THE ORIGIN AND EARLY DEVELOPMENT OF THE CHINESE WRITING SYSTEM

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PREFACE

My intention in writing this book has been to lay out in a straightforward and comprehensible way the facts as I see them surrounding the origin and formation of the Chinese script in the second half of the second millennium B.C., and of its reformation and standardization in the Ch'in-Han era a thousand years later. In doing this I hope to dispel some of the widespread myths and misconceptions about the nature of Chinese characters and to restore a degree of common sense and clear-headed sobriety to our understanding of the form and function of Chinese writing.

I am able to say "restore" rather than the more presumptuous "introduce" thanks to the past work of two eminent scholars, Peter S. Du Ponceau (1760–1844) and Peter A. Boodberg (1903–1972). More than a century and a half ago Du Ponceau, then President of the American Philosophical Society in Philadelphia, set forth an eloquently expressed and clearly reasoned "dissertation" on the Chinese system of writing wherein he showed that claims about the exotic, even bizarre, nature of the Chinese script, and its ostensible "ideographic" basis, are naive and untenable, and that Chinese writing, like writing everywhere, is simply a graphic device for representing speech (Du Ponceau 1838). Almost exactly a hundred years later Peter A. Boodberg reiterated the same fundamental thesis, taking as his point of departure the proposition that the Chinese in devising their writing system followed the same general principles that governed the origin and early evolution of all other known forms of writing in the ancient world (Boodberg 1937).

Much of the theoretical underpinning of what I present in this monograph, especially in part I, is directly traceable to the work of these two scholars. I was privileged to have spent virtually the whole of my "Berkeley in the 'sixties" decade as a student, both undergraduate and graduate, with Professor Boodberg, and I freely and gladly acknowledge the extent to which my work here is an outgrowth of that association.

The actual drafting and writing of this study was largely a "Seattle in the 'eighties" undertaking, and like the Chinese writing system itself, had a first formation and, some years later, a subsequent reformation. When these ideas were finding their first written expression, I was very fortunate to have had Ms. (now Dr.) Yumiko F. Blanford (Fukushima Yumiko 福島由美子) as my graduate student. Ms. Blanford took great interest in the work, and spent many hours of many days discussing, scrutinizing, and criticizing each section as it came roughly written from my desk. Many of the ideas here

have taken shape as a result of those exchanges, often as a direct consequence of her suggestions and advice, including numerous cases where she saw the correct phonetic explanation for an odd graphic structure more quickly and more confidently than I did. When the time came for the reformation of the work, late in the 'eighties, it was again my very good fortune to have had another talented and dedicated graduate student, Ms. Laura E. Hess, who took a sustained interest, again with great enthusiasm and understanding, in the project, and who helped me rethink the material and revise the presentation in every respect from simple matters of wording and punctuation to major considerations of fact and interpretation. Were it not for these two associates the present study would be very much more wanting than it is. I have, of course, exercised my occasionally hyocephalic tendencies in the face of good advice, and so neither Ms. Blanford nor Ms. Hess bears any responsibility for the errors, confusions, and misinterpretations that may show up here and there.

Many others have helped and advised me in the long course of writing and rewriting this work. As anyone who has forged a book out of an assembly (or disassembly) of papers, notes, jottings, presentations, and other assorted written bric-a-brac, rather than just writing from start to finish in a straight line, well knows, the sources of inspiration, advice, and constructive criticism, crucial and valuable as they are, become obscured by the twistings and turnings that the endeavor takes as it proceeds along its path toward a finished work. But the value of this obscured help is always preserved and reflected in the shape of the final product, even if explicit recall of those innumerable instances of welcome aid is not possible. So, to all of the unnamed students, colleagues, teachers, mentors, critics, and friends (not mutually exclusive categories, no matter taken in what combination) I hereby acknowledge a deeply felt and genuinely held debt of gratitude, in full recognition that the merits of this work, whatever they may be, are much the greater thanks to that help.

Some names, of course, have not disappeared from memory, and a good measure of advice and criticism, often of the most detailed, scholarly, and substantial kind, can, I am happy to say, be credited to individual names and faces. I cannot begin to enumerate or specify the particular points on which each of the following people has helped me; I can only say that the contributions of each have been substantial, welcome, and sincerely appreciated. Those who read part or all of various drafts, or who discussed parts of it with me *viva voce*, responding with a wealth of thoughtful comments and suggestions, include Larry DeVries, David N. Keightley, Li Ling, Roy Andrew Miller, Jerry Norman, Qiu Xigui, Richard Salomon, Barbara Sands, Paul L-M. Serruys, Michael Shapiro, Edward L. Shaughnessy, Ken Takashima, and Norman Yoffee. In addition Robert W. Bagley not only taught me much about Shang bronzes, inscriptions and otherwise, but took the time to read, and mark with a fine stylist's hand, several hundred pages of

my inelegant prose, thus sparing me and the reader both many infelicities and awkwardnesses. Paul W. Kroll, East Asia editor of the *Journal of the American Oriental Society*, and editor of East Asian contributions to the American Oriental series, has been patient and tireless in the production of this monograph. Not the least of his efforts has been the computer-generated printing of many of the Chinese characters that appear herein. Stuart Aque has helped me immeasurably with the computer constructing and generating of a number of the rest of the Chinese characters, particularly the anomalous ones; and Ding Xiang Warner has been of great assistance in preparing the corrected page proofs. Finally, Judith Magee Boltz put the full force of her considerable scholarly abilities into helping me work through many problems of understanding and presentation, at every stage of the work, never failing to encourage me on in the endeavor. To all of these individuals—friends, teachers, students, colleagues, and co-conspirators alike—I express my deep gratitude.

The University of Washington Graduate School honored me in 1985 as an Arts & Humanities Research Professor, giving me one term free of teaching, to work exclusively on this book, and then granted me a sizeable subvention to assist in this publication. The China Program of the Jackson School of International Studies, under the Directorship of Nicholas R. Lardy, also granted me an equally sizeable subvention to assist in publication. I am very grateful to both.

PROLEGOMENA

INTRODUCTION

In 1838 Peter S. Du Ponceau, then President of the American Philosophical Society in Philadelphia, introduced his own study of the Chinese writing system in this way:

> I endeavour to prove, by the following dissertation, that the Chinese characters represent the *words* of the Chinese language, and ideas only through them. The letters of our alphabet separately represent sounds to which no meaning is attached, and are therefore only the elements of our graphic system; but, when combined together in groups, they represent the words of our languages, and those words represent or recall ideas to the mind of the reader. I contend that the Chinese characters, though formed of different elements, do no more, and that they represent ideas no otherwise than as connected with the words in which language has clothed them, and therefore that they are connected with sounds, not indeed as the letters of our alphabet separately taken, but as the groups formed by them when joined together in the form of words. (Du Ponceau 1838: xi–xii.)

Du Ponceau found himself, in the 1830s, first a hesitant skeptic, later a confirmed opponent, of the then, as now, popularly held notion that the Chinese language was written with a so-called "ideographic" script, a script that was looked upon as unrelated to the spoken language, and that instead was thought to register and convey meaning directly through some imagined appeal to the eye and mind without any recourse to words or sounds.[1] He recognized that where users of Western alphabets are accustomed to associating a single graph, i.e., a letter, with an individual sound, the Chinese associated single graphs, i.e., characters, with whole words. Chinese characters are thus the functional equivalent of those groups of Western letters we combine into unit sequences that stand, by and large, for words.

An important corollary to the mistaken perception of Chinese characters as ideographs was the equally misleading belief that because they were thought not to be bound to speech, but only to ideas, i.e., meaning, the characters thus constituted a writing system that could be read by people who had no knowledge of the Chinese language. In proof of this somewhat improbable claim, advocates pointed to the fact that Chinese characters were used readily by Koreans, Japanese, and Indochinese (called in Du Ponceau's time, and in his book, Cochinchinese), none of whom necessarily had any knowledge of the Chinese language, and by speakers of a great many mutually unintelligible Chinese dialects.

[1] For a discussion of Du Ponceau's place in American linguistics in general, and of his work in areas other than the Chinese script, see Andresen 1990: 97–104 et passim.

This confusion still exists today, and stems from a basic misunderstanding of the significance of the fact that Chinese characters stand for words rather than for individual sounds.[2] Bear in mind that a *word* is a spoken thing; to refer to the written representation of a word as a "word" is a convenience, but is not precise. Inasmuch as words, by definition, have not only sound, but also meaning, so Chinese characters, which stand for words, therefore also always carry a meaning as well. Like any other orthography, Chinese characters may be borrowed to write the words of another language. But unlike alphabets, when Chinese characters are borrowed, the borrowing is typically at the level of the word, which includes meaning, not at the level of the individual sound. Because of this it may appear that the meaning of the character has been transferred along with the graph, especially when the sound of the word in the borrowing language is different from the sound of the word in Chinese. In fact the character has simply been used to write the word in the second language that already has the same meaning that the character originally had in Chinese, and there is no

[2] See below, p. 18. The earliest European expression of this view of Chinese characters that I know of is found in Francis Bacon's *The Advancement of Learning*, Book II, section XVI, dating from 1605:

> And we understand further, that it is the use of China, and the kingdoms of the High Levant, to write in characters real, which express neither letters nor words in gross, but things or notions; insomuch as countries and provinces, which understand not one another's language, can nevertheless read one another's writings, because the characters are accepted more generally than the languages do extend . . . (Johnston 1974: 131).

David Mungello suggests that the source of Bacon's information may have been Juan Gonzales de Mendoza's *Historia . . . del gran Reyno de la China*, published in the last decades of the sixteenth century, and widely available shortly thereafter in England and on the continent (Mungello 1985: 184).

Bacon is confused about two points. First, while the characters do not, of course, "express letters," they *do* express words, and second, while people of different "countries and provinces" may be able to read individual characters, even though their languages are not mutually comprehensible, they cannot in fact "read one another's writings," since reading one another's writings presupposes knowing the languages, not just the meanings of isolated words written with individual characters.

By "characters real" he seems to mean that he thought of Chinese graphs not as arbitrary signs or marks for sounds like the letters of European scripts, but having a direct, non-arbitrary relation to "things or notions" independent of any linguistic mediation. It was this perceived non-arbitrariness, this "realness," of the script, that thrust Chinese to the forefront of consideration in the seventeenth-century search for a *lingua universalis*, capturing the attention of such figures as Fr. Athanasius Kircher and Gottfried Wilhelm Leibniz. See Mungello 1985, ch. VI, "Proto-Sinology and the Seventeenth-Century European Search for a Universal Language," et passim.

The tenacious hold that this (mis)perception of the nature of the Chinese script has enjoyed ever since is to a considerable extent, I suspect, due to the importance that was placed on it in this highly intellectual and philosophical seventeenth-century milieu.

actual transfer of anything other than the graphic element itself. The transfer is based on a matching of meaning in the original language with meaning in the recipient language, but the meaning itself is not borrowed. While it is true that the Korean, Japanese, or Indochinese reader does not need to know Chinese to be able to read the Chinese character, he does need to know what word in his own language the character has been borrowed to write. And his apprehension of a meaning when he sees that character is based on his knowledge of what word it represents in his own language, and of the meaning of that word, not on anything inherent in the character apart from that representation.

This use of Chinese characters, as Du Ponceau realized, is no different from the use of Arabic numerals, e.g., 1, 2, 3, . . . in most European writing systems. The graph, or character, we write ⟨3⟩, for example, may be read *three* if we are reading in English, or *tres* if in Spanish, or *drei*, or *tre*, or *trois*, or even *san* or *mi* if we are reading in Japanese, or any number of other ways depending on what language the character is being read in.[3] In the last instance the graph stands for two different, but fundamentally synonymous, words in the same language. Each such graph, be it an Arabic numeral or a Chinese character, stands for a word; the fact that the word may be different in pronunciation from language to language, or even within a single language, is irrelevant to the nature of its written form in any particular instance.

It certainly does not follow from the in itself rather unexceptional fact that the same graphic sign may stand for the same word in a variety of different languages, that the graph, be it a Chinese character or an Arabic numeral, stands for an idea. Such graphs stand for words, in any number of languages perhaps, but words all the same. The fact that the Japanese or Koreans chose to write their words largely, and in origin exclusively, with graphs borrowed from a different and linguistically unrelated source rather than devising a writing system of their own *ex nihilo*, whatever it may imply of historical or cultural interest, says nothing about the graphic rendering of ideas directly, something that continues to lie outside the province of writing.

Even the most ardent advocates of the ideographic nature of Chinese characters use the word "read" when they speak of what it is a speaker of one language or another does vis-à-vis Chinese characters. But what does it mean to "read" a graph if not to give that graph a semantic *and* a phonetic interpretation? In other words Chinese characters as read by a Japanese or Korean speaker bear exactly the relation to the words of that speaker-reader's language that Arabic numerals bear to the words for numbers in Western (and other) languages, i.e., they represent words. Du Ponceau called such

[3] Sharp angle brackets, viz., ⟨ and ⟩, will be used to set off characters, letters, or other marks when we are referring to the *graph itself*, as opposed to the sounds or words for which the graph in question may stand. Thus, ⟨3⟩ means 'the graph 3', as opposed to the number or word 'three', or any other word that this graph might represent.

graphs *lexigraphs*; we now more commonly call them *logographs*, but the terms are equally precise. About ideographs he observed: " . . . an *ideographic* system of writing is a creature of the imagination, and . . . cannot possibly exist concurrently with a language of audible sounds" (Du Ponceau 1838: xxiv).

