarily the Chinese writing system as an instrument which secured China's cultural dominance in that part of the world; rather it was the content of what was written and the fact that the study of Chinese texts was the chief means of getting to know it. To the borrowers, Chinese writing and the Chinese language were originally inseparable. This is an important point to note at the outset of this chapter because, while the influence of Chinese writing on other Asian cultures is often acknowledged, its nature is also often misunderstood. Consider Russell's remark on the function of the Chinese script in Japan as a typical example of this misunderstanding: 'To us, it seems obvious that a written word must represent a sound, whereas to the Chinese it represents an idea ... Even a Japanese, without knowing a word of spoken Chinese, can read out Chinese script in Japanese, just as he could read a row of numerals written by an Englishman' (Russell 1922: 35ff).

Nothing could be further from the truth. If a Japanese can read Chinese, it is because he has studied it and not, as Russell suggests and as is assumed by many, because the Chinese writing system is ideographic – that is, language independent – and can therefore be read in any

language. When Russell wrote, Classical Chinese was an essential part of the high-school curriculum in Japan, though the way of reading it differed from Chinese in a peculiar manner. Nowadays, most Japanese would be at a loss if confronted with a Chinese text because, in the meantime, writing conventions in both China and Japan have changed significantly.<sup>1</sup> The thorough influence of Chinese culture on other Asian nations is due primarily to the classical Chinese works' becoming the canon of higher education throughout the region. For almost a thousand years until the nineteenth century, these works were studied in Chinese. Translations came later when the Chinese script was adapted to various languages. But at that point the Chinese language already had secured a significant place in the respective countries for the conduct of matters of government, culture and scholarship.

China's cultural influence is witnessed by large amounts of loan words in all neighboring languages. The Chinese script, however, has extended only eastward, not westward. This is a noteworthy fact because some of the languages spoken to the south-west of China (such as the Tibeto-Burman languages) are members of the same language family as Chinese, yet they came to be written with scripts related to the Devanagari system of Sanskrit rather than with the Chinese script. This shows that cultural diffusion is (1) independent of linguistic or ethnic relatedness and (2) not necessarily guided by efficiency and practicality. Linguistic affiliations do not coincide with the spread of culture traits. On linguistic grounds, one would expect that the Chinese writing system could be transferred with greatest ease to the languages most closely related to Chinese. Yet Tibetan, an isolating tone language like Chinese, came to be written with a system unrelated to the Chinese. Even some Chinese dialects in the extreme west adopted Indian-derived systems. On the other hand, the Chinese script spread to the east where it was adapted for languages not genetically related to Chinese: Korean and Japanese (members of the Altaic family) in the north, and Annamese (or Vietnamese), a language that belongs to the Mon-Khmer group of the Austro-Asiatic family, in the south. Thus, on linguistic grounds, the borrowing of Chinese characters for other languages was not the ideal solution, but linguistic criteria for adopting or abandoning a script (or orthography) are more often than not overruled by more powerful sociopolitical factors.

The structural differences between Chinese and these languages made adjustments necessary and led to drastic changes in the way Chinese

characters were employed to represent units of language. Korean and Japanese in particular are so different from Chinese that supplementary native writing systems were developed for both languages. Annamese is closer and more similar to Chinese and hence posed fewer difficulties regarding the adaptation of the Chinese writing system. Annamese writing is therefore treated first.

#### ANNAMESE WRITING

The classification of Annamese has been a matter of debate. According to the majority view, it is a Mon-Khmer language, but some scholars assign it to the Tibeto-Burman group. Typologically, it is a tone language; and as in most tone languages its morphemes are monosyllabic. Every lexical or grammatical morpheme is realized as one syllable. Morpheme boundaries are most important and are clearly marked suprasegmental junctures. These structural features are almost parallel to Chinese, and therefore the adaptation of *Hanzi* created no particular structural difficulties. Yet many centuries passed between the time Chinese writing was first known in Annam and the employment of *Hanzi* for Annamese.

Annam has been part of the Chinese cultural universe since antiquity. For more than 1,000 years North and Central Vietnam was under Chinese suzerainty. The very name of the country is Chinese. It came into existence when, in the third century BC, the Chinese pushed south of Guangdong into the maritime plain which they named *Annam*, or 'Pacification of the South' (Crofts and Buchanan 1958). It was only in 968 AD that the Chinese rulers were replaced by an indigenous dynasty, the Dinh. By that time, Confucianism, Chinese writing and other Chinese achievements had become fixed in Annamese culture. Since administration was under Chinese control, it was natural that China's classical literary language *wényán* became the written language of Annam. From about the beginning of the present era, therefore, Vietnamese literature has been in Chinese and modeled on Chinese style. At the same time an orally transmitted folk-literature evolved. Thus, for a long time, written language and spoken language were not merely stylistically distinct, but were altogether different languages: Classical Chinese and Annamese.

## Chữ nôm

Chinese characters were finally adopted for writing Annamese in the fourteenth century; that is to say, *Hanzi* were used as the building blocks for a Vietnamese script, called *chữ nôm*. This script is first attested in a literary document from 1343 AD and continued to be used until the present century. Even though Vietnamese began to be written with Roman letters in the seventeenth century under the influence of Portuguese, French and Italian missionaries, *chữ nôm* was a significant symbol of Vietnamese identity and nationality until this century.

The adaptation of *Hanzi* for writing Annamese followed three strategies, as outlined below.

- 1 A character is used by virtue of the sound it represents in Chinese, irrespective of its meaning, for a homophonous or phonetically similar Annamese word. For example, the character 行 represented the verb 'to go' which in Southern Chinese was pronounced *hàng*. It was thus adopted for writing the Annamese word *hàng* meaning 'line, order'.
- 2 A character is used by virtue of the meaning of the word it represents in Chinese, but given an Annamese reading. For example, 打 stands for the Chinese *tǎ*, 'to hit'. The Annamese word for 'to hit' is *dánh* which thus became the new reading of this character.
- 3 The third principle was the composition of new complex characters non-existent in Chinese. This was done by making use of standard formation procedures which had, however, not been exploited in Chinese. For example, in order to write the word *an*, 'to eat', the Annamese formed the character 𠵿 consisting of 安, which in Southern Chinese pronunciation is read *an*, and 口, the character for 'mouth'.

The three strategies of using Chinese characters for writing Annamese are summarized in figure 7.1.

*Chữ nôm* was gradually superseded by an alphabetic orthography which, however, was declared the official Vietnamese script only in 1910. Owing to the tonal features of the language, the Vietnamese alphabet makes use of many diacritics (cf. chapter 3, pp. 44f).

		Chinese		Annamese	
1	sound	<i>hàng</i>	行	<i>hàng</i>	
	meaning	'to go'		'line, order'	
2	meaning	'to hit'	打	'to hit'	
	sound	<i>tǎ</i>		<i>dánh</i>	
3	sound	<i>an</i>	安		
				classifier	phonetic
				口	安
	new character				𠵿
	meaning				'to eat'

7.1 Three strategies of employing Hanzi for writing Annamese

## KOREAN WRITING

Like the Annamese the Koreans learned to write from the Chinese, and like them they used *wényán* as the written language for many centuries before they began to write their own language. The language of Silla, from which modern Korean descends, differs much more drastically from Chinese than Annamese, and therefore the adaptation of Chinese characters was more difficult. Old Korean (that is, the language that was spoken on the Korean peninsula in the first millennium AD) is not well attested. Scholars are thus uncertain and cannot agree about the pre-history of the Korean language (Martin 1975). Many believe it belongs to the Altaic languages, whereas others assume a common origin for Korean and Japanese. Grammatically Korean and Japanese are very similar, but these similarities do not allow a definitive judgement on their genetic relationship.

In the present context it is more important to note that certain grammatical features of Korean make the Chinese writing system extremely ill suited for it. It is (1) an agglutinative language where grammatical

information is expressed by postpositions and postposed particles, which means that (2) words are usually polysyllabic, consisting of a content morpheme and one or more grammatical morphemes. As Chinese characters usually have lexical meanings, the grammatical morphemes of Korean were difficult to represent with Chinese characters, a problem not unlike that of writing Akkadian with Sumerian logograms. In Chinese, every character is associated with a meaning and a syllable. This tripartite structural unit had to be dissociated in order to write linguistic units without lexical meaning.

When in the seventh century AD the Koreans began to compile historical records, they wrote in Chinese, but they wanted to write about Korean things, people and places. Once again proper names thus played a crucial role for the development of writing, since they led to the first attempts of writing Korean with *Hanzi*, or *Hanja*, as Chinese characters are called in Korean. The Koreans used two adaptation strategies for writing their language with Chinese characters which are basically the same as the sound-based and meaning-based strategies described above for Annamese.

- 1 A character was used to represent a syllable irrespective of its meaning in Chinese. For example, Chinese 古 (*kū*), 'old', was used to write the Korean syllable, *ku*. This strategy is the same as the Chinese method of writing foreign proper names.
- 2 A character is used to represent a Korean word which corresponds to the Chinese word for which the character was used in the first place. For example, 水 stands for 'water' in Chinese. In Korean this *Hanja* was thus given the reading *mər*, 'water', while the Chinese word is *shǔi*. This strategy is a genuine Korean invention which was replicated later on a much larger scale by the Japanese.

#### Ido

The next step in using Chinese characters for Korean was to write *Hanja* in Korean word order. This resulted in Chinese being transformed into the language of Silla. Only one character was used in a special way: 止 became a grammatical indicator for verb endings. Gradually the use of *Hanja* in Korean word order developed into a written language of its own right known as 吏道, *Ido*, or 吏文, *Imun*, which became the offi-

cial script of the chanceries. *Ido* was systematized at the end of the seventh century by Solch'ong, a scholar in the service of King Sin-mun. It was a mixed system with both pleremic and cenemic elements. A special set of characters was selected for their syllabic values and used for grammatical morphemes. Lexical morphemes, many of which were of Chinese origin, were written with *Hanja* in the usual manner. Since the characters used for writing grammatical morphemes were not graphically distinct from the others, a rather cumbersome system resulted whose complexity was further aggravated as the number of characters used as syllabic signs increased. It was only much later, probably in the thirteenth and fourteenth centuries, that some of the grammatical morpheme characters were simplified and thus became graphically recognizable. Some of the simplifications were as follows:

厓 → 广; 伊 → 伊; 尼 → 匕; 羅 → ㄸ

These characters were called *Kugyol*. Exact dating of their origin is not possible, but it seems that they were first developed as an auxiliary system for indicating readings in Classical Chinese scripts: that is, as a means enabling the Koreans to read Confucian and other classical texts in their own language.

A further method of using *Hanja* is distinguished by some scholars, while others treat it as a variety of *Ido* used during the ninth and tenth centuries. Known as *Hangch'al*, this method is based on the proper name writing of *Ido* and makes use of two principles: (1) lexical stems are written with *Hanja* to be read in Korean (in accordance with the meaning-based adaptation strategy); and (2) suffixes and all other grammatical morphemes are written with *Hanja* to be read in Sino-Korean (in accordance with the sound-based adaptation strategy). A proper understanding of the text was necessary for determining the correct reading of characters.

Another problem with this system was that the syllable structure of Korean is much more complex than that of Chinese. The grammatical morphemes could not, therefore, be represented very well with *Hanja* adapted in accordance with the sound-based strategy. In sum, it can be said that writing Korean with Chinese characters was a rather laborious exercise resulting in a highly artificial written language which, as long as it existed, never really rivalled classical Chinese, let alone replaced it.