The important point to recognize is that inasmuch as words are an integral part of language, and hence of speech, logographs, whether of the Arabic numeral type or the Chinese character type, represent elements of language, and constitute a means for the direct representation of speech, just as surely as do letters of a Western alphabetic notation. The difference is one of level. Chinese characters and Arabic numerals, as well as a host of other graphs used in various forms of writing, e.g., the graph ♡ in the context "I ♡ Brooklyn," represent speech at the level of the *word*; letters do so at the level of the *individual sound.*

It is also common, of course, for writing systems to represent speech at a level intermediate between that of the individual sound, and of the word. Such writing would be *syllabic*, the syllable being that intermediate phonetic entity. In theory the size or level of the linguistic unit that is represented by the elements of a writing system is wholly arbitrary. That is to say, a given graph may stand for a single sound (or more properly, for a single morphophoneme), as *grosso modo* most letters do in an alphabetic script, or for a syllable, as in syllabaries of the modern Japanese kind, or for whole words. A graph that stands for a syllable is called a *syllabograph*, and one that stands for a word is, as we have said, a *logograph*, or, less commonly, a *lexigraph.* There is no reason in principle why a single graph could not represent even an entire phrase, should the speakers and writers of a language find it desirable and useful to devise such graphs. An example of such a graph might be the sign ⟨%⟩ standing for the phrase *per cent*, or the arithmetic sign ⟨÷⟩ standing for the phrase *divided by*, as in 22 ÷ 11 = 2. In practice single graphs standing for units of speech at a level higher than that of the word are not common.

Du Ponceau expresses the three-way distinction as follows:

> . . . Chinese characters represent the words of the language, and are intended to awaken the remembrance of them in the mind, they are not therefore independent of sounds, for *words are sounds.* It makes no difference whether those sounds are simple and elementary, as those which our letters represent, or whether they are compounded from two or three of those elements into a syllable. There are syllabic alphabets, like that of the Sanscrit and other languages, and it has never been contended that they do not represent *sounds.* And it makes no difference that the Chinese syllables are also *words*, for that does not make them lose their character of sounds. But, on account of this difference, I would not call the Chinese characters a *syllabic*, but a *logographic* system of writing.
>
> This being the case, it seems necessarily to follow, that as the Chinese characters are in direct connexion with the Chinese spoken words, they can

only be read and understood by those who are familiar with the oral language. (Du Ponceau 1838: 110, emphasis original)

Du Ponceau's conclusion, that Chinese characters (when used to write Chinese, and not another language) can only be read by someone "familiar with the oral language," stands, when seen in this light, as a reasonable and unremarkable observation. But in fact we still find respectable expressions of the mistaken conviction that Chinese characters are somehow unrelated to language. For example, in a flyer prepared as exhibition notes to accompany the display of various kinds of writing in the British Museum we are told that Chinese writing is a "concept script," and that "as a concept script, Chinese does not depend on the spoken word; it can be read without regard to, or even a knowledge of, the spoken language" (Gaur 1984: 2).[4]

To see how untenable this claim really is we need only to consider the implications of such a possibility. If a knowledge of the spoken language is not a prerequisite to the ability to read Chinese characters, then all of us, irrespective of any training in Chinese, ought to be able to read the characters of this "concept script." This is a hypothesis easily tested. Here is a Chinese character, perfectly common and in everyday use from the Classical period down to the present: 學; here is another: 而; and three more: 時習之 . If the hypothesis is true, and these characters stand for meanings or concepts directly, without the intervention of the medium of language, then anyone should be able to read them, regardless of his or her knowledge of the Chinese language. That no one who does not already know Chinese can read them is, of course, trivially obvious and suggests that there is something seriously amiss with the description of Chinese writing as a "concept script" and the implied corollary claim of a "universal readability" for its characters.

Advocates of the concept-script premise, undaunted, might insist that nothing is really wrong with their claim, rather that we have misrepresented the test, and that Japanese or Koreans, for example, could read these characters without any knowledge of the Chinese language. And so they could. But when they do, they are reading them in their own Japanese or Korean language. And even then they are reading a string of five isolated words. If they happen to know the meaning of these five characters taken together as a single sentence, it is either because they have learned something of the Chinese language, or because the whole pattern has been borrowed into their language as an ossified and syntactically unanalyzable unit with its original Chinese meaning intact. In any of these cases the Japanese or Korean readers are having recourse to a linguistic entity that correlates Japanese or Korean

[4] The same point is made in virtually the same words in Gaur 1985: 80. Nothing in this fuller scholarly treatment is offered to make the claim any more palatable than it is in the exhibition notes, designed as they were for popular consumption.

words with these characters, and meanings only in association with those words. This means no more than that these characters are used to write certain words in Japanese or Korean, having been borrowed from China at some point in the Chinese Middle Ages for just this purpose. It has nothing to do with concepts, as reflected in a script or otherwise.

A second possible argument that might be invoked to save the claim that Chinese characters can be read without regard to the spoken language is that this is not a fair test because we have written the characters here in their modern form and thus the original pictographic basis from which their meanings would have been apprehensible directly has been lost. Were we to write them, the argument would go, in their earliest graphic shape, they would be readable without any necessary knowledge of the Chinese language. By this version of the claim, Chinese writing is apparently a "concept script" only in its original form, not in any later form. This is also empirically testable, at least to a degree. While we cannot know how a person from the late second millennium B.C. might react to any of these characters when presented with them in their second millennium B.C. graphic guise, we can write them that way for ourselves, and ask to what extent they seem to convey meaning directly as pictographs, without regard to any knowledge of the Chinese language.

In their earliest known graphic forms the five characters that we cited above appear as  ,  , ,  , and (Kao 1980: 50, 4, 494, 230, 89). My suspicion is that these forms, no less than the standard ones first given, are incomprehensible to anyone who knows nothing of the Chinese language, and that there is no direct pictographic conveyance of meaning here that could conceivably justify the claims of the concept-script advocates. Whatever validity that notion may have in other contexts, it does not pertain to Chinese characters, modern or ancient. In fact, it cannot pertain to any kind of writing system, as we shall show, because it denies the relation between writing and language, i.e., between script and speech. Writing is, in its turn, a spoken thing. The claim that it is possible to read, i.e., to *understand,* a script while at the same time denying that one must know, i.e., *understand,* the language that the script is used to write, is inherently contradictory. The notion of any kind of a script as independent of language seems on the face of it to be a sheer impossibility, and yet this is an explicit claim of the "concept-script" advocates. The British Museum flyer contrasts "concept script" with "phonetic script," which is described as having the "disadvantage" of being *dependent on language* (Gaur 1984: 2, emphasis added). This, it is suggested, means that "ideas must first be translated into the sounds of a particular language and these sounds must then be made visible in the form of conventionalized signs" (ibid.). And then when we want to read this phonetic script we must reverse the process; "these signs must again be re-translated back into the sounds of the [same] language and from there back into the original idea" (ibid.).

Leaving aside the rather formidable assumptions about the relation between thought and language that this statement entails, we need simply to point out that the only part of this description that has to do with the writing and reading of a "phonetic script" is the half dealing with making the sounds "visible in the form of conventionalized signs" (= writing), and re-translating these signs "back into sounds" (= reading). We would add further that these two parts of the statement are as true of the Chinese script as they are of any other; each Chinese character is in fact a conventionalized sign that makes a certain combination of sounds, usually a word (more technically, a *morpheme*), visible, and, when read, it is re-translated into that combination of sounds, which then is understood as having an associated meaning. The point that seems to have led to confusion, and to the untenable distinction between a concept script and a phonetic one, is the simple fact that Chinese characters render sounds visible a whole word at a time, whereas alphabets (the stereotypical phonetic script) do it, *grosso modo*, sound by individual sound.[5]

* * *

There are two senses in which one can speak of the origin and development of writing. For want of better labels I shall call these the *material* and the *linguistic*. The former refers to the origin and history of a script seen as a physical object, where attention is focused on the script's outward appearance. This would include consideration of the patterns of evolution of the script's shape, how those shapes were affected by the kinds of materials available for writing, what methods were used in the physical act of writing, and consideration of the artistic qualities of the various graphic forms. The time and external circumstances of a script's first appearance, and the changing context of its use, would also constitute an important part of the material history of writing. All of these considerations taken together, combined with numerous other ancillary aspects of the history of writing and of an individual script, I see as the script's "outward" or "external" history, and by calling it "material" I mean to imply that its study is of a script as a tangible entity, the origin and development of which can be traced from the evidence of

[5] Not all recent publications that mention Chinese writing perpetuate this misconception. Geoffrey Sampson explicitly warns against it: " . . . Chinese writing comes no closer than English or any other to 'signifying thoughts directly,' or to expressing 'things' rather than 'words.' Chinese script is thoroughly glottographic: it symbolizes units of a particular spoken language, namely the Chinese language, with all its quirks and illogicalities" (Sampson 1985: 149). Sampson goes on to give three straightforward linguistic indications to demonstrate this claim. The first is that synonyms in Chinese, being different words, are written with different characters, in spite of the fact that the "things" or "ideas" that they stand for are the same. The second has to do with the writing of morphemically complex words like English *buttercup*, the third with the way in which the writing reproduces the grammar of the language as well as the meaning of the words. All of these suggest that the Chinese script is strictly an instrument to write the Chinese language, and not something independent of it.

physical objects and artifacts. This approach to the study of writing is often closely allied with archaeological and art historical research.

In contrast to the external history of a script we may speak of a script's "internal" history; this is what I have referred to as the *linguistic history* of a script. By this I mean an account of the origin and evolution of a script seen in terms of its relation to language, i.e., how the script is structured and operates in its primary function as a graphic representation of speech.

The material history of writing is largely an empirical thing; we can observe the data as physical objects and draw various conclusions from our observations. In the linguistic history of a script, by contrast, there is a theoretical dimension that is absent in the other. The study of the relation between script and language calls for the identification of the principles that govern this relation, and thus involves the theory of writing. Technically such a theoretical study should be called *grammatonomy*. More commonly, it is called *graphemics*.

Of these two different kinds of histories of writing, the one I shall be concerned with in the present work is the second, the "internal," or "linguistic" history, i.e., what we might call the *grammatonomic* history of Chinese writing. There is, of course, no absolute divide between the two, and considerations of a script's material history will often have a direct bearing on its development in the linguistic or grammatonomic sphere. I have tried to take such aspects of the material history of Chinese writing into consideration whenever it seems called for. But this study is not primarily one of the external history of Chinese characters; for that we now have the excellent recent monograph by Professor Qiu Xigui of Peking University (Qiu 1988). Rather the present work is concerned with the internal structure and evolution of the Chinese writing system, and with the principles that governed its evolution. As a consequence of this approach, there is here relatively little appeal to the archaic forms of the characters—bone or bronze graphs, for example—in contrast to their modern standard (*k'ai shu* 楷書) forms. Nor have I been concerned with the techniques and procedures for deciphering unknown Shang or Western Chou characters and inscriptions. Important as this is, it is an undertaking distinct from the grammatonomic history of the writing system. We can hope, of course, that the understanding we might achieve of the principles of the Chinese script will serve the cause of decipherment, but decipherment itself is not a part of the present study.

Writing arose, as far as we know, *ex nihilo* only three times in old-world antiquity: in Egypt, in Mesopotamia, and in China, and once in the new world, viz., the Mayan script of Mesoamerica.[6] Scholars have, of course, speculated on the possibility that the invention of writing in one or more of these locales was influenced either directly or indirectly by its invention in

[6] I have deliberately left the still undeciphered Indus Valley script out of consideration, and have not included Mayan hieroglyphic writing from the pre-Columbian New World in

another. There is no persuasive evidence to support such speculations. Writing seems to have arisen in Egypt and Mesopotamia at about the same time, in the mid- or late fourth millennium B.C., and in China not until the middle of the second millennium B.C. at the earliest. The near simultaneity, as well as geographical proximity, of the appearance of writing in Egypt and Mesopotamia has, not surprisingly, led to considerable speculation about the likelihood of influence one way or the other, but there is no indication of actual borrowing in either direction. Near Eastern scholars allow only for the possibility, seen by some as a probability, that the *notion* or *idea* of writing might have taken root in Egypt as a result of Sumerian influence, without any actual borrowing of graphs or system (Ray 1986: 309–10; Fischer 1989: 61–62). Ironically, the very fact that China is so remote from the Near East, and that writing did not appear there until so many centuries later, has led to the same kind of speculation, to wit, that writing in China was the

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subsequent discussions. If we were to include Mayan in the comparative part of this study, it would fit the general pattern that seems to account for the invention and development of writing very closely.

Until recently the standard work on Mayan hieroglyphic writing was Thompson 1971. Thompson did not always recognize the script as a rigorously phonetic representation of a real language, and found himself increasingly at odds with younger scholars over this point. The first portions of his chapter on the principles of glyphic writing, for example, are given over largely to considerations of graphic structure and composition, physical arrangement of texts, and the aesthetic qualities of the characters, with only indirect attention to the way in which the script reflects the Mayan language (Thompson 1971: 36–65). Following the lead of Yurij Knorozov, Thompson's main opponent in regard to the phonetic nature of Mayan hieroglyphs, scholars now take it for granted in their research that the writing is fundamentally a phonetically based script. See Justeson and Campbell 1984, and the review by Victoria R. Bricker 1986, and Houston 1988, which has a very full bibliography of pertinent scholarship. For a brief, but very interesting description of one particular line of research see Morell 1986, writing on the work of David Stuart. For a brief summary in the popular press of the most recent work see Blakeslee 1989.

Of the pre-war generation of scholars who worked on the decipherment of the Mayan hieroglyphs, perhaps the most forceful advocate of the strictly phonetic nature of the script was the famous American linguist Benjamin Lee Whorf, though his contribution to the decipherment of specific hieroglyphs may have been less substantial than that of full-time Mayanists (see Kelley 1962: 14–15). In a paper read before the May, 1940, meeting of the Eighth American Scientific Congress, Section on Anthropological Sciences, in Washington, D.C., Whorf inveighed against the stifling and sterile argument of whether Mayan hieroglyphs should be called ideographic or phonetic. He recognized that this supposed distinction is, in the context of writing, entirely vacuous, something that few, if any, of his contemporaries saw with equal clarity: "From a configurative linguistic standpoint there is no difference [between 'ideographic' and 'phonetic']. 'Ideographic' is an example of the so-called mentalistic terminology, which tells us nothing from a linguistic point of view. No kind of writing, no matter how crude or primitive, symbolizes ideas divorced from linguistic forms of expression. . . . All writing systems, including the Chinese, symbolize simply linguistic utterances" (Whorf 1941: 483).

result of slow, long-distance stimulus-diffusion from the Near Eastern cradle of Western civilization.

Chinese historians and archaeologists rightly condemn such conjectures as wholly unfounded, pointing out that there is little indication of such contact or influence. They also sometimes maintain that finds of neolithic pottery fragments bearing a variety of simple scratches and stroke marks on their surfaces, and dating from as early as 4800 B.C., suggest that writing in China is actually much older than has traditionally been assumed on the evidence of Shang bone and bronze texts. Advocates of this claim have let their enthusiasm run unchecked, and seem to have suspended their cautious and critical judgment. I will argue in chapter 2 that whatever the significance or function of those early neolithic marks might have been, they were not, except possibly for the very particular case of late Ta wen k'ou 大汶口 pictographs, related in any direct or substantive way to the origin of the Chinese script we know from Shang times on.

The approach I have taken in presenting the origin and history of the Chinese writing system is, in a deliberately limited way, comparative. The reason for this is that hypotheses about certain aspects of the development of writing in China become more plausible than they otherwise might appear when we discover that similar processes seem to have been at work in the evolution of writing in both Egypt and Mesopotamia. The comparison suggests that we can say with a fair degree of confidence that when writing arose in China it followed *pari passu* the same pattern of development in its formative stages as in both Egypt and Mesopotamia. This was clearly not the result of cross-cultural influences, much less of chance, but rather that the principles governing the origin and early evolution of writing in all three ancient societies—Egypt, Mesopotamia, and China—were fundamentally the same. In other words, in the development of their writing the Chinese did not follow "some mysterious esoteric principles that set them apart from the rest of the human race," as P. A. Boodberg already counseled us half a century ago (Boodberg 1937: 331), but invented writing according to what look like general, I am tempted to say universal, principles and patterns.

The brief notes in Morell (1986: 55) and even more the discussion in Campbell (1984: 11–16) suggest that the origin and development of Mayan hieroglyphic writing followed the same principles we can identify as governing the evolution of writing in Egypt, Mesopotamia, and China. Campbell (1984: 12) summarizes the stages as follows: (a) true writing emerges with logographic signs; (b) the first step toward "phoneticism," that is, phonetic flexibility in the use of graphs, is "rebus" writing, or what we may call "punning"; (c) phonetic complements, i.e., determinatives, arise; and (d) logographs come to be used for their sound value alone, i.e., they are "desemanticized." This, in a nutshell, is the early history of all known writing systems, and it is particularly satisfying to see now that Mayan writing conforms to this general pattern so closely. If we wish to claim this pattern as universal,

the evidence from Mayan will not stand in the way. (Note that the fourth stage, that of desemanticization, demands special attention in the case of Chinese, and in fact chapter 5 *infra* deals with the question of why this never came about fully in China.) Recognition of the possible universality of these principles gives us a firm basis for the eventual development of a sound grammatonomic theory, that is, a theory of writing.

In the present work, apart from the preliminary discussion in chapter 1, the possibility of a general theory of writing is only touched on in passing, and more by implication than by explicit statement. My purpose is instead to describe the nature and internal structure of the Chinese script from the time of its invention in the middle of the Shang age down to the period of its standardization in the Han, and to dispel some of the misconceptions that have long surrounded it. I have divided the discussion of this span of roughly a millennium and a half into two parts: (I) the origin and early development of the script in the Shang, which I have called the Shang Formation, and (II) the regularization and standardization of the script in the Ch'in-Han period, which I call the Ch'in-Han Reformation. With the discovery and availability in the last twenty years of a considerable body of pre-Han and early Han manuscripts we can see more clearly than heretofore the exact nature of the pre-Han, non-standardized, script, and assess more accurately the effects of the Han standardization. This in turn enables us to identify previously unknown features of the "reformation."

The two parts of this study differ from each other in one fundamental respect. Part I is an effort to present an objective, scientifically factual account of the origin and development of Chinese writing in the Shang period, based on direct scrutiny and analysis of the characters themselves. Part II, by contrast, forms itself around a consideration of how, in the Ch'in-Han era a millennium later, the Chinese perception of writing and its relation to language, quite apart from the actual structure and history of either, shaped the subsequent history of the Chinese script. Part I is, then, essentially culturally neutral; detached, we might say, from a concern with other aspects of Chinese civilization. Part II in contrast deals with a central part of the early cultural and intellectual history of imperial China, taking as its starting point the traditional Chinese world-view and the place of Chinese writing in it. It ends with a suggestion that the subjective perception of language and script, and of the relation between the two that characterized Chinese thinking in the Ch'in-Han period was as much responsible for the fact that the script remained logographic and did not move in the direction of an alphabet as any purely linguistic factors might have been.

These two parts, taken as a unit, account for the whole of the linguistic history, in the sense defined above, of the origin and early development of the Chinese writing system. Except for the very curious, but also very obscure, emergence of what appear to be localized non-standard varieties of pre-Han Chinese writing—as seen, for example, in the characters of the

Ch'u silk manuscript—the period between about 1000 B.C. and 200 B.C. did not witness any fundamental change in the principles that governed the structure of the script or its operation.[7] There was, of course, considerable change in the outward appearance of the characters, in the inventory of frequently used graphs, and in other aspects of what we referred to as the external, or material, history of the script. But these did not affect the internal, theoretical history of Chinese writing in any significant way.

When we come to the Ch'in-Han period the principles governing the structure and operation of the script begin to show at least a potential for significant change. In the third and second centuries B.C. the Chinese seem to have begun to perceive their writing system in a way that, had it actually fulfilled its potential, would have likely entailed the widespread use of a few common graphs to stand not for syllables inherently associated with specific meanings, but for fundamentally asemantic syllables that could represent whatever meaning, i.e., word, was called for in a particular context. The eventual result of such a development might well have been a syllabary, perhaps even ultimately an alphabet. This did not, of course, happen; nor was it a real possibility at any later time, even in the face of the powerful influence of Western alphabetic traditions. This means that insofar as we are concerned with the internal, linguistic, and theoretical history of the Chinese writing system, there are only two crucial periods, what I have called the Shang Formation on the one hand and the Ch'in-Han Reformation on the other. Although separated by a gap of nearly a millennium, these two periods are equally important to a full account of the history of the script. This is why the present work is divided into two parts, one dealing with the first formation of the script, the second with its reformation, or rather the reaffirmation of that original formation, a thousand years later.

Because writing of any kind is no more and no less than a graphic representation of speech (this definition will be discussed formally in chapter 1), to study its nature and history we must often have recourse to the speech, that is, to the language, that the writing writes. In the case of Chinese characters at the time of their invention, that language was the language of the Shang people, i.e., what we may call Shang Chinese, or Early Archaic Chinese. For the writing system of the Ch'in-Han period the language was, obviously, a form of Chinese about a thousand years removed from the Shang, and this we might call Late Archaic Chinese. Ideally we should have a knowledge of the phonetic structure of both of these periods of Chinese, and couch our remarks about the script, and how it represents the language, accordingly. But in fact the study of Chinese historical linguistics had not yet reached the point were we can say with any specificity what the phonetic structure of Shang Chinese was. Even for the language of the

[7] On the Ch'u silk manuscript see Jao 1958, Hayashi 1972, Ts'ai 1972, Barnard 1972, 1972–73, Ch'en 1984, and Li 1985.

Han we still face many unresolved problems and unanswered questions of considerable moment. Linguists have so far generally had to satisfy themselves with reconstructing a single form of pre-Han Chinese, called typically Old Chinese (abbreviated OC), and have then had to accept the shaky corollary that this will do for all periods of pre-Han linguistic history.

Currently we might say that there are available four distinct and to some extent competing reconstructions of the phonetic structure of Old Chinese. The earliest of these, and the one most accessible to non-linguists, is that of the late Bernhard Karlgren, codified in his dictionary-format work titled *Grammata Serica Recensa* (1957; hereafter abbreviated *GSR*). The only other reconstruction that has been described completely enough and systematically enough in published form to allow relatively easy use is that of Li Fang-kuei (1971, 1976). The other two, both of which deserve serious attention, are that of E. G. Pulleyblank (1973a, 1977–78, 1982, 1984a) and that proposed jointly by Nicholas C. Bodman and William H. Baxter III (Bodman 1980, Baxter 1980). Neither of these last two reconstructions is yet fully enough developed in available publications to be useable for our purposes here. I have therefore chosen to use Li Fang-kuei's reconstruction despite the fact that in some respects his proposals are conservative and artificial. There are two respects in which I have modified Li's reconstruction throughout: (i) when in my opinion the evidence calls for a consonant cluster in a certain word different from that which Li reconstructs, I have not hesitated to diverge from him; and (ii) I have uniformly reconstructed the Old Chinese source of the Middle Chinese departing tone (*ch'ü sheng* 去聲) as final *-s* rather than final *-h*.[8]

[8] Baxter's reconstruction of Old Chinese is now, at page proof time (summer, 1993), available in a formidable, and richly informative volume. See William H. Baxter, *A Handbook of Old Chinese Phonology*. Berlin & New York: Mouton de Gruyter, 1992.

1. WRITING IN GENERAL

Definition of Writing

All works on writing and writing systems, whether general or script-specific, contemporary or historically slanted, must face the same issue at the outset: how to define writing. In confronting this problem not a few authors find themselves initially proposing descriptions of writing that involve two things, visual signs and the act of communication. They then try to forge a formal definition of writing by specifying a precise relation between these two elements.

Given that we perceive writing as in some sense the visual counterpart to speech, and we recognize the function of speech to be chiefly the communication of ideas, we quite naturally associate the visible forms that constitute writing with the communication of ideas. Thus we end up with a relational analogy of the following sort: writing is to visual communication as language is to oral communication.

If we accept this analogy—writing : visual communication :: language : oral communication—we are forced to admit as writing any and all visual signs or marks that convey meaning, e.g., the skull and crossbones on a bottle of medicine, the cigarette with a circle around it and a heavy bar through it on the wall of a public room, the red cross on the side of an ambulance, and so forth. Yet if we admit all such visual signs as writing we end up with a definition of writing that goes well beyond our original intuitive sense that writing is somehow the visual counterpart to speech.

If, on the other hand, we recognize that when we say "the purpose of writing is to communicate ideas" what we really mean is that "the function of writing is precisely to communicate what is communicated by the speech that the writing represents," we restrict the scope of writing to those visual signs the meaning of which is mediated by language. In other words, the communication aspect of writing is only an adjunct to the fact that the writing stands for language, and it is the language that is the mechanism for the communication of ideas. The skull and crossbones is, to be sure, a visual sign that communicates a very specific meaning. But in that act of communication there is no unambiguous and automatic linguistic value necessarily associated with the visual sign. The same picture of the skull and crossbones could be "read" variously as 'poison,' 'poisonous,' 'hazardous,' 'pirate,' or even 'skull and crossbones.'[1] Because of this linguistic variability, the skull

[1] I have appropriated the "skull and crossbones" example from Y. R. Chao (1968: 101).

and crossbones graph is an example of the communication of an idea directly rather than one governed or mediated by language. On this basis we would deny it the status of writing. To do otherwise leads to chaos: we would have to admit as writing every image, painting, graphic symbol or icon that evoked a meaningful association in the mind of the beholder.