## Han'gul

Eventually the Koreans came to express their dissatisfaction with this state of affairs:

While there is a great difference between the Korean language and the Chinese, there are no proper letters that the Korean people can use in writing their language and expressing their thoughts. From the time of the Silla Dynasty a system of writing known as I-du has been used in the daily life of ordinary people as well as in Government business. But it is too complicated, imperfect, and inconvenient a system for the Koreans to use freely in expressing their own ideas and thinking, because too many Chinese characters are involved in it. Koreans are in great need of their own letters with which they can write the Korean language. (Lee 1970)

This pronouncement was made by King Sejong who is credited with providing his people with what is probably the most remarkable writing system ever invented. It is a unique alphabet called *Han'gul*, which was promulgated in a Royal Rescript under the title *Hun Min Jong Um* (訓民正音), 'the correct sounds for instructing the people', issued in 1446 out of 'pity with the common people' who were unable to express themselves properly in *Ido*. In this document the new script is explained and philosophically justified, which makes *Han'gul* a very special case because, rather than being developed in a piecemeal way, it is the product of deliberate, linguistically informed planning (Ledyard 1966). A philosophical justification of the new script was necessary because the members of the educated elite were naturally opposed to change. Although it was hard to disagree with the assessment that 'Chinese characters fit the Korean language like an angular handle fits a round hole' (Lee 1970), a practical justification for departing from established practice was not enough, as nothing could command respect in Korea at that time unless it was dignified by Chinese origin. Thus in the Royal Rescript the elements of the new script were shown to be structurally isomorphic with basic metaphysical categories of Chinese philosophy which came in sets of five, such as 'North', 'South', 'East', 'West' and 'Center', or 'Water', 'Fire', 'Wood', 'Metal' and 'Clay'. The basic vowels were shown to be also five: ㅏ/o/, ㅑ/u/, ㅓ/a/, ㅗ/ə/ and ㅣ/i/. As matter was composed from the basic elements, it was argued, all other vowels were representable in terms of the five basic vowels.<sup>2</sup>

In the present context, more interesting than the philosophical

justification of *Han'gul* is the sophistication of its linguistic motivation. One of the extraordinary features of this system is the systematic relationship that holds between the outer form and the inner form of its basic elements. *Han'gul* characters were designed to depict the actual places of articulation of the phonemes they represented. For example, the symbol ㅋ for /k/ pictures the tongue touching the palate. Systematic relationships between elements of the phonological system are thus mapped by graphical relationships between the respective signs. The system consists of 28 basic signs; 24 of them are used today. The 28 original characters and the 24 in contemporary use are given in figures 7.2 and 7.3, respectively.

The basic signs do not suffice to write all phonemes of the Korean language; however, the linguists who devised the system realized that

Consonants	ㄱ	ㅋ	ㅇ	ㄷ	ㅌ	ㄴ	ㄷ	ㅌ	ㄹ
	k'g	k	ŋ	t'd	t	n	t	t	l
	o	ㅈ	ㅊ	ㅅ	ㅆ	ㅌ	ㅍ	ㅑ	ㅓ
Vowels	ㅏ	ㅑ	ㅓ	ㅕ	ㅗ	ㅛ	ㅜ	ㅠ	ㅡ
	o	u	i	ə	a	u	o	u	o
	ㅗ	ㅛ	ㅜ	ㅠ	ㅑ	ㅓ	ㅕ	ㅗ	ㅛ

7.2 The original Han'gul letters

Consonants (14)	name	ㄱ	ㅋ	ㅇ	ㄷ	ㅌ	ㄴ	ㄷ	ㅌ	ㄹ
	sound	k'g	k	ŋ	t'd	t	n	t	t	l
	name	ㅏ	ㅑ	ㅓ	ㅕ	ㅗ	ㅛ	ㅜ	ㅠ	ㅡ
Vowels (10)	name	ㅏ	ㅑ	ㅓ	ㅕ	ㅗ	ㅛ	ㅜ	ㅠ	ㅡ
	sound	o	u	i	ə	a	u	o	u	o
	name	ㅗ	ㅛ	ㅜ	ㅠ	ㅑ	ㅓ	ㅕ	ㅗ	ㅛ

7.3 The 24 Han'gul characters presently in use

certain phonemes are phonetically related to others. They also considered some phonemes more basic than others and therefore created signs for the latter by adding diacritics to the ones used for the former. Moreover, these diacritics were applied in a highly systematic way. For instance, all aspirated consonants are represented by adding a bar to the sign of the respective non-aspirated consonants. Palatalization is likewise indicated by an additional stroke. Diphthongs, too, are represented by adding the same element in all cases to basic vowel signs. The relationship between simple and complex signs that characterizes the *Han'gul* system can best be described as the relation of diacritics to a base. Of all systems that were actually invented as writing systems, the Korean script comes closest to treating distinctive features as the basic units of representation. It is quite understandable and justified, therefore, that the Royal Rescript of 1446 emphasizes the system's minuteness and flexibility in representing sounds: 'Hangul is able to make a clear distinction between surd and sonant, and to record music and song. It is good for any practical use, and even the sound of the wind, the chirp of birds, the crowing of cocks, and the barking of dogs can be exactly described with it' (Lee 1970).

As a result of the depth of its underlying phonological analysis, *Han'gul* has been called 'the most rational of all writing systems' (Watanabe and Suzuki 1981: 137), and while the system does not represent a phonological feature analysis of present-day Korean, the depth of the analysis is there (cf. Sampson 1985: 143). In principle, it is possible to write *Han'gul* in linear order, but the system's designers must have been aware that breaking down the continuum of linguistic sounds into phonetic features, while being useful for its accurate written representation, is inconvenient for reading. They also recognized the syllable as an important unit of speech. Instead of writing the basic signs in linear succession, as is commonly done in alphabetic scripts, they are stacked together to form units that can be perceived as representing syllables. These syllabic units were designed to conform with the square frame of Chinese characters (Kôno 1969). Although the composite parts of the syllabic frames are easily distinguishable, it is the syllable that is given greatest prominence as a written unit. Figure 7.4 illustrates how vowel and consonant signs are combined to form syllable blocks.

Every syllabic frame is constructed in a different way according to the shapes of the *Han'gul* letters. In every frame consonant and vowel elements are united to form a syllable. Theoretically, vowels could stand

	Vowels	ㅏ	ㅑ	ㅓ	ㅕ	ㅗ	ㅛ	ㅜ	ㅠ	ㅡ	ㅣ
		a	ya	eo	yeo	o	yo	u	yu	eu	i
Consonants	ㄱ	g(k)	가	갸	거	겨	교	꾀	규	그	기
	ㄴ	n	나	냐	너	녀	노	뇨	누	뉴	느
	ㄷ	d	다	댜	더	더	도	도	두	듀	드
	ㄹ	r(l)	라	랴	러	려	로	료	루	류	르
	ㅁ	m	마	먜	머	며	모	묘	무	뮤	므
	ㅂ	b	바	뵤	버	벼	보	뵤	부	뷰	브
	ㅅ	s	사	샤	서	셔	소	쇼	수	슈	스
	ㅇ	∅	아	야	어	여	오	요	우	유	으
	ㅈ	j	자	쟈	저	져	조	조	주	쥬	즈
	ㅊ	ch	차	챤	처	쳐	초	쵸	추	쥬	츠
	ㅋ	k	카	캬	커	켜	코	코	쿠	큐	크
	ㅌ	t	타	탤	터	텨	토	토	투	튜	트
	ㅍ	p	파	퍈	퍼	펴	포	포	푸	퓨	프
	ㅎ	h	하	햤	허	혀	호	효	후	휴	흐

7.4 The basic combinations of vowels and consonants in the Korean alphabet (adapted from Ministry of Education 1983, Education in Korea)

by themselves, but that would create a rather uneven and irregular outer appearance. For the sake of uniformity the consonant sign for /j/, namely ㅇ, is therefore used in conjunction with vowel signs to represent syllables without consonants. In syllable final position, this sign stands for a velar nasal.

As for the facility of learning *Han'gul*, its makers knew that they had succeeded in creating a truly demotic script which 'an intelligent person can understand before the morning is over. And even the thick-headed can master it in ten days' (Lee 1970). This is an obvious advantage over Chinese. *Han'gul* is, indeed, so consistent and systematically beautiful with respect to outer and inner form that its superiority over the cumbersome *Ido* system must have been evident to everyone. Yet the Koreans continued to use Chinese, both in the form of the written



language *wényán* and in their new script. In *Han'gul* texts Chinese loan words are written with Chinese characters to be read in Sino-Korean. Since Chinese loan words form a substantial part of the Korean vocabulary, Korean texts are interspersed with Chinese characters. Native Korean words are usually written with *Han'gul*, however. Hence there are almost no native readings of Chinese characters, a feature characteristic of the use of *Hanzi* in Japan. The Democratic People's Republic of Korea (DPRK) has abolished the use of Chinese characters after the division of the country, while they continue to be used in South Korea. Like Latin- or Greek-based loan words in Western languages, Chinese loan words, or rather the ability to write Chinese loan words with *Hanzi*, are felt to be indicative of a writer's erudition and refinement. This is still so in the Republic of Korea, as it is in Japan. However, thanks to the availability of *Han'gul*, Chinese characters no longer function as a filter making the written language the prerogative of the educated elite.

#### JAPANESE WRITING

Like the Koreans, and with their assistance, the Japanese first acquired writing in the guise of Chinese; and like Korean, Japanese is as different from Chinese as any language could be. Hence the development of Japanese writing and written language exhibits obvious parallels with that of Korean yet, under the hands of the Japanese, Chinese characters were transformed to become what is often said to be the most intricate and complicated writing system ever used by a sizeable population. Sansom's description can be quoted here as a representative assessment: 'One hesitates for an epithet to describe a system of writing which is so complex that it needs the aid of another system to explain it. There is no doubt that it provides for some fascinating field of study, but as a practical instrument it is surely without inferiors' (Sansom 1928: 4).

The Chinese system itself pales in comparison with the Japanese when it comes to complexity and seeming impracticality. Indeed, *Kanji*, as Chinese characters are called, are used in a way so different from their models that only tradition justifies their name.

According to traditional Japanese accounts, Chinese writing was brought to Japan by a Korean scholar named Wani. As early Japanese chronicles blend legend and record, no exact dating of this event is possible. Reliable written evidence of Japan's literary history is available

from the seventh century AD, at which time the practice of writing Chinese was, however, already firmly established.

The Japanese started out much like the Koreans; that is, they first used the Chinese written language and then gradually began to introduce certain syntactic changes which made possible a Japanese interpretation of the Chinese writing. This style became known as *Kanbun*, literally 'Han writing' or 'Han literature' in reference to the Han dynasty. A distinction is made between *Jun-Kanbun*, or genuine Chinese, and *Hentai-Kanbun*, or 'abnormal *Kanbun*', abnormal namely with respect to standard Chinese grammar. Actually, *Hentai-Kanbun* became the normal way of reading and writing Classical Chinese in Japan. It can be described as the Japanese version of Classical Chinese, or as a standard method of reading Classical Chinese in translation.<sup>3</sup> *Kanbun* is a written language which played a crucial role in the formation of Japanese culture, comparable to the position Latin enjoyed until the eighteenth century in Europe as the language of scholarship, religion and certain literary genres. It is thanks to this 'nativization' of Classical Chinese that Chinese characters could function as a means of communication across languages. However, *Kanbun* is a language quite unlike Japanese, and few writers could actually speak it (Sato Habein 1984: 8).

#### Kanji

The initial steps of adapting *Hanzi* to writing Japanese were similar to the Korean adaptation process, but the eventual result was very different. The Japanese, too, applied the two adaptation strategies described for Annamese and Korean.