We may thus define writing very simply as the graphic representation of speech; and a writing system, then, as any graphic means for the systematic representation of speech. Like all definitions, this definition expresses a judgment. It would be possible, of course, to define writing differently, as, for example, *any* visual sign or mark that conveys or communicates meaning irrespective of its relation to language. In my judgment such a definition does not clarify the nature or history of what we intuitively think of as writing any better than a definition that restricts writing to those graphic signs that have a direct representational relation to language. The broader, and less precise, definition in fact complicates the issue considerably, because it introduces numerous considerations that are not pertinent to the kind of writing that represents speech, i.e., to writing in the narrower sense—and this, as we said above, leads to chaos. Certainly for our purposes here, if not in general, nothing is gained, and much is lost, by taking what I would call a non-linguistic view of writing.[2]

The communication aspect of writing is, by the above definition, secondary, existing only as an automatic consequence of the fact that the speech that the writing represents serves to communicate meaning. Moreover, whether or not an individual sign in a writing system communicates meaning depends on the level at which that sign represents language. Letters of an alphabet, for example, do not typically carry meaning, only sound, because in most languages written with alphabets most individual sounds do not have any associated meanings. In English the letters *n, e, g, l, s, h,* for example, normally stand only for sounds, and do not communicate a meaning in isolation (except as the names for those respective letters, of course). The letters *i* and *a,* in contrast, stand for sounds and in some cases

[2] This definition matches the sense that Saussure seems to express when he says "[a] language and its written form constitute two separate systems of signs. The sole reason for the existence of the latter is to represent that former" (Saussure 1983: 24). Even though Saussure says "language," i.e., *langue,* not "speech" (*parole*) in this passage (see Engler 1989: 66b), it seems likely that he was referring to "spoken language" or "spoken utterances," not to *langue* in the more abstract sense (see Vachek 1973: 10). This in turn allows for an understanding of "speech" and "writing" as two comparable but independent realizations (or representations, or manifestations) of *language,* the first auditory, the second visual.

Such an understanding would give to writing a status different from the one I have allowed in the definition adopted in this chapter, and from the one Saussure would likely have countenanced. While the theoretical implications of this different understanding of writing are not without interest, I am not convinced that they are essential to an understanding of writing proper, and in any case they seem to me not to impinge significantly on the developmental and evolutionary matters that I shall be dealing with here.

(for *i*, only when written *I*) for words, i.e., they may carry meaning. But to be considered writing they need not communicate meaning, only sound. The communication of ideas in writing is, as we have said, entirely a function of the fact that the writing represents speech.

It is just this misunderstanding about the way in which writing conveys meaning that is responsible for much of the widespread confusion about the nature of Chinese characters. Because Chinese characters for the most part represent speech at the level of the word, or at least of the morpheme, not at the level of the individual sound as our letters generally do; and because words, or morphemes, have meanings, Chinese characters are inevitably associated with meanings as well as with sounds in a way that the graphs of Western alphabetical systems are normally not. But the association with meaning, i.e., the communication aspect of the characters, exists only as a consequence of the association with sound, that is, with words of a language, or what we may call simply "speech."[3] What has often happened is that academic analysts and casual critics alike have emphasized the link between character and meaning at the expense of the primary and essential link between character and sound.

All languages have both words and morphemes, the former consisting of one or more of the latter, and the latter typically defined as the smallest meaningful element of a language. Because of the characteristically monosyllabic and isolating structure of Chinese, especially at the pre-modern stage, it is not misleading to speak of Chinese morphemes as tantamount to words, and to think of the word itself as the smallest entity of the language that has both a sound and a meaning.[4]

For any word we can identify two aspects: sound and meaning. Whether these two aspects exist separately and independently of a word is not a linguistic question but a philosophical one, on a par with the question of whether "whiteness" and "horseness" exist as separate entities apart from the white horse that we can see, smell, touch, and ride, and we need not, fortunately, answer that question here. For our purposes it is sufficient to recognize these two aspects of any word. I shall adopt a slightly modified version of Boodberg's terminology and conventions, and call the "sound" component or aspect of a word its *phonetic aspect*, and when necessary abbreviate this with the upper-case letter P. Similarly, I shall call the meaning of a word its *semantic aspect*, and abbreviate this with the letter S (see Boodberg 1937: 331–33). Every word has these two aspects by definition, irrespective of whether or not it has a written form.

Writing, as we have said, consists of visual signs or marks, though not all visual signs or marks qualify as writing. A single visual sign or mark we have

[3] See Sampson 1985: 149 (cited in note 4 of the Introduction *infra*).

[4] On the much debated question of the monosyllabic nature of Chinese and its implications for the writing system, see Boltz 1989: A-3ff, and note 6 there.

called a *graph*. This we can abbreviate as G. We can treat pronunciation and meaning, i.e., phonetic value and semantic value, as distinctive features of graphs, regardless of whether a particular graph is writing or not. The relation between a graph and these two features of "sound" (P) and "meaning" (S), can be any one of the following, the "plus" sign (+) indicating that the feature in question is associated with the graph, the "minus" sign (−), indicating that it is not:

(1) G : [−P, −S]
(2) G : [−P, +S]
(3) G : [+P, +S]
(4) G : [+P, −S]

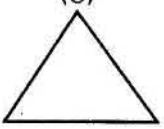
Type (1) graphs, with neither an associated pronunciation nor meaning, are merely idiosyncratic or random marks or drawings, and have no bearing on writing. Type (2), on the other hand, with no established pronunciation, but carrying a recognized meaning, are exactly like the skull and crossbones sign or the red cross on the side of an ambulance. They are visual signs that communicate meaning but because they have no automatic and unambiguous relation to language, i.e., because they are [−P], they are, by definition, not writing.

The essential and indispensable feature that must be present for a graph or system of graphs to qualify as writing is phonetic representation. That is, writing must represent speech. This means that it must be [+P]. In Trager's terms, writing is defined as "any conventional system of marks or drawings . . . that represents the utterances of a language as such" (Trager 1974: 377). As early as 1933 Bloomfield had already explicitly stated that writing must bear a "fixed relation" to linguistic form (Bloomfield 1933: 283). And more recently Serruys has defined the graphs of true writing as necessarily "integrated in a *system*," and "resulting in a visual representation of a *language*" (Serruys 1982: 455).

When a writing system arises that utilizes a single graph to represent a single word, as is the case with Chinese characters, that graph is type (3), [+P, +S]. But the graph stands for the meaning of the word *only* by virtue of standing for the *sound* of the word in question. Consider, for example, the English word 'eight'. At the linguistic level, that is, at the primary and fundamental level of language proper, this word has two aspects, the phonetic, [eyt], and the semantic, the meaning 'eight' as the number between seven and nine. At the graphic level, that of writing, which is entirely secondary and derivative, that is to say, which cannot exist except in relation to the primary linguistic level, we can represent this word with the character ⟨8⟩. The relation of the graph ⟨8⟩ to the word 'eight' can be diagrammed schematically thus:

graphic level:
(secondary, derivative)

⟨8⟩

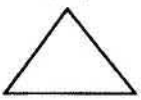


linguistic level:
(primary, fundamental)

{[eyt], 'eight'}

In general, we may depict the relation between a single graph standing for a single word like this:

graph: ⟨G⟩



word: { P , S }

Chinese characters stand in relation to the words of the Chinese language as the graph ⟨8⟩ does to the English word 'eight', that is, characters are graphs each of which represents a whole word. When the relation signified by the right-hand leg of the above triangle is over-emphasized to the point of ignoring or suppressing the left-hand leg, the graph is misconstrued as standing only for meaning. But no such writing system exists, nor is it obvious that such a writing system could exist. Certainly such a graph would not count as writing by our definition above, since the suppression of the left-hand leg, representing the phonetic aspect, divorces the graph from the realm of language proper. Any graph that purports to represent meaning alone has *ipso facto* no relation to speech, nor by extension to language, and whatever it may be, it cannot be writing. The popular notion that Chinese characters are ideographic, by which it is presumably meant that they stand for meanings or ideas alone, apart from any direct connection with language or speech, stems from the simple failure to recognize that the characters represent words in both the phonetic *and* the semantic aspect, not just the semantic alone, and that those two aspects are inseparable insofar as their representation in the writing system is concerned.

It is possible, of course, consciously to separate these two aspects of a word, and to use the graph G with either the original P or the original S replaced by a new P or a new S. We could, for example, perfectly well use the graph ⟨8⟩ in the sentence "Dolores 8 three tacos for breakfast," which can be read by any literate speaker of English without the least difficulty in spite of the fact that the graphic representation of the verb is non-standard. What such a usage of the graph ⟨8⟩ shows is that the link between the graph and the semantic aspect of the original word, schematically the G-S leg of the G-P-S triangle, has been suppressed as a result of severing the bond between the pronunciation and the meaning in the word 'eight', favoring the

link between the graph and the pronunciation alone. But notice that at the same time a new meaning has been introduced, viz., the meaning 'eat; past tense', now bound to the phonetic value [eyt] by virtue of the context in which the graph was used. The graph ⟨8⟩ still stands for a word, but now the word is 'ate', pronounced [eyt], with the meaning of 'eat; past tense'. The G-P-S triangle remains intact; the original link between ⟨8⟩ and the meaning 'eight', the G-S leg of the triangle, has merely been replaced by a new link between the same G and a different S. The replacement is possible only because this usage of the graph ⟨8⟩ preserves the original graphic-phonetic link, the G-P leg, intact in its pristine form.

Conversely, it is possible to use the graph ⟨8⟩ in a way that allows some variation in the link between graph and phonetic value, while preserving the graph-meaning link intact, for example in writing **8vo** or **8°** where the ⟨8⟩ now stands for [okta] or [oktav], phonetically distinct from [eyt], but semantically identical. In this case, as with ⟨8⟩ standing for the word 'ate', one aspect of the word that the graph writes may change, as long as the other aspect maintains its original value. Such a usage does not in any way make the graph ⟨8⟩ an ideograph standing for something vaguely described as "the idea of eight," or "eightness." What it means is that a writing system based on a set of graphs standing for words allows *either* the G-S *or* the G-P link between graph and word to vary as long as the other one remains constant. This is a simple expedient for building flexibility into the writing system in order to take the fullest possible advantage of the inventory of graphs. The historical evidence of Sumerian cuneiform, Egyptian hieroglyphs, and Chinese characters shows that this kind of flexibility was exploited fully in the formation of all three of those scripts. This is discussed in detail in chapters 2 and 3.

If we use the graph ⟨8⟩ in the sentence "Dolores often tries to cre-8 new taco recipes," again there is little, if any, difficulty knowing how to read the intended word. But now the graph ⟨8⟩ stands only for a single syllable which has no meaning of its own. In this usage ⟨8⟩ is no longer a logograph, because it no longer represents a word. The semantic aspect has been eliminated with the result that the graph preserves a relation only with a syllabic sound; it is thus simply G-P, where P, the phonetic value, is a syllable. The utilization of what were in origin logographs in this way, standing only for a syllabic sound with no associated meaning, is properly called *desemanticization* because the original semantic aspect has ceased to be a factor in the graph's usage.

In the development of writing systems desemanticization of graphs is a natural and unremarkable phenomenon, and can be seen to have operated widely in the evolution of writing in Egypt and Mesopotamia alike. It is, moreover, just such desemanticization that opened the door for the further adaptation of graphs to stand for single consonantal sounds, and the eventual crystallization of alphabets in the West. Why this pattern was not

followed in China as it was in the ancient Near East will be considered at some length in chapter 5.

Forerunners of Writing

The definition of writing that we have proposed above makes it easy to distinguish between actual writing and what are often called "forerunners" or "precursors" of writing. Those signs or marks out of which we perceive a writing system to have emerged are themselves examples of writing proper only if they represent speech at some level, i.e., only if they are [+P] in the terms of our suggested set of distinctive features for graphs. If they do not represent speech, and are therefore [−P], they do not qualify as writing. At the same time, some [−P] graphs, which are usually also [+S], may be seen as having an evolutionary or developmental relation to graphs that we do recognize as writing, and these are legitimately called *forerunners* or *precursors* of writing.

Gelb defines "forerunner" writing as "all the various [graphic] devices by which man first attempted to convey his thoughts and feelings," and designates it by the technical term *semasiography* (Gelb 1952: 190–91). It becomes clear from his subsequent discussion that he means by this term graphic devices that are in some way direct representations of the intended meaning without having any phonetic substance or basis, and so do not stand in any precise or unambiguous relation to specific sounds or words. These are entirely non-phonetic marks or graphs, functioning as *aides mnémoniques* or *aides mémoires*, relying either on realistic depictions or on conventionally accepted arbitrary semantic associations to evoke the intended meaning. Because the former type, that is, efforts at realistic depictions, are more frequently recognizable than simple geometric shapes or marks with arbitrarily established meanings, forerunners of writing are often presumed to have been pictographic or iconographic.

Examples of this kind of forerunner would include the cave and rock drawings found in paleolithic and neolithic sites in many places around the world. Such drawings typically depict hunting scenes, mounted pursuits of wild animals, performances of rites and ceremonies, as well as other similar activities. Sometimes multiple drawings form a series of scenes which seem to illustrate a progression of events, and these multiscene sequences too can sometimes be classed as forerunners of writing. At the same time we may find extraordinarily elaborate individual drawings with intricate details, each detail presumably representing a specific part of the message to be conveyed by the drawing. In none of these depictions is there any case of unambiguous direct graphic representation of speech. The meaning conveyed may well be clear and even specific, but the speech used to express, or "read," that meaning from the drawing is not directly and unambiguously determined by the drawing itself. While these markings may have been asso-

ciated with "mental acts," that is, with the apprehension of meaning directly, they functioned without the intermediary of language, and so they cannot be called writing proper.

> All systems which use scratching or drawing or painting to think with or feel with are irrelevant [to true writing], though they have had long histories. A successful or developed writing system is one which does not think at all. It should be the purely passive instrument of the spoken word even if, to use a paradox, the word is spoken silently. (Havelock 1976: 17)

Forerunners of writing are sometimes also called "proto-writing" or "embryo-writing." While these names clearly indicate the graph's presumed ancestral relation to later writing, we risk blurring the distinction between writing and non-writing when we use them because the prefixed adjectives "proto-" and "embryo-", modifying the word "writing," give the false impression that "proto-writing" or "embryo-writing" are *kinds* of writing, when in fact they are not writing at all.

Because they are not themselves writing does not mean, of course, that forerunners of writing bear no significant relation to actual writing, or that they are unimportant in the study of the origin and development of writing. On the contrary, because they seem to have something to do with the circumstances wherein writing first arose, they may be of critical importance in the correct understanding of that phenomenon. But there is a risky tendency to assume that these kinds of drawings are the *only* natural and expected direct predecessors to true writing, to the exclusion of any other possibility. This encourages a further tendency to think of them as a "type of primitive writing." But the term "primitive writing," like the words "proto-writing" and "embryo-writing," describes a kind of writing, rather than a "forerunner of writing." To use it to mean "forerunner of writing" is misleading. However rudimentary the form of writing the term "primitive writing" is taken to designate, it can only refer to writing proper, that is, a graphic representation of speech, even if crude and imperfect, and not to any of the forerunners. The use of the term "forerunner" or "precursor" is only safe if we are careful to bear in mind that such a labeling does not automatically explain, nor is it intended to explain, what the relation between these semasiographic devices and true writing was. We should not assume that there was a single, linear progression from things we have designated "forerunners," especially when they are conceived of only pictographically, to real writing.

That there is any link at all, in fact, between writing proper and rock paintings, cave pictures, bark drawings, and other assorted marks of the kind that are termed "forerunners" or "precursors" to writing is entirely an intuitive surmise of the investigator. For most of these kinds of marks and pictures there is no unambiguous connection that would allow one to identify with certainty a direct evolution from the ostensible forerunner of

writing to writing proper. To be sure, these kinds of semasiographs may well have been the mechanism through which the technical skills prerequisite to writing, such as techniques of incising, drawing with pigments, preparing surfaces to receive markings and so on were developed. But the assumption that the forerunner semasiographs played any more central role than that in the advent of writing is still somewhat speculative.

The recent work of Denise Schmandt-Besserat, building on the work of Pierre Amiet, suggests that the development of writing in Sumer may have been influenced by, if not the partial outgrowth of, one particular kind of semasiograph (Schmandt-Besserat 1978, 1979).[5] She has noticed that a large number of small clay "counters" or "tokens" in a variety of simple geometric shapes (round, conical, triangular, ovoid, etc.) are found over a wide area of Mesopotamia, and has proposed that they were used to keep tallies of kinds and quantities of agricultural goods and livestock, each different shape corresponding to a different item, with relative size sometimes indicating multiples of ten or twelve.

At first the token itself was used as a tangible record of a single item, a certain number of tokens representing the same number of the item in question. To register a certain number of a given item in a way that was resistant to tampering or alteration, tokens could be sealed in clay "pockets" (*bullae*) in a quantity equal to the number of the item in question. Such a *bulla* could then serve as a primitive kind of bill of lading, or shipper's manifest or other type of record or contract. The convenience of having a tamper-resistant record on the one hand became the inconvenience of not knowing the quantity (or even, possibly, the nature of the item) without breaking open the *bulla* and thereby destroying its integrity as a "document." To get around this inconvenience, an owner or shipper might impress on the outside surface of the *bulla* an equal number of the appropriately shaped token, thus producing a stamped record on the outside of the contents on the inside. It must have occurred to someone before long that if you impress a record of the item and quantity on the outside, you need not actually put anything inside, and the *bulla* proper can be dispensed with, a simple clay tablet serving in its stead. The clay impression would then stand for the token which in turn stands for the item itself. Thus the clay impression is a semasiographic device that fits Gelb's definition exactly, yet it is not, and never was intended to be, a realistic pictorial representation of anything.

[5] The several works in which Amiet presents the thesis that Denise Schmandt-Besserat is said to borrow and build on are all unavailable to me. Nevertheless, it is widely acknowledged by Mesopotamianists that Amiet deserves credit for the first formulation of the proposal, just as it is equally well recognized that later formulations and proposals by Schmandt-Besserat do not necessarily reflect Amiet's views. See, e.g., Lieberman 1980 and Michalowski 1990.

One kind of commonly found token is round with a cross on its surface, ⊕, and is said to be a counter or token for 'sheep'. This is certainly not a pictographic image of a sheep; it is merely a simple geometric shape that arbitrarily came to be associated with the animal 'sheep'.[6] And yet it is demonstrably the source of the Neo-Sumerian/Old Babylonian cuneiform graph 𒁺, which stood for the Sumerian word UDU 'sheep'. (See Borger, Labat, 537.) Similarly, the token that is thought to have stood for cattle looked like this:  , and came to be the logograph for Sumerian AB 'cow', written ,  , later written , Neo-Assyrian (Borger, Labat, 420).

Schmandt-Besserat's formulation of the hypothesis originally proposed by Amiet is that it was just such semasiographic signs that led to the first true writing, a line that was crossed at the moment when each differently shaped impression came to stand not just for a particular item, but for the *name* of that item. Thus, when the graph ⊕ was taken as no more than just a sign that was associated with 'sheep' it was not writing. But when it came to stand for the word UDU 'sheep' (or for the word 'sheep' in any other language) it was then an instance of writing. That difference in the formal terms of our distinctive features is the difference between a type (2) and type (3) graph. When ⊕ stood as a semasiograph for 'sheep', but was not necessarily "read" UDU, that is, it was not associated by any convention with a pronunciation UDU, or with any other pronunciation, it was then [–P, +S]. When it came to represent the name UDU 'sheep', it was [+P, +S] and thus constituted writing.

Most recently Schmandt-Besserat has carried her hypothesis a step further (1987). She now recognizes two types of tokens: plain ones of the kind described above, that have been in evidence in the Fertile Crescent since as early as 8000 B.C., and that appear to have stood in their varying geometric shapes as counters associated with different livestock and foodstuff commodities; and complex ones, seen from the end of the fourth millennium B.C., that have a wider assortment of shapes and a more ornate and decorated appearance than the plain ones. This second type, the complex tokens, she suggests, arose as a consequence of an increasingly complex society that by the fourth millennium had to keep track not just of agricultural and livestock goods, but of a wealth of manufactured articles and finished products of the kind that went hand in hand with the development of an urban economy (Schmandt-Besserat 1987: 47).

[6] Driver claims that the graph ⊕, which becomes cuneiform 𒁺, later 𒁺 (Labat, 537), standing for the Sumerian word UDU 'sheep', is in origin "obviously a head, depicted full face with eyes, nose, and mouth roughly represented by cross-lines, . . . " (Driver 1976: 47).

In view of Schmandt-Besserat's explanation of the role of these geometric tokens in ancient Mesopotamia, and their probable relation to the forms of the earliest writing there, it becomes less obvious that the graph ⊕ is in origin an attempt to depict a sheep in any realistic way. Driver was not, of course, aware of this hypothesis when he wrote some four decades ago.

Because these complex tokens were more elaborate than the simple geometrically shaped plain ones, Schmandt-Besserat suggests that their shapes were not as easily identifiable when impressed on a clay surface as the shapes of the plain ones, so they had to be "drawn" with a stylus, reproducing both the outward shape and the surface designs of the token in question. This introduced, then, basically two different types of semasiographs, one originating from the impressions of simple shapes pressed into the clay, another drawn stroke by stroke, line by line, into the clay with a tool. In both cases we can presume that the clay renderings of the tokens were at first a kind of *aide mémoire*, and became written signs for words only when each one was conventionally recognized as standing for the name, or the quantity, of the item that was originally associated with the physical token itself.

In addition to introducing the distinction between plain and complex tokens, and differentiating the means for their representations on clay, Schmandt-Besserat expands her original thesis, now proposing that the need to write numbers for tally-keeping and accounting at a level of sophistication beyond the mere enumeration of small quantities led the ancient Sumerians to think conceptually in a way that they had theretofore not done and to recognize numbers in the abstract, rather than as adjunct quantifiers always inseparably associated with particular concrete things. That is, they were forced to recognize "fiveness," for example, as an abstraction of the "five" that modified such tangible nouns as "sheep" or "cows" in expressions like "five sheep" and "five cows." This recognition was forced on them, Schmandt-Besserat suggests, through the use of tokens that originally stood for varying quantities of grain, but that were later divorced from any association with grain specifically, to stand in general for numbers of anything that was to be counted.

At the risk of over-simplifying her argument, it seems to be that 'five sheep' might easily be written by reproducing the sign for 'sheep' (UDU) five times, ⊕⊕⊕⊕⊕, corresponding to the five actual tokens for sheep that were supposed to have been encased in the *bulla*, but that for, say, '500 sheep', where sequential repetition of the individual token was not feasible, a more efficient means had to be devised, and the means used was to employ as numerical quantifiers signs derived from tokens that had originally stood for various quantities of grains. These tokens became, then, quantifiers for *any* commodity, and this led, she seems to suggest, to the recognition of a quantity, "five" or "five hundred" in the abstract, and to the concomitant abstraction "fiveness" or even "five-hundredness" independent of any tangible thing. This recognition was reinforced by the fact that the signs used for the numbers, since they were derived from plain tokens of simple configuration, were *impressed* on the clay tablet, whereas the signs for the items being quantified tended to be those that were *incised*, and the two were then physically and visually distinct from each other not just in shape,

but also in method of production, and, given the different appearance of an impressed sign from an incised one, in what for want of a better word we might call "texture."

> . . . with the invention of numerals, [the Sumerians] developed a discrete category of signs, used exclusively to indicate quantity and capable of combination with any member of a second set of symbols representing tangible items. The Sumerians had invented abstract numbers—the concept of oneness, twoness, threeness. (Schmandt-Besserat 1987: 48)

The weak point in the argument, it seems to me, is the implication that the invention of a way to write an abstract numeral, i.e., the numbers themselves, is tantamount to the invention of the concept of abstract numerals itself. It seems unlikely that the invention of a way to write anything, numbers or other, could precede the "invention" of that thing itself, and it seems nearly as unlikely that it would have been simultaneous with it. In other words, the fact that we can see the point at which the Sumerians devised a way to write "five sheep" that allows for the orthographic representation of "five" as an abstraction does not seem to me necessarily to entail the claim that this is also the point at which the concept of "fiveness" arose. The language must have had a *word* for "five" before the *sign* for "five" came into existence, and that word could easily have included in its semantic scope the abstraction "fiveness" as well as the meaning "five" as an adjunct to a particular item.

These proposals about the role of tokens and their impressions on clay *bullae* or tablets in the development of Sumerian writing, especially as they have been elaborated by Schmandt-Besserat, have generated considerable discussion and controversy among Mesopotamianists.[7] If this set of hypotheses about the relation between the tokens and writing is right, we would be able to point to these tokens, and their impressed shapes, as a specific kind of precursor to writing that we can actually witness evolving into writing proper. This is important for two reasons: (i) the particular precursor in question is not a direct pictographic representation of a thing or event, as conventional explanations of precursors often assume, but an abstract geometric design with an altogether arbitrary relation to the thing it represents;

[7] See, for example, Lieberman 1980 and Michalowski 1990. Lieberman points out that the explanation of the function of the tokens as "counters," and their relation to later written forms of the same kind of calculations, may not be as simple and direct as Schmandt-Besserat would have it. Still, the case cited here of the graph ⊕ for 'sheep', and its matching token, seems to be a valid example of a precursor to writing, in Gelb's sense, irrespective of any doubts one may have about the hypothesis as a whole. Lieberman's objections to Schmandt-Besserat's proposals are answered briefly but forcefully by Marvin A. Powell (1981: 423–24). For a recent re-statement of her thesis, see Schmandt-Besserat 1989.

Michalowski 1990 shows that at Susa, at least, the developmental sequence required by Schmandt-Besserat's hypothesis of "tokens > *bullae* > numerical tablets > full writing" cannot

and (ii) cases where we can actually observe the direct development from precursor or forerunner to actual writing are rare. This does not mean, of course, that the earliest stage of writing was not largely pictographic in origin; to be sure, all of the evidence suggests that it was. But for the most part we have no actual, tangible examples of pictographic precursors to writing that we can confidently say *are*, rather than "might be," the prototypes of specific graphs in early script.