1 A Chinese character was used to write a Japanese word whose meaning was the same as that of the Chinese word for which the character was used in Chinese. The character 人, for instance, which in Chinese stands for the word *jen*, 'man', was used to write the Old Japanese word for 'man', *Fitō*. This meaning-based way of using Chinese characters is called *kun* in Japanese philology, which means 'gloss' or 'meaning'. *Kun* itself is one of the many Chinese loan words which were channeled into Japanese through the medium of writing. It was applied in *Kanbun*, the writing style associated with it.

2 The other method of using Chinese characters resulted from the need to write Japanese grammatical elements not present in Chinese.

Like Korean, Japanese is a language of the agglutinative type. Grammatical relations are expressed by suffixes. For these the Japanese chose characters on the basis of the pronunciation of the Chinese morphemes associated with them. For instance, the Old Japanese topic particle *Fa*, modern *wa*, was written with the character for Middle Chinese *puâ*, disregarding the meaning of the Chinese word, 'wave'. This sound-based method of using Chinese characters is conventionally called *Manyôgana* after the earliest literary monument where it was used, the poetic anthology *Manyôshû*, compiled in 759 AD. The poems in this collection are phrased in Japanese syntax. *Manyôgana* can be described as Chinese characters stripped of the meanings with which they are associated in Chinese; thus basically a cenemic system. To illustrate its application beyond grammatical morphemes, in *Manyôgana* the Japanese word *kumo*, 'cloud', was written with the two characters 久母, which in Chinese are associated with morphemes meaning 'long time' and 'mother', respectively. The characters were chosen only for their syllabic values, *ku* and *mo*. Using *Hanzi* to write syllables rather than other units of sound suggested itself because they designate syllables in Chinese. As a syllabic script, however, *Manyôgana* is cumbersome and highly redundant, since the average relation between characters and syllables is more than ten to one. In the language of the eighth century there were some 88 syllable types in Japanese, but over 970 Chinese characters were used to write them.

The two adaptation strategies led to the development of two writing styles and, eventually, two written languages, a modified Chinese-style writing called *Kanbun*, 'Chinese writing', and a genuine Japanese style called *Wabun*, 'Japanese writing'. However, as in Korean *Ido*, both uses of Chinese characters also occurred in combination. In particular, the more than 4,500 poems of the *Manyôshû* combine the two methods of writing, a practice which can be regarded as the earliest model of present-day writing conventions (see below).

#### On and kun

As pointed out above, the importation of the art of writing from China, the intense cultural contact with the more highly developed neighbor and the peculiar intertwining of the two languages, Chinese and Japanese, in *Hentai-Kanbun*<sup>4</sup> led to a massive influx of Chinese loan words into Japanese. These words were naturally written as they were in

Chinese and the respective characters were pronounced in Chinese through the filter of Japanese phonology: that is, Sino-Japanese. However, nothing prevented characters used for Chinese loan words from being used in accordance with the meaning-based adaptation strategy too; that is, providing them with a native Japanese pronunciation. Apparently nobody foresaw the consequences of this practice, or, if they did, they could not stop it, because writing developed in an unplanned way. Many characters were indeed adapted in accordance with both strategies, and thus acquired both a Sino-Japanese and a native Japanese reading. These two readings are called *on yomi* and *kun yomi*, respectively, where *on* means 'sound' – that is, the original Chinese sound – and *kun* 'meaning', as explained above. *Yomi* means 'reading'. For example, 水, 'water', is read *sui* as the Sino-Japanese loan morpheme (from Chinese *shuǐ*) and *mizu* where it stands for the native Japanese word.

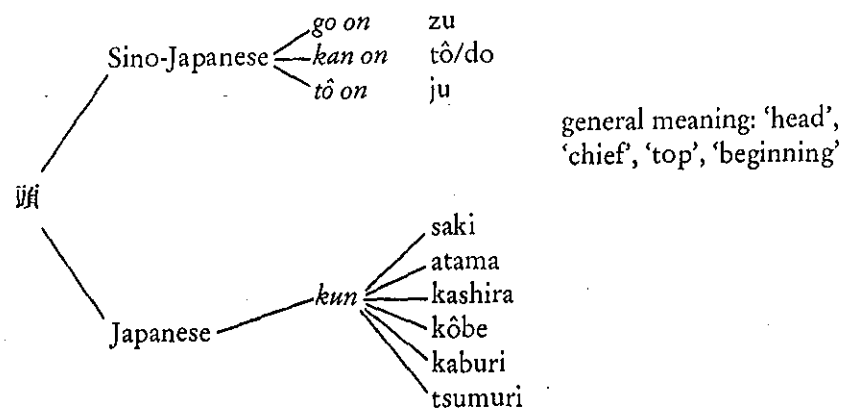
As if this were not difficult enough, the Japanese continued to borrow and adapt Chinese characters as time went by. As a result, a single character may have two or three possible *on* readings reflecting the Chinese pronunciations of different periods or regions. The earliest phonetic use of Chinese characters is based on the phonology of northern Chinese until roughly the sixth century and is called *go on*, 'the go (= Chinese Wu) pronunciation' (R. A. Miller 1967: 102). Later this pronunciation was superseded by that of the dialect of Ch'ang-an, the capital of the great Tang dynasty (618–907), which is called *kan on*. Finally, there is *tô on*, a somewhat misleading name as it seems to refer to the Tang dynasty, but actually reflects Chinese pronunciation varieties of later periods, including those of Sung (960–1271), Yuan (1271–1368) and Ming (1368–1644). When *kan on* first came into use, there was an effort to make it the official pronunciation of *Kanji*, but *go on*<sup>5</sup> readings were never abolished, chiefly because they were firmly associated with Buddhist usage. Thus, rather than replacing earlier pronunciations, the later ones were added, yielding multiple syllabic values for many characters. An illustration is provided in figure 7.5, which lists three *on* readings and one *kun* reading for some sample characters.

There are not too many characters which have *tô on* readings in addition to *go on* and *kan on*, but quite a number have the latter two. The resulting complexity of a system making use of these multivalued elements is reminiscent of multivalued cuneiform signs of Akkadian writing, in which both the Sumerian superstratum and the Akkadian

	go on	kan on	tô on	kun
京	kyô	kei	kin	miyako
外	gyô	gai	ui	soto
行	gyô	kô	an	kudari
明	myô	mei	min	akashi
和	wa	ka	o	nagf

7.5 On and kun readings of Kanji

translation of Sumerian words furnished readings for the signs. Actually, the picture that emerges from figure 7.5 is somewhat simplistic. It should not be taken to suggest that a *Kanji* can only have three *on* readings or that all *Kanji* have only one *kun* reading. Consider for instance 頭, a character with four *on* readings and six *kun* readings.



The obvious question that poses itself in view of this situation is that of how to decide on the correct reading of a given *Kanji*. The answer is that in many cases this is very difficult and to a large extent dependent on the context. Present writing is regulated by convention and greatly facilitated by the combined use of *Kanji* and *Kana* (see below), but old texts are almost impossible to read without a great deal of contextual knowledge and familiarity with usage. While there are certain rules of

thumb, they are just that; and hence often violated. For instance, in compounds *Kanji* tend to have Sino-Japanese readings (that is, *on* readings), but compounds consisting of two characters with *kun* readings are also common. Moreover, compounds may combine characters with both kinds of readings.<sup>6</sup> Coyaude (1985) lists seventy-two *on-kun* compounds and ninety-nine *kun-on* compounds. *Kanji* used in combination to form compounds do not unequivocally determine each other's readings: that is, compounding does not disambiguate multiple readings. Coyaude (1985) has counted several hundred bi-*Kanji* compounds with two or more possible readings usually associated with different meanings.

The reverse phenomenon is also rampant: there are scores of homonymous words in Japanese, since several *Kanji* compounds have the same pronunciation (Kindaichi 1957: 83ff). For example, there are more than ten words, *seika*, with unrelated meanings, such as 'result', 'mid-summer', 'net price', 'hymn', 'vegetables and fruits', 'confectioner', 'sanctification', 'reputation', 'sacred flame', '(regular) curriculum' and 'essence'. The homophony of these words is not reproduced in writing since there are as many different *Kanji* compounds as there are meanings. Two factors are responsible for the enormous number of homophones in the Chinese loan word layer of the Japanese vocabulary: (1) the loss of phonetic distinctions of Chinese syllables through their adaptation to Japanese phonology, and (2) the tendency to treat *Kanji* rather than syllables as the material of word formation. Table 7.1 shows some examples of the phonological distinctions which were neutralized in Japanese.

TABLE 7.1 Neutralization of phonetic distinctions in Japanese

Character	Middle Chinese	Eighteenth-century Sino-Japanese	Japanese meaning
口	/k'əu/	/ko:/	mouth
広	/kua/	/ko:/	wide
甲	/kap/	/ko:/	armor
交	/kau/	/ko:/	associate with
劫	/kiap/	/ko:/	threat

The problem of homonyms has often been said to be a characteristic feature of Chinese. As Coyaud (1985) has clearly demonstrated, it is a much more serious problem in Japanese. Notice, however, that in Japanese it is a Chinese heritage since it is restricted, by and large, to Sino-Japanese words (Hayashi 1982). For purposes of clarification, homophonous Sino-Japanese words can usually be paraphrased by Japanese (near) synonyms. From the point of view of the Chinese character this means that it is possible to fall back on the *kun* reading in order to explain the *on* reading. To illustrate the specific link that *Kanji* form between the two strata of the Japanese vocabulary, imagine that *sphygmomanometer* and *blood pressure meter* were both written with the same characters 血圧計 which could be pronounced in either way. Usually character compound words are read with Sino-Japanese pronunciation. However, someone who lacks sufficient knowledge of Sino-Japanese can still read them with the often more familiar Japanese pronunciation.

Given this kind of relationship between the spoken and the written language, it is hardly surprising that, to a greater extent even than in the West, the latter is commonly considered to be the primary form of language rather than a mere rendition of speech. The long-standing association of multiple readings with one written sign poses interesting questions about the status of spoken and written units in Japanese and their mutual relationships. Morioka (1968) has argued that *Kanji* represent morphemes in such a way that their Sino-Japanese and Japanese readings are to be regarded as allomorphs. This suggestion is hard to reconcile with the common notion of 'allomorph' because the Japanese and Sino-Japanese readings of any given *Kanji* lack phonetic similarity since they are of different origin. However, even if the terminological choice is not quite satisfactory, it cannot be denied that Chinese characters have acquired a unique and very peculiar function in Japanese in letting synonymous or semantically closely related words of two complementary strata of the lexicon appear as different realizations of an underlying graphic form.<sup>7</sup>

#### Ateji

Two special uses of *Kanji* remain to be mentioned: (1) the so-called *Ateji* or deviant characters, and (2) their use for writing non-Chinese loan words. *Ateji* are characters that are assigned irregular readings and

meanings, often in a playful, rebus-like fashion. For example, the word *hiniku*, 'sarcasm', is written with the characters of 'skin' (皮) *hi* and 'meat' (肉) *niku*. The practice of writing western loan words with *Kanji* is particularly common in literary works. Examples are *seminario* (神学校) 'seminary' and *daiyamondo* (金剛石) 'diamond' which were borrowed from Portuguese and English, respectively.

#### Kokuji

Finally, it should not be left unnoted that, like the Annamese and the Koreans, the Japanese have created quite a few *Kanji* of their own. Alexander (1951) provides a list of almost 250 of these *Kokuji* 'domestic signs'. Although one should expect that they have only *kun*-, or Japanese, readings but no *on*-, or Sino-Japanese, readings, some *Kokuji* do have *on*-readings. Some of the 'made-in-Japan' characters have been borrowed in Chinese and Korean, which once again demonstrates that in the world of *Hanzi* literacy both word formation and lexical borrowing are heavily dependent on, and mediated by, the written language unit.