Using the distinctive feature designations we set out above, a pictographic precursor is [−P, +S], that is, it has a meaning (depicted directly by the graph), but no conventionally associated pronunciation. When it acquires such a pronunciation, becoming [+P, +S], it is then by definition an example of writing. It is precisely the transition from [−P] to [+P] that marks the shift from non-writing precursor to writing, and that we would like to be able to document with specific examples. But pictographic examples of this shift are elusive. Schmandt-Besserat's evidence seems to provide such examples, but only for non-pictographic graphs. What this means is that the pictographic forerunners we normally associate with the origin of writing are not the only source, or the sole mechanism, for its emergence, and in fact are not the source with the most clearly identifiable link to the advent of writing overall.

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be observed, and probably does not obtain. He concludes that as attractive as this sequence might appear, "it remains, at present, unsubstantiated" (1990: 56). He then goes on to raise other equally serious objections to the proposal, pointing out, for example, that *bullae* are known that contain tokens not consistent with the impressions on the outside surface.

For our purposes here we have accepted the possibility that Schmandt-Bessarat is correct to some degree, because that allows us to discuss a possible concrete case in which the transition from a [−P, +S] graph to a [+P, +S] one in connection with the origin of writing might have taken place. It may turn out that this phenomenon was much less monolithic and much more haphazard than its proponents would have us believe, but it still may have been one of several (many?) contexts in which a transition from non-writing semasiographs to written logographs, i.e., a "phonetic breakthrough," occurred.

PART ONE
THE SHANG FORMATION

2. WRITING IN CHINESE

Pictographic Origins

The earliest forms of recognizable writing in China are the oracle-bone inscriptions (often abbreviated OBI) of the late Shang period, ca. 1200–1045 B.C., so-called because they are principally oracular or divinatory in content.[1] These inscriptions are found incised on the scapulae of oxen or sheep and on turtle shells, typically the ventral shell, called a plastron, but occasionally also on the carapace. Inscriptions on ox scapulae are common, those on sheep scapulae are not.

The script that these inscriptions reveal, although a fully developed writing system already, still preserves unmistakable traces of its pictographic origins. To illustrate this we must begin by asking what we mean by "pictographic." Figures 1 and 2 show a typical incised plastron and scapula respectively. Figure 3 gives examples of Shang oracle-bone inscription characters that are generally considered to have identifiable pictographic origins. What will be immediately apparent from these inscriptions and from this list is that hardly a single character can actually be regarded as pictographic, if by "pictographic" we mean a graph that depicts a thing realistically enough for us to identify it without knowing what word the graph stands for. In the simplest terms we might say that a true pictograph ought to identify a *thing* to the viewer, and that in turn calls to the viewer's mind the *word* for that thing. Schematically this suggests that the "reading" of a pictograph proceeds by the mental sequence: PICTOGRAPH > THING > WORD, a kind of two-step process in which the linguistic entity, the word, is introduced only at the second step and is associated with the pictograph only through the intermediary of the actual thing.

This two-step process from THING to WORD is exactly the reverse of the process we customarily call *reading*. Reading, as it is commonly understood, is the process of assigning sounds to graphs, and of comprehending meaning

[1] The century and a half between 1200 and 1045 B.C. is the period to which Keightley assigns the Shang oracle-bone inscriptions, representing the time of the reigns of the last eight (or nine) Shang kings, from Wu Ting 武丁 to Ti Hsin 帝辛. See Keightley 1978: xiii. For 1045 as the year of the Chou conquest of the Shang, see Nivison 1983. Nivison has in subsequent publications, and in various privately circulated working papers, as well as in *viva voce* discussions, acknowledged that there is some question about the certainty of the 1045 date. It may have been 1040 instead. See Nivison 1990: 156–57, and footnote 4. Shaughnessy (1991: 217–36) accepts 1045 as correct and gives an excellent summary of the kinds of data pertinent to the question, and the kinds of arguments that have been offered.

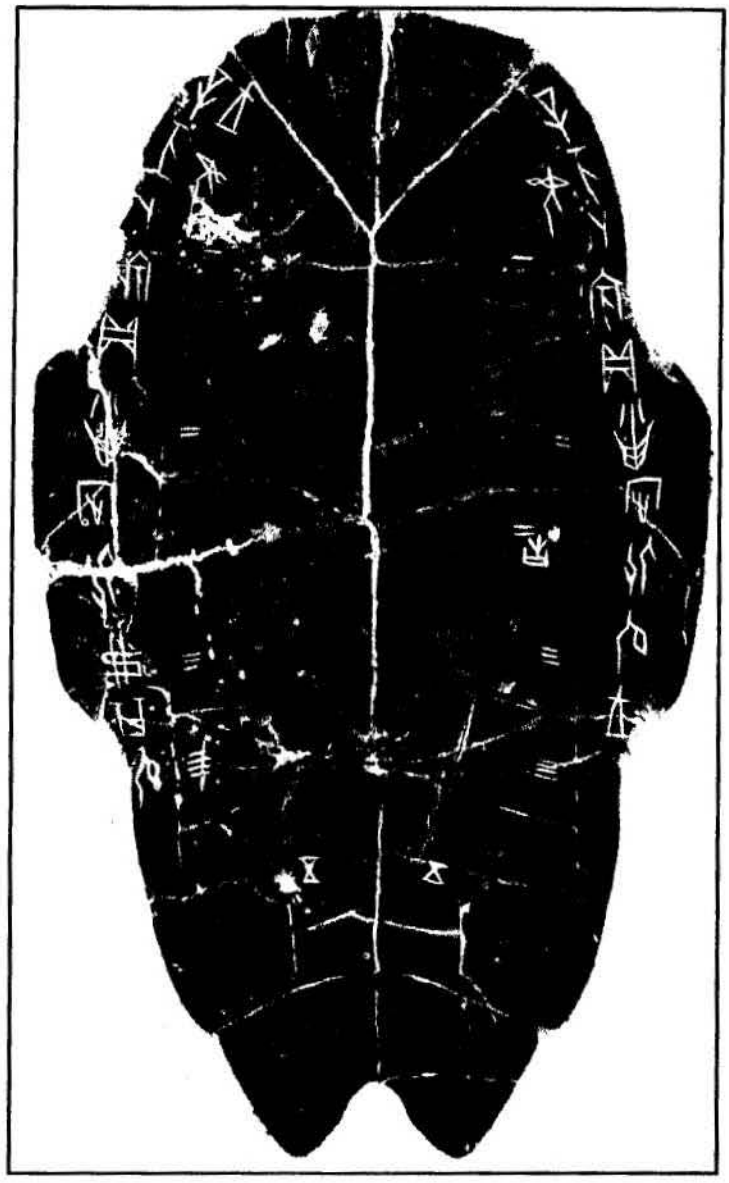

FIG. 1. Inscribed turtle plastron. (From Chang 1965)

from the sounds, i.e., from the words that the graphs represent. The scheme for this would be GRAPH > SOUND > MEANING, which is tantamount to GRAPH > WORD > THING where "thing" is the meaning of the word. This is precisely opposite to the reading, or rather interpreting, of a pictograph. A pictograph stands for a thing in the real or imagined world, and only secondarily and indirectly for a word. It sets off an associative process of THING > WORD. In this literal sense a pictograph is not a kind of writing. Only when the associative process is from WORD to THING, i.e., SOUND > MEANING, can a graph be said to constitute writing, because its direct association is with a word, not with a

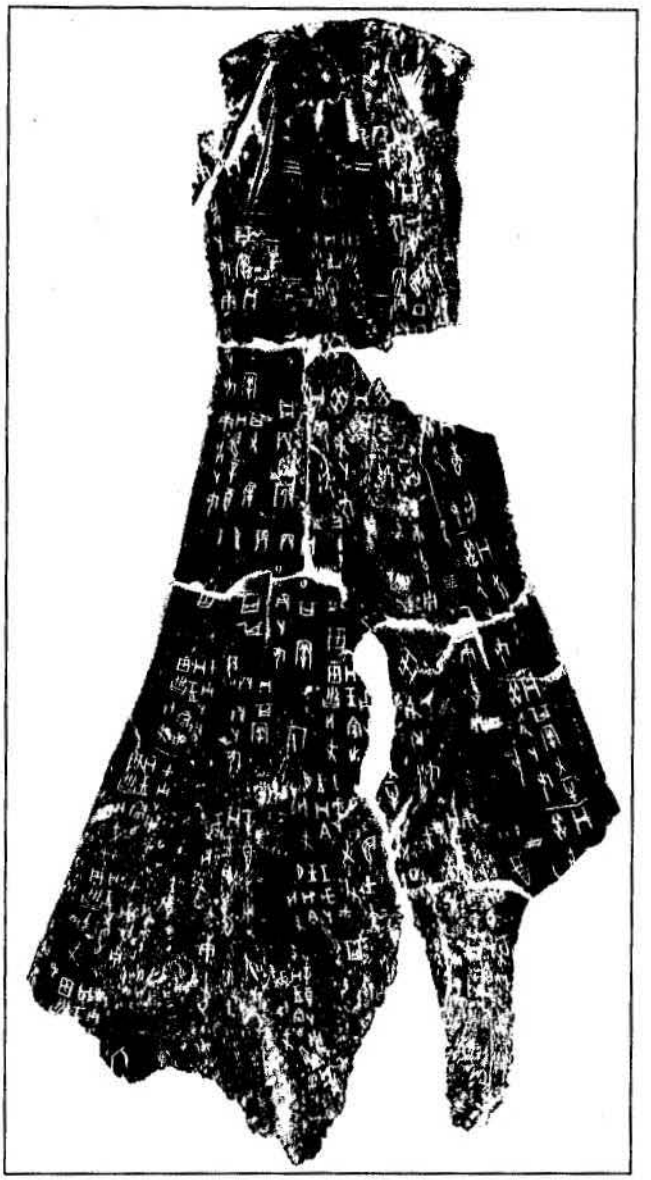

FIG. 2. Inscribed ox scapula. (From Ch'ü 1961)

thing. And if its association is with a word, its pictorial aspect is no longer essential, though it may still be vestigially present. What are often said to be "pictographs" in the Shang script are actually graphs of this latter type, associated with words first, and with meanings only through words. Even though in some instances the character may be pictographically identifiable as a thing, e.g., the Shang graph for *mu* 'eye' (no. 4 of figure 3) or for *kuei* 'turtle' (no. 12 of figure 3), functionally it stands for a word first, and a thing only by virtue of the fact that that word means that thing. We shall call these graphs *zodiographs* to distinguish them from pictographs. (See below, p. 54)

	OBI graph	modern character	modern reading	meaning
1.		象	*hsiang*	'elephant'
2.		鳥	*niao*	'bird'
3.		口	*k'ou*	'opening, orifice, mouth'
4.		目	*mu*	'eye'
5.		月	*yüeh*	'moon'
6.		田	*t'ien*	'cultivated field'
7.		女	*nü*	'(kneeling) woman'
8.		其	*chi*	'(osier) basket' (mod. 箕)
9.		天	*t'ien*	'overhead' > 'sky, heaven'
10.		羊	*yang*	'sheep, ram'
11.		馬	*ma*	'horse'
12.		龜	*kuei*	'turtle'
13.		魚	*yü*	'fish'
14.		鼎	*ting*	'tripod, cauldron'
15.		丮	*chi*	'grasp, hold in the hands'

FIG. 3. Examples of Shang oracle-bone inscription characters with ostensibly recognizable pictographic origins.

The appearance of writing in China around 1200 B.C. is considerably later than its appearance in Mesopotamia or Egypt in the second half of the fourth millennium B.C. This occasionally gives rise to the suspicion that perhaps writing in China owes its origin to some remote and indiscernible influence from the Near East. There is no tangible evidence known at present to suggest that this was the case, or that Chinese writing is the result of any kind of stimulus-diffusion, however indirect, from points outside of China.

The apparent lateness of the invention of writing in China in comparison with its appearance elsewhere has prompted some archaeologists and historians to seek evidence that would show that writing in China was actually invented much earlier than the oracle-bone inscription evidence would suggest. To this end some Chinese archaeologists and historians have claimed that the marks and signs found in large number on pottery fragments and similar artifacts from widely scattered neolithic sites across north and west China constitute the real origin of Chinese writing, which then would be in evidence as early as the fifth millennium B.C., significantly predating anything known from Egypt or Mesopotamia.

The neolithic marks for which these claims are made fall into two clearly distinct groups. The first consists of primitive marks that resemble little more than scratches, each consisting of anywhere from one to five or six strokes, arranged in various simple angular configurations, painted or incised on the surface of ceramic potsherds. The marks of the second group, by contrast, are carefully executed depictive designs.