#### Kana

The complexities of writing Japanese with Chinese characters are amazing; that much should have become obvious from what has already been said. That they have survived until the present is all the more astonishing – for those, at least, who believe in efficiency and simplicity – as the Japanese for the past thousand years have had at their disposal a simple and efficient syllabic writing system. Actually, two isomorphic syllabaries came into existence, now called *Katakana* and *Hiragana*. They consist of 48 syllable signs each which, together with a few diacritic devices, provide a complete and workable cenic notation for the Japanese language.

*Katakana* evolved in the ninth century from auxiliary marks used, as it were, as *matres lectionis* (cf. chapter 8, pp. 146–9) or 'reading aids' by Buddhist monks studying Chinese texts. All of these marks were derived from *Manyōgana*: that is, Chinese characters adapted to Japanese in accordance with the sound-based strategy (figure 7.6). Thus from their inception *Katakana* were used in conjunction with, and as auxiliary signs for, Chinese characters.

會	世	須	之	散	己	介	久	幾	加	於	江	宇	伊	阿
曾	世	須	之	散	己	介	久	幾	加	於	江	宇	伊	阿
ソ	セ	ス	シ	サ	コ	ケ	ク	キ	カ	オ	エ	ウ	イ	ア

so se su si sa ko ke ku ki ka o e u i a

保	部	不	比	八	乃	禰	奴	二	奈	止	天	川	千	多
保	部	不	比	八	乃	禰	奴	二	奈	止	天	川	千	多
ホ	ヘ	フ	ヒ	ハ	ノ	ネ	ヌ	ニ	ナ	ト	テ	ツ	チ	タ

ho he hu hi ha no ne nu ni na to te tu ti ta

呂	礼	流	利	良	與	由	也	毛	女	牟	三	末
呂	礼	流	利	良	與	由	也	毛	女	牟	三	末
ロ	レ	ル	リ	ラ	ヨ	ユ	ヤ	モ	メ	ム	ミ	マ

ro re ru ri ra yo yu ya mo me mu mi ma

无	乎	惠	井	和
无	乎	惠	井	和
ン	ヲ	エ	ヰ	フ

n wo we\* wi\* wa

\* no longer in use

## 7.6 Katakana and the Chinese characters from which they are derived

*Hiragana* differ from *Katakana* only with respect to the shape of the signs. This system was first called *onnade*, 'women's hand', because it was used by women. Like *Katakana*, it is based on *Manyōgana*; but unlike the former they were drawn from the simplified and stylized

會	世	寸	之	左	已	計	久	幾	加	於	衣	宇	以	安
會	世	寸	之	左	已	計	久	幾	加	於	衣	宇	以	安
ソ	セ	ス	シ	サ	コ	ケ	ク	キ	カ	オ	エ	ウ	イ	ア

so se su si sa ko ke ku ki ka o e u i a

保	部	不	比	波	乃	禰	奴	仁	奈	止	天	川	知	太
保	部	不	比	波	乃	禰	奴	仁	奈	止	天	川	知	太
ホ	ヘ	フ	ヒ	ハ	ノ	ネ	ヌ	ニ	ナ	ト	テ	ツ	チ	タ

ho he hu hi ha no ne nu ni na to te tu ti ta

呂	礼	留	利	良	与	山	也	毛	女	武	美	末
呂	礼	留	利	良	与	山	也	毛	女	武	美	末
ロ	レ	ル	リ	ラ	ヨ	ユ	ヤ	モ	メ	ム	ミ	マ

ro re ru ri ra yo yu ya mo me mu mi ma

无	遠	惠	為	和
无	遠	惠	為	和
ン	ヲ	エ	ヰ	フ

n wo we\* wi\* wa

\* no longer in use

## 7.7 Hiragana and the Chinese characters from which they are derived

*Sōgana*, the cursive forms of *Manyōgana* (figure 7.7). The creation of *Hiragana* was perhaps more important for the development of writing in Japan than that of *Katakana*, because they came to be used without Chinese characters and were thus instrumental for establishing the

Japanese written language *Wabun*. Many of the greatest poetic works of the Heian period were written in *Hiragana* by women. Men, however, continued to cultivate Chinese characters and *Kanbun* as status symbols.

The *Kana* syllabaries are usually arranged in five horizontal vowel rows and ten vertical consonant columns. The order of the consonants, *k, s, t, n, h, m, y, r* and *w*, bears witness to the influence of an Indic-inspired phonological analysis, as it is by and large the same as that of all Indic scripts (R. A. Miller 1967: 128). The Indic influence was, of course, mediated through the study of Buddhism.

The orthographic conventions for using the syllabaries have changed over the centuries since the Heian period, and have become really standardized only in modern times. They concern two different aspects of usage: (1) the representation of sounds, and (2) the combination of *Kana* with *Kanji*.

Sound changes have led to the erosion of some phonetic distinctions. For example, [w] became lost before vowels except [a] and [o], [d] changed to [dʒ] before [i] and [u]. Therefore sign-sound correspondences had to be adjusted periodically. Other areas of *Kana* orthography that called for explicit rules are the representation of long syllables and palatalized syllables. Each *Kana* sign stands for a mora: that is, a short syllable. Syllables with long vowels count as two moras and are represented by two *Kana*. Thus conventions had to be established for what *Kana* signs to use for indicating vowel length; again, phonological convergences made this an important issue. As for palatalized syllables, no separate *Kana* signs exist, so the signs for *ki, si, ni, hi, mi* and *ri* are used in conjunction with those of the *y*-column. What would have to be transcribed bisyllabically, for example, as [ni-ya] according to the usual values of the *Kana* signs thus actually stands for the single syllable [nja] or [ñä].

As regards the use of *Kana* and *Kanji* in combination, the auxiliary use of *Katakana* led to the practice of writing content morphemes with Chinese characters, and grammatical morphemes and function words with *Kana*. Until the second half of the nineteenth century mostly *Katakana* were used in this function, but in contemporary usage they have been replaced by *Hiragana*. Nowadays *Katakana* are used chiefly to write non-Chinese loan words, onomatopoeic words and for emphasis. The functional specification of *Kanji* for lexical stems and *Hiragana* for function words and grammatical endings and particles is a simple and

reasonable principle, but it is not applied consistently. There are both vowel-stem verbs and consonant-stem verbs in Japanese. Assuming that lexical stems are written with *Kanji*, the representation of the former follows this principle, but the latter do not because the consonant that actually belongs to the stem is also represented in the first *Kana* sign representing the ending. For example, *kaku*, 'to write', is a consonant-stem verb. The ending here is *-u* rather than *-ku*, yet the syllabic sign used for the ending is that for the syllable *ku*.

The combination of *Kana* and *Kanji* in running text characteristic of contemporary usage provides the reader with some grammatical structure, as lexical and grammatical morphemes are graphically distinguished, and hence facilitates the reading process. It also helps to disambiguate multivalued *Kanji*. Enough difficulties remain, however, to make present Japanese writing extravagant and a formidable task to learn and master. Maybe the clearest indication of this can be seen in yet another way of using *Kana*: they are printed in smaller type alongside or above unfamiliar Chinese characters that are not among the 2,000 *Jōyō Kanji* officially designated for current use or characters that are given non-standard readings.

Summing up the use of Chinese characters for writing Japanese, it is no exaggeration to say that without them the Japanese language would not be what it is. Japanese is undoubtedly one of the prime examples of a language having been thoroughly influenced by the way it came to be written. For centuries language contact with Chinese was intense, but in the absence of a common land border this contact was largely mediated through writing. Its sediment are the many Sino-Japanese loan words, now constituting (according to some estimates) more than 50 per cent of the Japanese vocabulary, which came into existence primarily in the written language. Through the adoption of *Hanzi* the Japanese language entered into a relation of mutual borrowing with Chinese that is unique in the history of language and can best be described as a written *Sprachbund*.

#### SOME PRACTICAL ISSUES

Chinese characters are the building blocks of the only non-alphabetic writing systems about whose use, storage and functioning under both normal and pathological conditions a sizeable body of research has been

carried out, allowing comparisons with alphabetic scripts. It is therefore worthwhile discussing, briefly, some of the prominent issues of this research.

The most important general question is that of whether the structural peculiarities that distinguish *Hanzi* from linearized phonemic representations of language have any implications for differences with respect to memory and processing mechanisms. For example, Park and Arbuckle (1977) examined the memory of Korean subjects for words written in Chinese characters and *Han'gul*, finding that words presented in the former were remembered better than words presented in the latter. These findings suggest that there is indeed an intrinsic difference with respect to the processing mode of the two scripts in question.

Another avenue of approach has been pursued by Tzeng and his collaborators (Tzeng et al. 1977, 1979) who have investigated the question whether and to what extent the reading of Chinese characters involves phonological mediation through speech recoding. They found that while lexical access is possible directly from visual input, phonetic recoding is needed for the working memory stage, which led them to the conclusion that there are systematic differences between the processing of Chinese characters and alphabetically written words, but that a dichotomy between the presence and the absence of phonetic recoding may be too simplistic to explain these differences.

Makita (1968) was among the first to report on the rarity of reading disabilities in Japanese children as compared with their alphabetized Western peers, again suggesting that the structural differences between alphabetic writing systems on the one hand, and syllabic and morphographic systems on the other, have functional correlates in differing processing mechanisms. Since the early 1970s many experiments have been carried out to investigate the hypothesis that different writing systems rely on different functions of the brain and/or are localized in different parts of the brain. Most remarkable in this regard is Sasanuma's work on Japanese aphasic and alexic patients (see Sasanuma 1975).

A conspicuous symptom of Japanese alexic patients is the dissociation of *Kanji* and *Kana*. This important discovery is the most interesting evidence to date of neurological differences associated with different writing systems; however, its explanation has proved to be a great challenge because there are various and different patterns of dissociation. Some patients lose *Kana* while retaining *Kanji*; for others it is the reverse. Loss and preservation of both *Kanji* and *Kana* can be unevenly

distributed among productive, receptive, and mnemonic skills. Recovery can proceed at an uneven rate for the two kinds of characters; both *Kanji* and *Kana* can be read with and without understanding. Obviously, therefore, the dissociation of *Kanji* and *Kana* is in itself a complex symptom which does not offer itself readily to explanation.

Many experiments have been carried out by presenting sets of words written in *Kanji* or *Kana* to patients with different types and locations of brain damage in order to find out whether preferences for *Kanji* or *Kana* can be localized.<sup>8</sup> As yet it is not at all clear how the results of such experiments are to be interpreted; but it is clear that the differences between morpheme-based writing systems and sound-based writing systems are not just superficial differences of coding, but relate to neuropsychological differences concerning the storage and processing of written language units. Research in this general area opens up new and promising perspectives for a better understanding that, for literate speech communities and literate individuals, scripts are a part of the overall system of the language for which they are used rather than being mere mapping devices, and have a powerful effect on the formation of language units and on the linguistic consciousness of their users.

## NOTES

- 1 See below and, for the recent Chinese writing reform, chapter 13.
- 2 Ong (1977) has pointed out that a writing system deeply affects what he calls the noetic process, the shaping, storage, retrieving and communication of knowledge. The philosophical justification of *Han'gul* exemplifies the pertinence of this observation, illustrating as it does that a writing system can be linked with the rest of a culture, its philosophical outlook and cosmological orientation. Similarly Becker (1983), in reporting on his experience of learning the Burmese script, remarks that a writing system is a powerful mode of analysis, a basic mnemonic framework, a pattern that connects the root metaphors of a culture; and that going from one literacy to another, like going from orality to literacy, is not merely a technological step, but a major break in the pattern of learning and cognition.
- 3 The reading of *Hentai-Kanbun* texts is aided by auxiliary marks providing the Japanese reader with clues which show how to rearrange the Chinese word order to correspond to Japanese. Signs used for this purpose include number signs, characters for 'upper', 'middle' and 'lower', and characters for 'heaven', 'earth' and 'man'. They are written on the left side of the columns of

running text indicating sequential transpositions on successive levels of embedding. In short sentences only the linear order needs to be changed, while complex sentences may require transpositions on several levels.

- 4 The extent of the language contact triggered by writing can be appreciated if we consider R. A. Miller's (1967: 131) remark that 'it can accurately be said of the Heian and later periods that people often did not really know what language they were writing in, Chinese or Japanese; and we are often in no better position to make a judgment on the question when we study some of the documents they produced.'
- 5 There are a number of systematic relationships between *go on* and *kan on* readings. For instance, initial /m/ in *go on* became /b/ in *kan on*; *go on* initial /n/ became /d/ or /j/ in *kan on*; final /ki/ in *go on* became /ku/ in many *kan on* words. For a detailed description of the phonological changes underlying the shift from *go on* to *kan on* in Chinese and their reflections in Japanese see R. A. Miller (1967: 105ff).
- 6 The words so written are, obviously, hybrids consisting of Sino-Japanese and Japanese morphemes. In present-day Japanese such hybrids constitute a substantial part of the lexicon ranging for different kinds of texts between 5 and 18 per cent (Miyajima 1977).
- 7 Suzuki (1977: 416) may be going a little bit far when he informs his Western reader that 'in their speech the Japanese are heavily dependent on the graphic image of the word that is stored in their mind. This means that unless the Japanese know how the word is written it is often difficult for them to understand what is said.' However, given that most homophones are Sino-Japanese and that Sino-Japanese words form the high or bookish stratum of the vocabulary, his argument is not quite as strange as it would seem.
- 8 Paradis et al. (1985) provide an excellent overview which makes the experimental and clinical research on differences between *Kanji* and *Kana*, most of which is published in Japanese, available to the Western reader.

## 8

## Semitic Writing: Syllables or Consonants?

Semitic languages are spoken in western Asia. The group of languages so classified comprises the great literary languages: Akkadian, Aramaic, Hebrew, Syriac, Arabic and Ethiopic, as well as several other languages of the Middle East. They are characterized by many similarities and common elements in their phonology, morphology, lexicon and syntax. The grouping of the Semitic languages and their scripts is usually based on their geographic distribution: the eastern group (sometimes also referred to as north-eastern) in Mesopotamia, the northern (or north-western) group in Syria and Palestine, and the southern group in Arabia and Ethiopia. These last two groups are often collectively referred to as West Semitic (Driver 1976).

The writing of the languages of the eastern group, of which Akkadian is the most important member, is at the heart of the cuneiform tradition discussed in chapter 5. It always remained a very involved system, making use of both cenemic syllable signs and pleremic word signs and determinatives. Similarly the Egyptian system, despite decisive advances in the direction of a cenemic system, never discarded word signs or determinatives. Both cuneiform and the Egyptian hieroglyphics came to the threshold of a purely cenemic system. However, the final step was taken neither in Egypt nor in Mesopotamia, but in the region between these ancient centers of writing which extends from the Sinai peninsula to northern Syria. In this chapter, the term Semitic writing is used to refer to systems that were developed in this western region rather than to the cuneiform writing of eastern Semitic languages.<sup>1</sup>



## 9

## The Alphabet

## HISTORICAL BACKGROUND

The dating of the origin of alphabetic writing in Greece is a matter of considerable historical dispute. The Greeks themselves have not kept any historical records, just as they have left no documents suggesting that they were aware of the fact that pre-alphabetic writing had been available in Mycenaean times. It is clear that the Greek alphabet was complete and firmly established in pre-classical times, but it is not so clear exactly when the alphabetic tradition began. There is something like a blind spot on the historical map of Greece between the time when Mycenaean writing disappeared and alphabetic writing became a part of Greek culture. By conservative accounts the period of post-Mycenaean illiteracy was as long as 300 years extending from the twelfth to the ninth century (Goody and Watt 1968: 39). These so-called dark ages of Greece – dark because we know little about them – came to an end at the latest around 800 bc at the time of the Phoenician ruler Pygmalion of Tyre. The beginning of fully developed alphabetic writing was certainly not later than that (McCarter 1975); but the prehistory of the Greek alphabet may have extended almost as far back as the collapse of the Mycenaean civilization. New archeological discoveries suggest that the spread of Phoenician writing throughout the Mediterranean occurred earlier than has been assumed previously.<sup>1</sup> Naveh (1973) made a very radical claim; he advanced the date of the Greek adoption of the Phoenician script to about 1100 bc.<sup>2</sup> His hypothesis is based on the paleographic similarity between the Greek script and certain Old Phoenician inscriptions of the late Bronze Age. With claims like this the discussion about the dating of the Greek alphabet has been reopened. The emerging

consensus is that the gap between the Greek alphabet and its precursors is less wide than many have assumed so far. To set the time of adoption of the Phoenician alphabet by the Greeks at the tenth century at the latest does not seem too daring a supposition.

It is necessary to emphasize the continuity of the development in the eastern Mediterranean because, as will become clear presently, the Greek alphabet has sometimes been treated as if it had made its appearance on the stage of world history suddenly and unexpectedly. However, the tradition originating in Phoenician writing is just as remarkable as the Greek innovative contribution to it. The latter must be seen in the context of the former, and it must be recognized that the Phoenician script was almost as efficient as the Greek alphabet. The continuity of the Phoenician tradition is conspicuous and noticeable even in our time. Both the graphical form and the arbitrary ordering of letters have remained recognizably the same, if not completely unchanged, over a period of some 3,500 years from 1500 bc to the present. Nevertheless, in certain accounts alphabetic writing begins in Greece.

## THE ALPHABETIC HYPOTHESIS

Rather than stressing the fact that the Greeks adopted an extant system from the Phoenicians which they then augmented and modified, or that the adoption of the alphabet was the return of writing to Greece after it had lapsed back into illiteracy, adherents of the 'alphabetic hypothesis' highlight the new quality of the Greek alphabet which they view as the necessary conclusion of a natural development that leads from logograms through syllabic signs to the decomposition of syllables into signs for consonants and vowels (Gelb 1963). According to this view, only the Greek alphabet is really worthy of that name. Semitic consonant writing that preceded it and from which it was derived cannot justly be called 'alphabetic'. One of the most outspoken proponents of this view was the late Marshall McLuhan, whose interpretation of all of Western civilization hinges on the uniqueness of the alphabet. To him alphabetic writing and civilization were all but identical as becomes apparent in the following remark: 'Diringer's observation that the alphabet is "now universally employed by civilized peoples" is a bit tautological since it is by alphabet alone that men have detribalized or individualized themselves into "civilization" ... With-

out the phonetic alphabet [cultures] remain tribal, as do the Chinese and the Japanese' (McLuhan 1962: 63).

This is the alphabetic hypothesis in its crudest form. It attempts to relate certain of the achievements of civilization to changes in the means and mode of communication, and especially to different forms of writing.<sup>3</sup> What is surprising about this approach is that it was ever taken seriously and discussed by serious scholars. For the explanation of history every monocausal approach is problematic anyway and, with respect to the case under discussion here, one cannot help being amused or puzzled. To describe one of the most advanced civilizations of the world as 'tribal' only because it makes use of a non-alphabetic writing system is capricious if not absurd. Non-alphabetic people are not even recognized as individuals. The decisive step towards acquiring individuality is not writing as such, but alphabetic writing; that is, writing according to the principle of representing the individual sounds which are systematically relevant in a language. Indeed, the principle of one letter for one sound is celebrated as the very foundation of Western culture and thinking: 'By the meaningless sign linked to the meaningless sound we have built the shape and meaning of Western man' (McLuhan 1962: 65).

The 'meaningless sign linked to the meaningless sound' in this understanding is, of course, the letter of the Greek alphabet, rather than a meaningless syllable sign linked to a meaningless syllable in cuneiform or any other writing system. The Greeks are thus credited with nothing less than uplifting humankind. By some scholars the Greek letters are even invested with magical powers. Havelock, for instance, who likes to philosophize about the 'literate revolution in Greece' (Havelock 1982), notes in a recent article that 'the Greek alphabet has created the literature we read, whether in Greek, Latin, English, or any contemporary European tongue, including Russian' (Havelock 1986: 411ff.).

Havelock, like McLuhan, attributes to the alphabet the power to create things and thus fails to make a proper distinction between an instrument, its inventors and users, and the way it is employed in a society. Greece was, no doubt, in many respects the cradle of Western civilization, and it is a fact that the full alphabet is first encountered on Greek soil in the pre-classical period. It must have been tempting to bring these two facts together and stipulate a causal link between them. It seems that historians and scholars of writing were so impressed by the flexibility and systemic simplicity of alphabetic writing that they per-

ceived it as a great leap forward rather than a small, however important, step in the evolution of civilized humanity. The Phoenician connection could not be denied because the ancient Greeks themselves were aware of the source of their script, but the significance of the Semitic heritage was often played down rather than highlighted.

Gelb (1963) acknowledges the importance of the Oriental roots of the Greek alphabet, but in his theory there is a wide gap between it and its Semitic forerunners, which do not qualify as alphabets but are considered to be syllabaries consisting of signs for consonants 'plus any vowel' (cf. chapter 8 above). By stressing the structural innovation of representing both consonants and vowels with letters of the same kind, scholars such as Gelb and Diringer have helped to lay the foundation of the alphabetic hypothesis. Its substance was, however, provided by philosophers and anthropologists who regarded the Greek alphabet as decisive for the superiority of Western civilization. Hegel, for instance, apodictically called the alphabet 'in and by itself more intelligent'. Simple and abstract as it is, it gave rise to abstraction and logical reasoning (Goody and Watt 1968; Olson 1977). Only the Greek alphabet separated sight and sound, speculated McLuhan. By so doing it created the autonomy of the senses and thus elevated human consciousness to a new level. 'So long as any other meaning is vested in sight or sound, the divorce between the visual and the other senses remains incomplete, as is the case in all forms of writing save the phonetic alphabet' (McLuhan 1962: 61).

What McLuhan seems to assume is that (1) the phonetic alphabet is a completely cenic writing system and (2) cenic writing without any pleremic elements is the superior and therefore preferred form of representing language visually. Both assumptions invite serious criticism, provoking the question of whether McLuhan really understood the fundamental principles of alphabetic writing. 'Speech', he writes, 'is the "content" of phonetic writing' (McLuhan 1962: 61), the tacit implication being that while in Semitic consonant root writing there is a direct link between the written form and meaning which, in conjunction with that between graph and sound (consonant), determines the pronunciation of the written word, the full alphabet makes any reference to meaning unnecessary. Instead, access to meaning is mediated entirely through the representation of sound. Theoretically this assessment of alphabetic writing seems to be quite elegant and attractive, but it does not have very much to do with how the alphabet works once it is applied to writing a

particular language. Almost all alphabetic scripts have betrayed the purely cenic ideal, for alphabetic writing too makes use of direct relations between letter and meaning, and it is arguable that this is inevitable (see below, p. 169f). It is hard, therefore, to avoid the conclusion that the adherents of the alphabetic hypothesis, to some extent, see what fits their theory rather than the facts. On one hand, the alphabet is described as the logical and necessary outcome of a consistent development but, on the other hand, its uniqueness is stressed. Rather than saying that the alphabet would have been discovered, or invented, sooner or later in any event, it is said that it took the genius of the Greeks to create it.