The marks of the first group sometimes seem to suggest a rudimentary kind of tally-keeping; at other times they appear to be no more than decorative designs, or perhaps identifying emblems or insignia of some kind. There does not seem to be any meaningful order of repetition or concatenation that would lead us to suspect anything more than that these are random and largely unorganized, unsystematic markings. In most cases a single potsherd has only one or two marks on it; pieces with more are in the minority. Moreover, while the archaeological record of pre-Shang China shows a wide scattering of such finds from about 5000 B.C. down to the Shang continuously, most of these consist of a very few marks per site, sometimes only one or two individual scratches at a given location.[2] This suggests that there is no underlying system to the marks, and that there was no pattern of usage of the marks by any significant number of people even in one site, much less over an area extending beyond a single locale. Those few marks that are found in more than one site are so simple and general, e.g., single strokes like |, —, ||, or crosses and angles like X, +, ∧, that in all likelihood they arose independently in each different locale, and are only fortuitously similar or identical to signs used elsewhere. In a few places more than just a scattering of potsherds have been found with marks on them, and these are illustrated in figures 4 through 7. Even in these cases there is no evidence that the marks constituted a systematic device for tally-keeping or writing of any kind.[3]

Some archaeologists, palaeographers, and historians would like to see in this group of neolithic marks, illustrated in figures 4 through 7 and dating

[2] For a concise summary, with a cumulative chart, of these neolithic marks, see Ch'en 1985.

[3] For detailed summaries of these finds and background information, see Cheung 1983. Cheung gives a full bibliography of the Chinese and Western studies of these neolithic markings up to 1979. Figures 4 through 7 are from Qiu 1978.

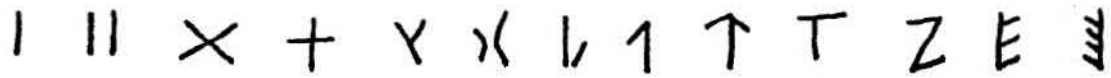

FIG. 4. Neolithic pottery marks found on fragments from Pan p'o ts'un 半坡村; near modern Hsi-an, Shensi province. Yang shao 仰韶 culture, site dated by C-14 techniques to 4800–4200 B.C. (From Qiu 1978)

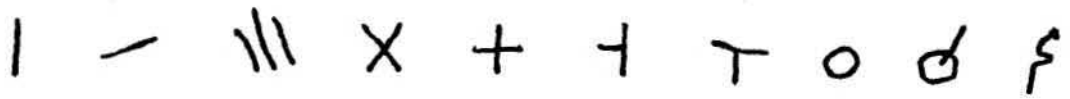

FIG. 5. Neolithic pottery marks found on fragments from Pan shan 半山 and Ma ch'ang 馬廠 in Kansu province. Ma chia yao 馬家窑 culture, sites dated to 2700–2000 B.C. (From Qiu 1978)

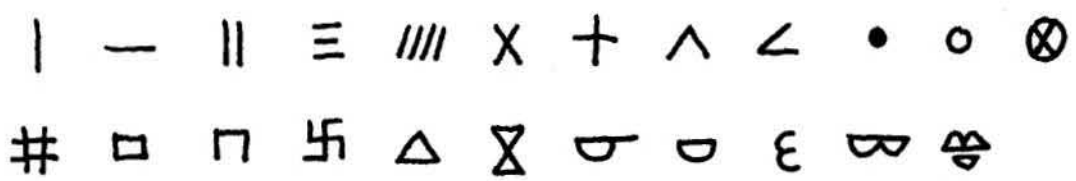

FIG. 6. Neolithic pottery marks found on fragments from Liu wan 柳灣, Le tu hsien 樂都縣, Chinghai province. Ma chia yao 馬家窑 culture, site dated to 2400–2000 B.C. (From Qiu 1978)

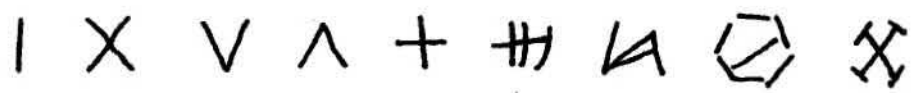

FIG. 7 Neolithic pottery marks found on fragments from Liang chu 良渚, near modern Hang-chou, Chekiang province. Liang chu culture; C-14 dating of site not available, but said by Qiu Xigui to be contemporary with Lung shan 龍山 culture, ca. 3000–2000 B.C. (From Qiu 1978)

to as early as 4800 B.C., the origin of Chinese characters, thus making the advent of writing in China as much as a millennium earlier than in either the Near East or Egypt (Ch'en 1978, Ho 1975, Yü 1973). In their enthusiasm for this hypothesis they point to the similarities in graphic shape between various Shang oracle bone inscription characters of ca. 1200–1050 B.C. and these marks from the fifth millennium B.C. as evidence that the latter are the prototype, or source, of the former. The most frequently cited examples are shown in figure 8.

	OBI graph	modern character	meaning
1.		一	'one'
2.		二	'two'
3.		三	'three'
4.		四	'four'
5.		五	'five'
6.		七	'seven'
7.		八	'eight'
8.		十	'ten'
9.		廿	'twenty'
10.		示	'reveal'
11.		玉	'jade'
12.		阜	'tumulus'
13.		井	'water-well'
14.		入	'enter'
15.		口	'mouth'
16.		屮	'grass'

FIG. 8. Examples of Shang oracle-bone inscription characters with which neolithic pottery marks are sometimes compared.

K. C. Chang has said about these marks that, in his opinion,

> . . . the overwhelming majority of the ceramic marks, both Shang and prehistoric, were markers and emblems of families, lineages, clans or some divisions of these, and as such, attempts to match them with known characters and to translate them into meaningful sentences are unlikely to be productive in most cases. (Chang 1980: 245)

There are two *prima facie* reasons to agree with Chang and to doubt that the neolithic marks have any direct relation to Shang characters. First, identification based solely on graphic similarity is notoriously risky and inconclusive, all the more so when the graphs are very simple angular configurations of strokes. If the archaeologists or palaeographers were able to show any indication that there was a similarity in *function* or *meaning* between the neolithic marks and the Shang graphs, they would have a far more convincing case than they do at present. But there is no such evidence, because there is so far no way to know what either the function or meaning of the marks on these early artifacts was. Second, the sheer extent of time involved, from 4800 B.C. to 1200 B.C., a period of over three and a half thousand years, weighs heavily against any connection at all. On the face of it, it would appear virtually impossible that the nascent seeds of writing could have germinated in the mid-fifth millennium B.C. but not grown into anything approaching a real writing system until more than three thousand years later. Such a development would be incomprehensible; writing systems simply do not evolve that way. If a potential for writing arises in the form of graphs or marks standing for names or words, no matter what kind or how limited, that potential must either fulfill itself apace, culminating in a viable, full-fledged system, or wither and die. A half-way writing system is no system at all, and there is little likelihood that an inchoate attempt at writing would or could remain in a kind of limbo or suspended animation for several millennia before achieving the form of a true writing system. If that potential system did not develop into real writing reasonably expeditiously, there would be no reason for a people to preserve its embryonic bits and pieces. As a practical matter a writing system is something that is either achieved quickly, or not at all.

Cheng Te-k'un has claimed that "the invention and development of writing in China was a continuous process covering a period of no less than 6000 years" (Cheng 1982: 22). But writing is an invention, not the end product of an evolutionary development, and like all inventions it must have been the result of a momentary occurrence. In this case, the moment was when someone realized that a graph or sign could stand for a word or name, or some other meaningful unit of language. Prior to writing there may have been, as we have discussed above, any number of marks, drawings, and pictographs of various kinds that prefigured in a physical sense the advent of writing. And subsequent to its invention there certainly have been continual changes, refinements, simplifications, extensions, and modifications, of all sorts, that affect the writing system. All of these features, both before and after the invention of writing, may be loosely considered evolutionary aspects. But the invention itself was not an evolution but a kind of realization, and it must have been a punctual event. If that realization came as early as 4800 B.C. in China, then what, we must ask, happened to it for the next three thousand years before it is seen again in the Shang? The fact that

there is no sign of a true writing system during this entire period indicates rather compellingly that the antecedents of the Shang script, and therefore of what we know as Chinese writing in general, cannot be found in these simple neolithic marks from the third, fourth, or fifth millennia B.C.

A number of scholars have recently looked upon the appearance of Egyptian hieroglyphic and Sumerian cuneiform writing similarly as momentary inventions rather than as the products of a prolonged evolution. Apropos of Egyptian, John D. Ray has allowed for the possibility that "one mind may have formulated the basic principles" (Ray 1986: 311). And H. G. Fischer has suggested the same thing with his comment that "since the hieroglyphic system does not seem to have undergone a long period of incubation, it may well have been conceived by a single individual" (Fischer 1989: 66). In discussing the "when and where" of the origin of the Sumerian cuneiform script, Marvin A. Powell has said that it cannot be thought of as having arisen through a "slow accretion of sign after sign from generation to generation: there is not a single instance in the history of writing for a communal-evolutionary invention of a script. Individuals invent. The community of users modify, adapt, elaborate, refine, add to, and take away, but they do not invent" (Powell 1981: 422). The same thing can be said of the invention of the Chinese script. The only surmise that has any substantive foundation at all is that the Chinese script was invented somewhere in the region of the early Shang state, in about the middle of the second millennium B.C. Given our current knowledge, all efforts to push its origin earlier by centuries, or in the most enthusiastic cases, by millennia, are unsubstantiated speculation and wishful thinking. The possibility that a significantly earlier date for the invention of the Chinese script may someday be established on the basis of convincing palaeographic and archaeological evidence cannot, of course, be peremptorily ruled out. But when such evidence comes to hand it will have to consist of more than impressionistic and sporadic matchings between simple marks of undetermined sound or sense and later, known graphs. It will have to come forth in a form unambiguously relatable to the Shang script and demonstrably representative of the Chinese language.

It is often observed that writing in Mesopotamia arose in an economic context of accounting practices: reckoning, tallying, auditing, and other general procedures of record-keeping. Pierre Amiet, Conservateur en chef of the Département des Antiquités orientales at the Louvre remarks that:

> . . . les métropoles des deux régions adjacentes jouèrent un rôle décisif: Uruk en Sumer et Suse au pied des monts Zagros, où furent organisés les premiers États dignes de ce nom, d'abord par une rupture avec la tradition préhistorique que symbolisait la poterie peinte, puis par l'élaboration d'une comptabilité devenue indispensable à la gestion d'une richesse énorme. Cette comptabilité amena comme naturellement la création du système d'écriture

> encore élémentaire, très partiellement pictographique, largement abstrait, qui était appelé à devenir cunéiforme et allait être adopté et adapté par la plupart des peuples de l'ancien Orient. Cette écriture est attestée à Uruk à la fin de l'époque de même nom, vers 3300 av. J.-C., alors que les voisins de même culture ne pratiquaient que la comptabilité numerale. Écriture et comptabilité furent mises en oeuvre par une administration sacerdotale qui patronna un art résolument réaliste par opposition à la stylisation propre aux préhistoriques. (Amiet 1982: 19)

Writing in the same exhibition catalogue from which Amiet's comments above are cited, Jean Bottéro, Directeur d'Études at the École Pratique des Hautes Études, IV^{e} sec., observes:

> Fondée sur l'agriculture céréalière intensive et l'élevage en grand du menu bétail, le tout entre les mains d'un pouvoir centralisé, elle s'est rapidement empêtrée dans une économie tentaculaire, qui rendait inévitable le contrôle meticuleux des mouvements infinis, et infiniment compliqués, des biens produits et mis en circulation. C'est pour subvenir à cette tâche, en la facililtant et la garantissant par la mémorisation, que l'on a mis au point l'écriture: de fait, pendant plusieurs siècles après son «invention», elle n'a servi à presque rien d'autre. (Bottéro 1982: 28)

Jack Goody has devoted an entire chapter of one of his recent books on writing and society to examining the implications of this apparent cause-and-effect relation in the ancient Near East between economic and commercial activity on the one hand and the advent of writing on the other (Goody 1986: 45–86).[4]

The argument for a cause-and-effect relation in Mesopotamia, between society's need to keep accurate and complex commercial accounts and the invention of writing to accommodate that need, seems generally defensible. Because of this there might be a tendency to regard the identification of any societal need that may be supposed to have stimulated the invention of writing as constituting indirect evidence for that invention, even in the absence of direct independent primary evidence for the existence of writing itself. In other words, we might want to say that, if we could first determine that writing could arise in response to certain precisely specified social conditions or needs, and then show that those conditions or needs existed at a certain time, we would be in a position to argue for the invention of writing at the time in question even when there is no known direct tangible testimony to the actual existence of writing until later. I do not think such an argument would be tenable. If the direct evidence for writing in the ancient Near East in the mid-fourth millennium B.C. were not as abundant as it actually is, I doubt that the cause-and-effect relation between accountancy needs and the

[4] The two passages quoted above, from Amiet and Bottéro, are both cited by Goody 1986: 48–49, in English.

invention of writing would appear as compelling as it does. There is no good reason, after all, to think that commerce in the mid-Shang was any less complex than it was in Mesopotamia, and yet writing did not arise to accommodate accountancy requirements in China as it did in the ancient Near East.