#### THE ADAPTATION OF THE SEMITIC ALPHABET TO GREEK

What then is it that makes the Greek alphabet so special? The point that needs to be emphasized in answering this question is that the Greek alphabet is the result of an adaptation process across linguistic boundaries. Whenever a script was borrowed and adapted to a language belonging to a language type or language family other than that in whose context it was developed, important changes in the systematic make-up of that script resulted. The Semitic alphabet applied to a non-Semitic language could not be used to represent the sounds of that language without significant adaptations. The lack of signs for vowels was crucial here since, in contrast to the Semitic languages, vowels in Greek occupy a position on a par with consonants. By finding a solution for the problem of vowel indication the Greeks overcame this obstacle, thus making the alphabet more suitable for both their language and other non-Semitic languages. Systematic vowel indication by signs of the same type as the consonant letters was the real achievement of the Greeks. It made the alphabet more efficient not only for the representation of one language, but also for the transfer to other languages. Semitic alphabets could easily be transferred from one Semitic language to another, but their adaptation to languages of another family proved more difficult. In this regard the high evaluation of the Greek development is entirely justified. Transforming a consonant script into a full alphabet with letters for both consonants and vowels clearly is a significant step<sup>4</sup> because the script can more easily and more faithfully map the relevant sounds of language. Not being confined any more to consonants only,

Old Phoenician				Classical Greek	
Letter	Sound	Name	Meaning of Name	Letter	Name
𐤀	ʾ	aleph	ox	Α	alpha
𐤁	b	beth	house	Β	beta
𐤂	g	gimel	camel	Γ	gamma
𐤃	d	daleth	door	Δ	delta
𐤄	h	hē		Ε	epsilon
𐤅	z	zain	weapon	Ζ	zēta
𐤆	ḥ	ḥeth		Η	ēta
𐤇	ṭ	thet		Θ	thēta
𐤈	j	yodh	arm	Ι	iōta
𐤉	k	kaph	palm of hand	Κ	kappa
𐤊	l	lamed	goat	Λ	la(m)bda
𐤋	m	mem	water	Μ	mȳ
𐤌	n	nun	fish	Ν	nȳ
𐤍	s	sāmekh	fish	Ξ	xī
𐤎	ʾ	ʾain	eye	Ο	omikron
𐤏	p	peʾ	mouth	Π	pī
𐤐	ṣ	san			
𐤑	q	qoppa			
𐤒	r	resh	head	Ρ	rhō
𐤓	š	shin	tooth	Σ	sigma
𐤔	t	tau	cross mark	Τ	tau
𐤕	w	waw		Υ	ypsilon

9.1 The Old Phoenician models for some of the letters of the Classical Greek alphabet

the alphabet is no longer the script of a particular language or of the languages of a particular type. How was this achieved?

An important part of the continuity of the Phoenician tradition are the names of the Phoenician letters. The Greeks adopted them together with the letters. There is, however, an important difference between the

Old Phoenician letter names and the Greek; the former have a meaning. Sixteen of the twenty-two Old Phoenician letters are named after common objects (see figure 9.1), a clear indication of the effectiveness of the acrophonic principle underlying the selection, if not the creation, of Phoenician letters. Only the letters for /h, ḥ, t, s, q/ do not bear common object names in Phoenician. In Greek, of course, the Phoenician words have no meaning other than as designations of letters.

The Phoenician words were borrowed into Greek stripped of their original meanings, indicating to the Greeks nothing but their own initials. Whether the Greeks adopted the acrophonic principle together with the names of the Phoenician letters is not quite clear, but they employed it in any event, and by so doing arrived at the sound values of their letters. Certain phonological differences between Phoenician and Greek made it difficult, however, to apply the acrophonic principle in exactly the same way in Greek as it was applied in Phoenician. While all Phoenician words have initial consonants, many Greek words begin with vowels. Moreover, some Phoenician consonants are not phonemic in Greek and therefore not readily perceived by native speakers of Greek. The glottal stop is the most prominent example. As it is not an element of the phonemic system of Greek, the Greeks pronounced the name of the first letter of the Phoenician alphabet not with an initial glottal stop as the Phoenicians would, but with an initial vowel. The result was that they added the letter *alpha* as a genuine vowel sign to the Phoenician consonant script, thus introducing a feature that changed the type of the system.

Other consonant letters of the Phoenician inventory that assumed vocalic quality in Greek were *hē* (𐤅) for Greek *epsilon* /e/; *waw* (𐤆), used in older periods of Greek for the semivowel /w/ and later developed the vocalic value /u/ of *upsilon*; *yodh* (𐤇) /j/ became Greek *iōta* /i/; and *ʿain* (𐤀) became /o/, *omicron*. In word final position, most of these letters had already been used in Semitic writing as the so-called *matres lectionis*. In Greek the application of this device was extended and systematized. In principle the Greek alphabet was suitable for representing all the phonemes of the Greek language. It was undoubtedly the simplest and most flexible writing system developed so far, since with it any word could be spelled out without recourse to the cumbersome device of classifiers, logograms or imperfectly fitted syllable signs. Systematic vowel indication is attested in the earliest Greek documents; no developmental state with defective vowel writing is known.

However, the vocalic system at which the Greeks had arrived by adapting the Phoenician alphabet to the needs of the Greek language underwent considerable changes from the earliest attested documents to the classical period. An important feature whose representation changed significantly was vowel quality. While in the early documents vowel length was not marked, in the classical system only *alpha* and *iōta* continued to be used for both short and long vowels. Short /e/ was differentiated from /e:/ when the consonant /h/ expressed by Phoenician *heth* was lost and its letter acquired the value /e:/ of *eta*, distinguishing it from /e/ of *epsilon*. The *omega* 'big o', Ω and ω, was introduced to distinguish /o:/ from *omikron* 'little o', /o/. Vowel length could thus be marked for /o/ and /e/, but the Greek alphabet took no note of and neither did it develop distinct symbols for long as opposed to short /i/, /a/ and /u/. The representation of /u/ which was first expressed by Old Phoenician *waw* also changed as this sound came to be realized as /ü/ in many contexts. The /u/ sound was therefore represented by combining *omikron* and *ypsilon*. Originally another sign had been derived from Phoenician *waw* for the representation of a labiodental /w/, later /f/, which soon fell out of use, however.

Further modifications of the archaic alphabet followed later as supplementary signs were introduced for the aspirated stops /ph/ and /kh/ – that is, φ and χ respectively, and for the double consonant /ps/, ψ.<sup>5</sup> After these supplementary letters no further additions were made, but in other respects the Greek script was not complete in the early documents. Word boundaries were not marked, and there was no punctuation. Neither was there a distinction between capital and small letters. Moreover, while the Greek alphabet was one unitary system, it was not used in a uniform way. There was, in other words, no standardized orthography. The principle of sound writing was so faithfully followed that dialect differences are clearly documented in the earliest records. There were several writing conventions which are commonly divided into three groups: (1) the archaic alphabets of the Dorian islands, (2) the Eastern alphabets of the Aegean, the west coast of Asia Minor and Attika, and (3) the Western alphabets of western Greece and the colonies of Sicily. The Classical Greek alphabet achieved its standardized form only late in the fifth century bc.

## GREEK-DERIVED SCRIPTS

The Greek alphabet is the prototype of all fully vowelized alphabets which developed in the Greek colonies and from there spread to many parts of the world. To mention but a few of the ancient scripts, the Phrygian, Lykian and Lydian alphabets came into existence in Asia Minor. In Egypt the Coptic alphabet eventually replaced the hieroglyphs as well as the hieratic and demotic scripts. Extending to the north on the Balkan peninsula, the Greek alphabet became the model of the Old Church Slavonic, the Cyrillic, the Old Rumanian and the Albanian scripts which in turn are the sources of all further developments in eastern Europe. The Greek colonies in Sicily were the breeding grounds of the Old Italic and Etruscan scripts from which the Latin alphabet was derived. This most important alphabet replaced other scripts that evolved on the Italian peninsula to become the official script of the western half of the Roman empire. As the script of the major branch of Christianity, the Latin alphabet spread further and to more languages than any other script before or after.

The Romans gave up the acrophonic principle and, except for *ypsilon*, *zed* and *yodh*, did not borrow the Greek (Phoenician) letter names, but they kept the basic order of the letters. The Latin alphabet eventually became very important as the script of the Western world, but it did not constitute any structural progress over the Greek alphabet. The same is true of the Cyrillic alphabet with its additional letters and ligatures, as well as of every other alphabetic script derived from the Greek model. They all share the basic feature: that is, the type of vowel indication. While the Semitic scripts indicate vowels by means of optional diacritics to independent consonant letters, and the Brāhmī-derived Indic scripts (as well as the Ethiopian script) have vowel marks that are attached to, or integrated into, the basic consonant signs (see below, chapter 10), the Greek script and all its derivatives provide independent vowel signs. These basic commonalities of all alphabets should not be taken to imply that there are no significant differences between alphabetic scripts. Quite the opposite is true. The systemic choices that the scripts of specific languages make in putting the basic elements of the alphabet to use are many. Some of the principles which come to bear and with respect to which they differ are discussed in the following section.

To conclude this section, let us emphasize three points that should be kept in mind when considering *the* alphabet and alphabetic scripts.

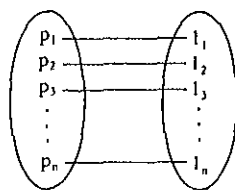
1 The most significant developments in the history of writing were achieved whenever a script was borrowed and adapted to a new language across linguistic types. Systematic vowel indication in the Greek alphabet is no exception. It is the result of adapting a Semitic script to a non-Semitic language.

2 The often alleged universality of the alphabet is a potential rather than an actual feature of the Greek prototype. Just as the Phoenician alphabet was unsuitable for the representation of all of the phonemes of Greek, the Greek alphabet cannot be applied to other languages without modifications and additions. Like all writing systems, the Greek alphabet came into existence in the context and for the representation of a particular language. It was not designed as a universal transcription system. Its Semitic heritage is conspicuous and noticeable in the scripts of many languages. Most alphabetic scripts have a deficit with respect to the vowels of the language for which they are used, as the vocalic phonemes almost invariably outnumber the available vowel letters.

3 The purely cenemic character of the alphabet is a matter of systemic principle rather than a characteristic of alphabetic scripts of individual languages. The limitations of the inventory of the letters of the alphabet (which, even with additional diacritics, is smaller than the number of phonemes of most languages), on the one hand, and the continuous change of language which gradually leads to a shift in the fit between letters and phonemes on the other, make it seem inevitable that the ideal of a simple cenemic system will be compromised in the course of time by the encroachment of pleremic elements.

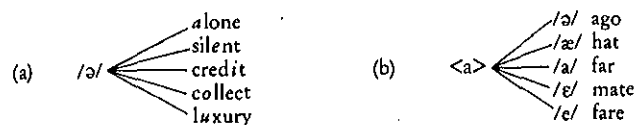
## SOME PRINCIPLES OF ALPHABETIC WRITING

That the alphabet is a cenemic writing system consisting of meaningless letters for the representation of meaningless sounds is a general and highly abstract statement which does not say very much about how the alphabet is used for particular languages (cf. Abercrombie 1949). Clearly, reading and writing alphabetically does not consist only in relating strings of meaningless signs with strings of meaningless speech sounds, and neither is the alphabetic representation of a language based on a simple phoneme-letter relation as depicted in figure 9.2.



### 9.2 The ideal of phoneme writing: a bi-unique relation between phonemes and letters

A simple example is sufficient to show that the relations between phonemes and letters in alphabetic scripts are much more complex and do not conform to this ideal. The phoneme /ə/ of English, for instance, can be represented by every one of the five available vowel letters ⟨a⟩, ⟨e⟩, ⟨i⟩, ⟨o⟩ and ⟨u⟩, and conversely the letter ⟨a⟩ can represent a number of different phonemes such as /ə/, /a/, /ɑ/, /ε/ and /æ/ (figure 9.3). Moreover, the letter ⟨a⟩ in English fulfils other functions in environments such as *beat*, *breakfast* or *aunt*, which cannot be described adequately by referring to the phonemic structure of English alone.



### 9.3 Multivalued relations between phoneme and alphabetic symbols (a) and between an alphabetic symbol and phonemes (b)

The alphabet is based on, and incorporates, a phonemic analysis, but it is noteworthy that this analysis is hardly ever consistently applied in alphabetic writing. This is so because there is a fundamental difference between the alphabet as a systematic principle and an alphabetic orthography of a given language. Of the alphabet it can be said that each letter stands for a speech sound, but although there are good reasons to assume systematic relations between the phonological structure of a language and its orthography, it cannot be taken for granted that the latter can be derived from the former.<sup>6</sup> 'Ορθογραφία, after all, means 'correct spelling': that is, spelling according to an accepted standard. Orthographies are subject to historical contingencies and conscious interventions, while the alphabet is an abstract principle. Therefore the

alphabet is put to use in many different ways which do not allow for a uniform description of the relation between phonemes and letters.

The longer an alphabetic orthography is in use without readjustment, the more complicated the grapheme-phoneme correspondences become. The written norm of the language takes on a life of its own, becomes partly independent of speech and eventually exercises a certain influence on speech (W. Haas 1970). The relative independence of spoken and written norms,<sup>7</sup> or pronunciation and spelling, that thus emerges makes an orthography something much more complex than a faithful mapping of phonology.

Since alphabetic orthographies relate – in however complicated a fashion – to the phonological structures of language, and since they are subject to historical contingencies, there are necessarily considerable differences between these language-specific systems. They differ first of all with respect to the inventory of letters reflecting, to some extent, differences in the phonemic inventory of the languages, and second with respect to the systemic levels on which they operate. That is to say, they differ as regards the relations between letters and speech sounds. Alphabetic orthographies have access to a variety of systemic levels or sub-systems of language assigning variable prominence to one level or another. With Scheerer (1986) three kinds of alphabetic orthographies can be distinguished:

- 1 Shallow orthographies operate on a level close to the phonetic surface structure reflecting the phonemic distinctions of the language. The Spanish and Serbo-Croatian orthographies belong to this type approximating, as they do, phonemic representations of these languages (Gibson and Levin 1975).
- 2 Intermediate orthographies, by and large, operate on the phonemic level, but also incorporate morphophonemic information. The Dutch spelling system is an example of this type (de Rooij and Verhoeven 1988).
- 3 Deep orthographies map on to a deep level of morphophonology and contain a significant amount of morphemic and lexical information. The orthography of English is the most widely discussed example of this kind (Venezky 1970; Sampson 1985: 207–13).

For orthographies of all three kinds it is necessary to distinguish the units of the inherent analysis from the units of representation. In

alphabetic orthographies the units of analysis are phonemes; non-phonemic phonetic distinctions are generally disregarded. The basic signs of the system – that is, the letters – stand for phonemes, and all phonemes of the respective language are represented although some phonemes may be represented by more than one letter, and some letters may be used to represent more than one phoneme. Furthermore, some phonemes may be represented by combinations of letters, and certain letters may fulfil functions other than representing phonemes. Still, the unit of analysis underlying the elements of alphabetic orthographies is the phoneme. This does not, of course, imply that the phoneme is the only unit of representation of alphabetic orthographies. Rather, the basic signs are typically combined in such a way as to mark units of other structural levels as well, such as morphemes, words, sometimes parts of speech, and, with the help of additional signs, also clauses, sentences and paragraphs.

Orthographies of the third type (that is, deep orthographies) deviate most drastically from a purely phonemic representation. In an often quoted passage Chomsky and Halle (1968: 49) refer to English orthography as 'a near optimal system for the lexical representation of English words'.<sup>8</sup> This is hardly what one would expect as a major virtue of an alphabetic orthography, but it is what is bound to happen if a spelling system is used unchanged for a long time. For the past 400 years English spelling has experienced few significant changes, whereas the spoken language changed extensively (Venezky 1972). As a result, most regularities of English spelling become apparent only on the level of morpho-phonemic representation. To the extent that this is the case, English orthography as well as other orthographies of this type can be said to reintroduce pleremic elements into a cenemic system. Some of the principles that are operative in this regard are discussed in what follows.

### *Etymological spelling*

In many orthographies purely phonemic representations of words are corrupted for the sake of graphically preserving their etymologies. For example, *breakfast* continues to be spelled with ⟨ea⟩ although the first vowel of the word is [e], because it is etymologically related to the verb *break*. The ⟨w⟩ in *acknowledge* points to its etymological relation with *know*. 'Silent' letters such as ⟨l⟩ in *folk*, ⟨k⟩ in *knife*, or ⟨w⟩ in *wrestle* are etymological remnants rather than representations of phonological

units. Silent ⟨e⟩ in English occurs in many affixes of Latin and French origin such as, for instance, *-able*, *-age*, *-ance*, *-ate* and *-ative*, and is therefore statistically associated with words originating from these languages (P. T. Smith 1980: 35).

Etymological spelling is common in learned words, especially words of Latin origin. *Sign-* in *signal* and *paradigm* in *paradigmatic* are spelled phonemically, but as isolated words they contain a letter, ⟨g⟩, which has no counterpart in the phonemic representation. *Medicine-medical* and *righteous-right* are similar pairs where the rationale for the spelling of the first lies in the relation with the second. In this way, the spelling of a word often relates to that of other words belonging to the same paradigm, or to its own history. The *h-muet* in many French words such as *honneur*, *humeur*, *hôpital*, *humide*, *hiver*, etc., is etymological, testifying to their Latin origin. In English, too, the spelling of the corresponding words can be regarded as etymological with the additional peculiarity that they also exemplify the mechanism of spelling pronunciation, because they were borrowed for English from French rather than from Latin at a time when the ⟨h⟩ was no longer pronounced in French.

The observation that certain etymological spellings are quite regular has motivated some scholars (such as Albrow 1972) to propose different subsystems of English spelling. Etymological spelling paradigms would form one such subsystem in this view. In general, etymological spelling is a deviation from phonemic spelling which is evidence of the speech community's linguistic awareness and its readiness to acknowledge the independent existence of the written norm of its language.

### *Paradigmatic similarity*

Another deviation from phonemic representation which is found in many alphabetic orthographies is based on the principle of making the graphemic representation of different units of a given paradigm as similar as possible. Vowel and consonant alternations which can be predicted from general morphophonological rules are neglected in writing in order to preserve the graphic identity of a morpheme or word. The shift from /ks/ to /gz/ in *anxious-anxiety* is an example of such a consonant alternation in English. Devoicing of final consonants in German and their orthographic representation can be interpreted similarly. For example, in the German *Tag*, *Tage* ([tak], [tagə]), the principle of paradigmatic similarity motivates the letter ⟨g⟩ for both the

voiced and the voiceless form. The representation of vowel length in German is another instance where the principle of paradigmatic similarity can be seen at work. The letter ⟨h⟩ is sometimes attached to a vowel to indicate length. Whenever this is the case, the ⟨h⟩ is used in all forms of the paradigm, such as *stehlen*, *stahl*, *gestohlen* (to steal). In other cases, vowel length is not marked in writing, as in *gebären*, *gebar*, *geboren* (to give birth). Here too all forms of the paradigm are treated equally. This kind of distribution of ⟨h⟩ in German is very regular, apparently without exception (cf. Eisenberg 1983).

Like etymological spelling, the preservation of morphemic invariance in writing historically implies a growing influence of the written language on the native speaker's knowledge about his or her own language. It should be noted, however, that this principle operates selectively within particular orthographies, and that its salience varies greatly across languages.

#### Word representation

While in early Greek no spaces were left between the letters of the alphabet to indicate word division, modern orthographies using the Greek, Latin or Russian alphabet represent the word as an independent unit. Perhaps a better way of saying this is that alphabetic orthographies usually group letters in clusters with some space intervening between the clusters. Readers of the respective language then come to recognize such clusters as 'words'. To some extent, at least, the orthographic word is an artefact and a structural unit which is superimposed on the representation of the speech continuum. In the spoken language breath pauses do not consistently co-occur with word boundaries; yet words are intuitively obvious units of speech because of their contextual distribution.

That word separation in writing interferes with the faithful mapping of speech is particularly conspicuous where phonetic groups reach across word boundaries. The so-called *liaison* in French is a prominent example. Phonetically the French equivalent of 'the friends' is to be represented as [le za · mi], but the orthographic segmentation is quite different: *les amis*. In other orthographies this phenomenon, which can be described as external sandhi,<sup>9</sup> is represented at the expense of marking word boundaries, as for example in the Devanagari script for Sanskrit (cf. chapter 10, below).

Representing external word structure is one instance where writing exhibits analyticity. In most alphabetic orthographies external word structure is marked, while the internal word structure or morphemic structure is ignored, or only occasionally marked to facilitate pronunciation, as in *re-elect* where the hyphen serves to prevent the reading /ri:ɪ/ of the first four letters, or to disambiguate two forms, as in *hopped* where the second ⟨p⟩ distinguishes the preterite of *hop* from that of *hope*. In Chinese, by contrast, word boundaries are left unmarked, while morphemes are consistently represented as individual units. Of course, both words and morphemes are pleremic rather than cenemic units of language.

#### Homograph avoidance

Many alphabetic orthographies violate the strictly phonemic representation of words for the sake of incorporating semantic information in yet another way: they differentiate homophone words. *Bear* v. *bare*, *blue* v. *blew*, *eye* v. *aye*, *hare* v. *hair*, *mail* v. *male*, *not* v. *knot*, *no* v. *know*, *rain* v. *reign*, *vain* v. *vane*, are only some examples. Some such pairs, such as *phrase-frays*, are not easily recognized because the differentiation on the orthographic level tends to supersede the identity on the phonetic level. Homograph avoidance is an orthographic feature which is exploited widely in the interest of direct lexical access.

Capitalization of words of certain form classes is an additional means of differentiation serving the same purpose. The German orthography, for instance, makes extensive use of capital letters to differentiate homonyms which would be homographs without them. *Wagen*, 'car' (noun) v. *wagen*, 'dare' (verb), *Arm*, 'arm' (noun) v. *arm*, 'poor' (adjective), *Wand*, 'wall' (noun) v. *wand*, 'wound' (past participle), *Warte*, 'look-out' (noun) v. *warte*, 'wait!' (verb) are some examples that illustrate the point.

Differentiating homonyms on the graphemic level has obvious advantages for the decoding process, but it is an additional burden for the acquisition of an orthography making extensive use of this principle.

#### Loan word identification

Another characteristic principle of many alphabetic systems is that words of different origins are spelled according to different grapheme-



phoneme correspondence rules. The phoneme /f/, for instance, is typically represented with the letter ⟨f⟩, but in a certain subset of words such as *philistine*, *philosopher* and *phenotype*, it is expressed by ⟨ph⟩ in several European orthographies. These words are of Greek origin, and since the ⟨ph⟩-for-/f/ spelling is used in Greek loan words or Greek derived words only, this spelling can be considered a marker of this subset of words in English and other European languages. Similarly, the phoneme /k/ is spelled ⟨ch⟩ in words of Greek origin in English: for example, *chlorine*, *chronology*, *cholesterol* and *psychology*. Marking words as foreign is not the only function of these and similar spelling conventions. They also serve the function of preserving the identity of many loan words across languages in which they may be pronounced differently. This is not a marginal point because many of these learned words belong to scientific or technical terminologies, and their graphic identity facilitates international communication in certain specialized fields.

By adopting loan words in their original spelling orthographies tend to become heterogeneous, incorporating different sets of rules that apply to different parts of the lexicon. In German, ⟨ou⟩ can be used to represent /u/ in French loan words such as *Coupon*, *Courage* and *Coupe*, but not in Germanic words such as *kurz*/\**kourz*, 'short', *Kugel*/\**Kougel*, 'ball' or *Kummer*/\**Koummer*, 'grief' (asterisks signal deviant forms). That the notion of loan word is a graded one finds expression in the fact that the spelling of loan words is sometimes brought into agreement with native conventions as they become progressively nativized. For example, the French loan word *Cousine* is nowadays frequently spelled *Kusine* in German.

The principle of spelling loan words in English is to preserve the source language orthography but then pronounce the orthographic word as if it were English. Loan words are hence not readily recognized in speech. The principle of Spanish orthography, by contrast, is to preserve the 'sound' of the foreign word in so far as Spanish phonology permits this. The spelling of loan words is therefore adapted to the Spanish orthography which makes them sometimes difficult to recognize in writing.

It should be noted once again that, like the other principles discussed above, the application of the principle of identifying loan words by a special set of spelling rules varies greatly across alphabetic orthographies. Dutch, for example, hardly uses it, while in English and German it singles out large parts of the lexicon and thereby systemati-

cally distinguishes different lexical strata. The ⟨ph⟩ spelling for /f/ in German and English is an example. It is applied only in Greek derived words. Some comparisons illustrate this point.

English	German	Dutch
phoneme	Phonem	foneem
photographer	Photograph/Fotograph	fotograaf
physical	physisch	fysisch
phantom	Phantom	fantom
pharmacology	Pharmakologie	farmacologie

#### CONCLUSION

The alphabet is simple, but many alphabetic orthographies are not. The alphabet is a system of cenic signs, each of which represents a speech sound. However, typically alphabetic orthographies do not consist of simple rules mapping letters on to phonemes because most orthographies have fewer symbols than their languages have phonemes. Therefore alphabetic writing is, on the one hand, often underdetermined with respect to the phonological features to be represented in writing a given language and, on the other hand, relies on principles that deviate from phonological representation. Some of these principles which operate on, and refer to, levels of linguistic structure other than phonemic or phonetic representation were discussed above: etymology, paradigmatic similarity, word representation, homograph avoidance and loan word identification. All these principles conflict with, and reduce the generality of, those rules that operate on the phonemic level: that is, the proper level of alphabetic writing.

In some very shallow orthographies, especially those of recent origin, the relations between phonemes and letters are regular and relatively simple. However, this cannot be considered as typical of alphabetic writing. It is much more likely that a reader of an alphabetic script must consider linguistic information of different kinds in order to handle the system proficiently. Knowledge of etymology, form class, morphemic segmentation, abstract lexical representation, morphophonological rules and derivations and the interrelations between all of these is necessary to various degrees in order to grasp the totality of the regularities

that make up an alphabetic orthography. To average readers, some of these regularities do not appear regular at all because, not being professional linguists, they lack the necessary analytic insight.

It should also be noted that, in spite of the often praised universality of the alphabet, an alphabetic orthography is not equally suitable for all languages. Furthermore, existing alphabetic orthographies differ in large measure in quality. Alphabetic writing is generally both underdetermined with respect to some linguistic features, and ambiguous with respect to the representation of others. To some extent, underdetermination and ambiguity are counterbalanced by redundancy, but for many languages the Roman, Greek or Cyrillic alphabets are too restricted and require substantial augmentation with special characters and diacritics. Vowels, vowel quality, tones and suprasegmental features such as stress and intonation especially are poorly represented by alphabetic scripts and, therefore, languages in which these features are numerous and phonemic usually pose problems for the creation of a suitable orthography.

It is well known that, under the differing conditions which govern their use in various languages, the letters of the Roman alphabet are pronounced quite differently. This is so because even though phonemes are what the isolated letters of the alphabet in principle represent, most orthographies are not phonemic notations of the respective languages. Trivial as it may seem, it is important to keep in mind that alphabetic orthographies are both alphabetic *and* orthographies, which is to say that they are by their very nature designed to fulfil two disparate functions. On the one hand, their systematic make-up allows for a more faithful and flexible representation of speech sounds than any other writing system; on the other, they are an effective means of regulating and not just mapping pronunciation and are, therefore, not intended by their users just to faithfully represent the sounds of their speech but to fulfil other functions as well.

The perennial tension between these two functions is a necessary rather than an accidental and avoidable characteristic of alphabetic writing because, like a language, an orthography is a social and hence historical fact. The simplicity of the underlying system is bound to be corrupted once it is put to use. For the Roman maxim *verba volant, scripta manent*, 'the words are gone but what has been written remains', is true of all writing irrespective of the system that is being used. Writing is not a phonetic or phonemic transcription, and neither is a text simply

speech written down. In languages with an alphabetic written tradition the mutual relations between writing and pronunciation are highly complex, for the twofold function of written signs tends to be to represent and prescribe sounds. Since language changes continuously, while orthography does not, but is adjusted deliberately from time to time according to different and sometimes irreconcilable principles, the written representation of a language necessarily gains a certain autonomy which in turn implies that every alphabetic orthography that is used for some time develops an increasingly complex relationship between letters and phonemes.

## NOTES

- 1 Isaac Taylor (1899: 44) was convinced that the seventh century BC afforded the first firm standing ground for the study of Greek epigraphy. Half a century later, Gelb in 1952 (here quoted from the revised second edition of 1963) adopted the ninth century as the most likely time of introduction of Phoenician writing to Greece.
- 2 A similar suggestion was made much earlier by Larfeld (1907: 304ff) who also estimated the time of borrowing as the eleventh century.
- 3 McLuhan was, of course, not the first to emphasize the uniqueness and superiority of alphabetic writing. Isaac Taylor (1899: 3) wrote that 'every system of non-alphabetic writing will, however, either be so limited in its power of expression as to be of small practical value, or, on the other hand, it will be so difficult and complicated as to be unsuited for general use.' He did not go as far as McLuhan (1962) who called the users of other writing systems, notably the Chinese and the Japanese, 'tribal', but he also remarked that 'without the alphabet any complete system for the graphic representation of speech is an acquirement so arduous as to demand the labour of a lifetime' (Isaac Taylor 1899: 3).
- 4 Voegelin and Voegelin (1961) have called this 'a change of types', viz. a change from the 'independent consonant (IC) type' to the 'independent consonant + independent vowel (IC + IV) type'.
- 5 The literature on the question of the origin of the supplementary letters is quite extensive. The two basic hypotheses, (1) the differentiation of existing Greek letters, and (2), borrowing from non-Greek sources, are discussed at length in Jensen (1969: 462ff).
- 6 Diachronically viewed, the phonology of any language precedes its orthography, and the relationship between both should therefore be described in terms of deriving the orthography from the phonology. Synchronically this

may not be the most reasonable approach, however. Householder (1972), for example, has convincingly argued that, in the case of English, it is more economical and theoretically elegant to derive the phonology from the orthography. It must be noted, furthermore, that despite the historical priority of speech over writing, an orthography may exercise considerable influence on the phonology of a language in the course of time (cf. Levitt 1978).

7 I am using the notions of spoken and written norm in the sense developed in Vachek (1973).

8 Much earlier Bolinger (1946) introduced the notion of 'visual morphemes' demonstrating with many examples that the morpheme is a relevant unit in written English.

Cf. Insup Taylor (1981: 35ff) for a discussion of Chomsky and Halle's contention that English orthography represents English words (also Henderson 1982: 95ff).

9 Herslund (1986) treats French *liaison* as a case of external sandhi.

## 10

## Writing in India

India is a literate culture of great eminence where the art of writing has been held in great esteem since antiquity; but the most revered literature was composed before the advent of writing in India, and it continued to be transmitted orally for many centuries thereafter. The Brahmins have always regarded written transmission of knowledge as less valuable than oral. India is the home of several of the most highly cultivated written languages ever known in history; but it is also the home of a much greater number of languages for which a writing system has never been developed. Simple cenic scripts were available in India twenty-three centuries ago, but literacy remained severely restricted, and until recently was not necessarily regarded as a condition of social recognition or dignity.

It is apparent contradictions of this kind that make the study of writing in India so intriguing. They are evidence of the coexistence and intertwining of a literate and an oral tradition unique to Indian culture and history.

## HISTORICAL BACKGROUND

The study of writing in India is mainly concerned with two periods separated from each other by about 2,000 years. Despite persistent efforts, no convincing connection has been established as yet between the two. The first period involves the early Indus valley civilization of the third millennium BC, and the second period involves what is generally considered the beginning of Indic writing proper in the fifth century BC.

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## Appendix I Ancient Near Eastern Chronology

	<i>Mesopotamia</i>	<i>Anatolia</i>	<i>Iran</i>	<i>Egypt</i>
3500 BC	Uruk 3500-3100	Troy	Susa II	
	Jemdet Nasr 3100-2900			Archaic period
3000 BC	Early dynastic period 2900-2300		Susa III	
	Akkadian period 2300-2150		Sumero- Elamite period	Old Kingdom 2680-2160
	Neo-Sumerian period 2140-2120		Akkadian rule	Middle King- dom 2060-1786
2000 BC	Old Assyrian period 1900-1750		Old Elamite period 1900-1500	New Kingdom 1570-1085
	Old Babylonian period 1890-1600	Old Hittite period 1650-1400		

	<i>Mesopotamia</i>	<i>Anatolia</i>	<i>Iran</i>	<i>Egypt</i>
	Middle Assyrian period 1300-1000	Hittite Empire period 1400-1200		
1000 BC	Neo-Assyrian period 880-610	Phrygian period 775-690		Late Dynastic period 650-330
	Neo-Babylonian period 625-539			
	Alexander the Great 331-23			

## Appendix II Far Eastern Chronology

	<i>China</i>	<i>Korea</i>	<i>Japan</i>	<i>Vietnam</i>
2200 BC	Xia dynasty			
1523 BC	Shang dynasty (oracle bone inscriptions)		Jōmon period	
1027 BC	Zhou conquer Shang			
550 BC	Confucius			
255 BC	Qin dynasty Li Su (small seal script, block printing)	Kokuryō becomes part of Qin realm		
206 BC	Han dynasty ( <i>Shuo wen</i> dictionary)	Chinese colonies in Korea	Yayoi period	Annam invaded by Chinese
220 AD	Six dynasties of Nanjing		Chinese script used by government	Annamese revolt
618 AD	Tang dynasty	<i>Idu</i> writing systematized by	<i>Manyōgana</i>	crushed by Chinese
710 AD			Nara period	

	<i>China</i>	<i>Korea</i>	<i>Japan</i>	<i>Vietnam</i>
794 AD		Solch'ong	Heian period <i>onnade</i> ( <i>Hiragana</i> )	Annam gains independence from China
907 AD	Five dynasties	Korea unified under Wang dynasty	<i>Katakana</i>	
960 AD	Sung dynasty (movable type)		Genji	Annamese script <i>chữ nôm</i>
1004 AD			Monogatari	
1300 AD		(movable metal type)		
1446 AD		Korean script	Japan united under Nobunaga	
1550 AD	Portuguese settle in Macao	<i>Han'gul</i>		
1644 AD	Ching dynasty			Alphabet for Annamese
1730 AD		Grand Reform at court in Seoul		

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