It would be nice if we could identify some social conditions or needs in China that might have stimulated the invention of writing there, comparable to the way it is thought that the accountancy requirements of increasingly complex commercial activity did in Mesopotamia. Because the extant Shang texts are virtually all divinatory inscriptions, it is sometimes claimed that writing in China arose in a religious and sacrificial context.[5] This surmise leaves unanswered one of the major questions in connection with the invention of writing in China, viz., why it arose just when it did, apparently in the middle or late second millennium B.C.

David N. Keightley (1987, 1989) has given serious attention to this problem in connection with his studies of mensuration and calculation in late neolithic craftsmanship and technology. He invokes Colin Renfrew's suggestion that writing may have developed in the Aegean as a means to deal with technological problems of mensuration and reckoning in bronze casting, and he then allows for the possibility of such a connection in China, especially in the east-coast cultures, where he recognizes a propensity for what he calls a "componential cast of mind" (Keightley 1987: 112).

It was in the east, as opposed to the northwest, where ceramic and bronze artifacts are seen to have been componentially constructed—a feature of their manufacture that demanded precise measurement and fit. The skill with which ritual jade objects were carved, or more correctly, abraded, to exact dimensional specifications also called, Keightley suggests, for an extraordinary degree of precision in measuring. Keightley would like to see the invention of the Chinese script, componential as it unarguably is already in 1200 B.C., as a further manifestation of this same "componential" mentality that he has associated with the neolithic culture of the east coast of China, and at the same time as a response to the need for precision in technological mensuration, as Renfrew suggests it to have been in the Aegean (see Keightley 1987: 110, 112, 116).

In his later and fuller statement of this hypothesis (Keightley 1989: 192–98) Keightley links the need for recording measurements with the religious and lineage concerns for venerating the dead and validating the status of the living descendants. This he does by recognizing the importance of ceramics and jades, especially the precisely crafted jade *pi* 璧 'discs' and *ts'ung* 琮 'tubes', just the kinds of items that would require precise measuring in

[5] We should also allow for the possibility that writing was used in the Shang period in mundane as well as religious contexts, but that we have no archaeological vestiges, and hence no direct or specific knowledge, of those everyday contexts, because the materials that were used were perishable, unlike the bones and shells of the divinatory inscriptions.

their production, as grave goods. Given this link, Keightley says "we can see that religious and lineage concerns *might* have provided important encouragement for the invention of a written script" (Keightley 1989: 197), and again " . . . lineage-related activities—such as the manufacture of mortuary jades in the Neolithic, and of ritual bronzes in the Shang, as well as the creation of some system of lineage identification—*might* have stimulated the development of writing" (ibid., emphasis added in both instances).

If I understand the argument, three points having to do with the invention of writing are being proposed here: (i) that because jade, ceramic, and bronze items were manufactured in east-coast neolithic cultures by a highly developed technology that involved a capacity for precise measuring, and in the cases of ceramics and bronzes, concomitantly involved the careful fitting together of pieces (i.e., components), writing may have arisen in response to the need for a means to register and manipulate these measurements; (ii) that the religious and mortuary import of many of these items as they were associated with lineage concerns gave a further urgency to their proper manufacture, and thus a further encouragement to the invention of writing; and (iii) that the componential mentality that was responsible for this kind of ceramic and bronze production (as well as for a number of other features that Keightley identifies as in some sense componential in nature and requiring exact methods in mensuration; see Keightley 1989: 195) was also responsible for the componential structure of the Chinese writing system, that is, for the fact that the script even in its earliest attested form consists of characters that are often constituted of two or more elements, typically a "phonetic" and a "semantic" element.[6]

Beyond this, it is crucial to Keightley's proposal that we recognize the clear difference between the "holistic" (Keightley's word, 1989: 193) and "non-componentially inclined" cultures of the neolithic northwest, on the one hand, and the "componential predisposition" of the neolithic east-coast cultures, on the other. Note in this connection that the kind of simple strokes and angular markings that we described above as sometimes identified as precursors of Chinese writing (figures 4 through 7) are typical of northwest neolithic culture sites. Of the examples given, only those of the Liang chu site (figure 7) are from an east-coast culture. The second group of neolithic marks, discussed below, are by contrast uniformly from sites of the east-coast region, and are characteristically componential figures, either complex geometric designs or realistic representations of identifiable things. The distinction, in other words, between the two groups of neolithic

[6] The terms "phonetic" and "semantic" are not precise or well-defined, but are often invoked in connection with the structure of Chinese characters. In his 1989 article Keightley does not use these terms, but in the 1987 article he refers to "phonetic and semantic symbols" (p. 112). The precise technical terms are *phonophoric* and *semantic determinative* respectively; definitions are given in the Glossary, and a full discussion of this aspect of the Chinese script will be found later in the present chapter.

marks corresponds typologically to Keightley's distinction between the northwest and the east-coast neolithic cultures.

The key word in Keightley's statement of his hypothesis about mensuration and the invention of writing is *might*. Needs associated with the demands of precision in the measuring and manufacturing of secular or religious objects *might* have had something to do with the invention of writing in China, but there is as far as I know no tangible or direct evidence that they did. As I have already claimed, and as I hope to illustrate concretely, the invention of writing followed *pari passu* the same pattern of development everywhere it arose throughout the ancient world, including Mayan writing in the New World. The componential structure of graphs at a certain point in its early development is a part of this universal pattern. If the componential structure of Chinese characters is a significant, and not merely fortuitous, reflection of the "componential cast of mind" that Keightley has identified as characteristic of the east-coast neolithic cultures, then those other cultures and societies in the ancient world where writing appeared *de novo*, viz., Egyptian, Mesopotamian, and Mayan, must also have been of the same "componential mentality." Keightley seems to allow for this proposition implicitly in his concluding remarks to this section of the 1989 article:

> The argument is not that only those who made componential pots were likely to invent a componential writing system. The argument is rather that, given the increasing social and craft complexity evident in the Late Neolithic, writing was more likely to develop first in the region where such habits of organization, in various aspects of life, were more pronounced and valued. (Keightley 1989: 198)

The implication, if one were to extrapolate this point to cultures beyond the Chinese domain, seems to be that in the ancient Near East, in Egypt, and in the Mayan civilization of Central America the level of "social and craft complexity" must have been such that writing was prone to arise in a way that it was not elsewhere. This is, on the face of it, not an implausible proposition, but neither is it testable or demonstrable in any way that I can see, and therefore it is of somewhat limited moment.

As we have said, writing is known from independent evidence to exist no earlier than the late Shang, that is, from about 1200 B.C. We might look with increased concentration for independent evidence that writing actually existed in the late third millennium B.C.—the time when these mensuration requirements might have, by Keightley's conjecture, stimulated its invention (Keightley 1989: 198). To my knowledge no such evidence yet has been uncovered, but that certainly does not mean that it will not someday be found. At the same time, rather than try to push the advent of writing in China back to a date significantly earlier than that to which direct archaeological evidence attests, we might also look for changes in those mensuration and manufacturing aspects of the technological world of the second half of the second millennium B.C. in the east-coast cultures that might be associated with the appearance of writing just at the time when we know it to be first in existence.

Quite apart from these reasons to be skeptical of claims for a fifth, fourth, or third-millennium origin for the Chinese script, there is a further consideration that has to do with how writing originates and evolves in practice. Notwithstanding the thesis of Denise Schmandt-Besserat discussed above, everything we know about the origin of writing in antiquity, whether in Egypt, Mesopotamia, or China, suggests that writing arose in the main via the invention of pictographs of concrete, depictable objects or acts, and evolved from that to a system of full graphic representation of speech. How this happened in China is discussed in considerable detail in the following chapters. Suffice it to say for now that in view of the central role that we recognize pictographs to have played in the formative stage of writing, to take the neolithic scratches, which are in no way pictographic, as the source of Chinese characters, many of which have clearly pictographic forms in the Shang period, is to violate the familiar pattern according to which writing seems to have arisen everywhere. There is, of course, no reason to deem a familiar pattern to be decisive in the face of evidence to the contrary. But in this case there is no real evidence to the contrary, and the recognized pattern, moreover, is, as we shall see, a part of an overall theory that has an explanatory as well as descriptive capacity to account for the early evolution of writing in general.

The second group of neolithic marks that we referred to above consists of quite different kinds of graphs, as shown in figures 9, 10, 11, and 12. These graphs are all associated with the Liang chu 良渚 and Ta wen k'ou 大汶口 cultures, considered by Chinese archaeologists to span the rather long period from as early as the middle of the fifth millennium B.C. down to about 2000 B.C. The graphs in figure 9 are found on pieces of pottery vessels from the Ta wen k'ou site at Ling yang ho 陵陽河 in Shantung province. Figure 10 shows a partial graph seen on a pottery fragment from Ch'ien chai 前寨 in the same region, which seems clearly to be a second occurrence of the fourth graph of figure 9.

The graph illustrated in figure 11 appears on what is described as "a flat-backed *hu* 壺 vase" found at a burial site at Pao t'ou ts'un 保頭村 in Shantung province, another Ta wen k'ou site (Cheung 1983: 328). The remarkable thing about this graph is that it appears on an almost completely intact vase, and we can therefore clearly see its relation to the object on which it occurs. It seems to be a kind of emblem or ensign; we might be tempted to say a "hallmark" of some kind, perhaps identified with the maker or the owner of the vessel. The graph appears in isolation, centered prominently on the outside surface of the upper portion of the vessel, and is not a part of a text of any sort. From the more fragmentary evidence of the other Ta wen k'ou graphs we suspect that they too probably appeared on vessels singly rather than in conjunction with any other marks forming a text. Indeed, there is no evidence of texts at all in the Ta wen k'ou finds, since writing as far as we know had yet to be invented. Figure 12 shows two

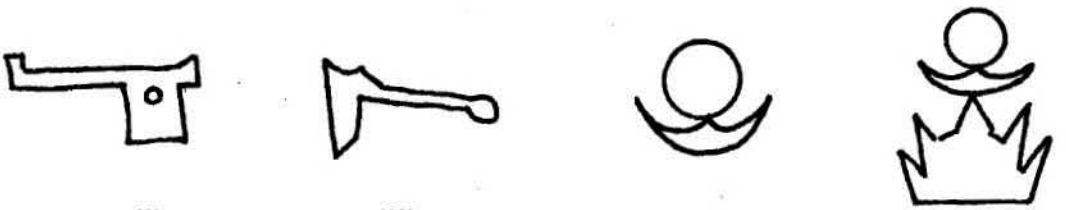

FIG. 9. Neolithic pottery insignia found on fragments from Ling yang ho 陵陽河, near Chü hsien 莒縣, southern part of Shantung province. Ta wen k'ou 大汶口 culture, dated from as early as 4300 B.C. to as late as 1900 B.C. (From Qiu 1978)

FIG. 10. Partial insigne found on a potsherd from Ch'ien chai 前寨, slightly north of the Ling yang ho 陵陽河 site (for which see figure 9), Shantung province. Late Ta wen k'ou 大汶口 period. (From Qiu 1978)

FIG. 11. Emblem painted on a "flat-backed" *hu* 壺 vase found at Pao t'ou ts'un 保頭村, Shantung province. Middle Ta wen k'ou 大汶口 period. (From Shantung-Chinan 1974)

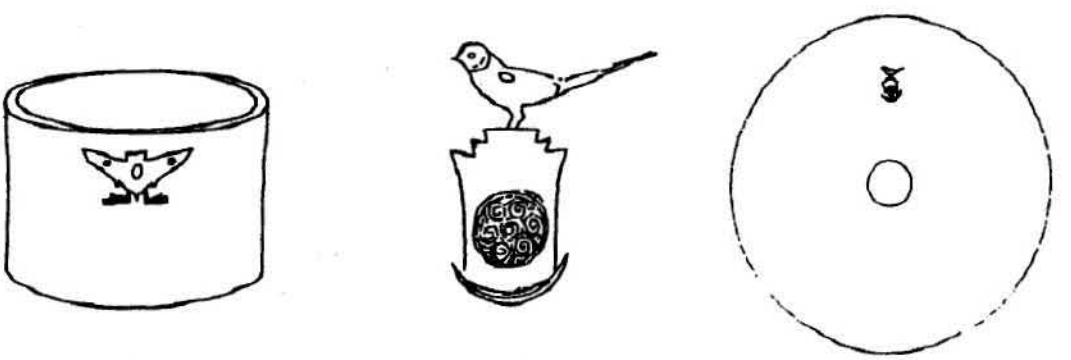

FIG. 12. (a) Neolithic jade ring from Liang chu 良渚, with "bird" emblem, (b) "sun-bird" emblem appearing on (c) neolithic jade disc from Liang chu. Reproduced with permission from Wu Hung 1985: 34, 35.

jade objects, one a ring (left) and one a *pi* 璧 disc (right), from Liang chu sites. Each object has a single emblem, suggestive especially on the *pi* (shown in detail in the center of figure 12), but also on the ring, of a bird. Both of these emblems appear in isolation, prominently centered on their respective objects, just as the emblem in figure 11.

The Liang chu and Ta wen k'ou cultures are both of the east-coast cultural complex, which Keightley has characterized as "componential." In his discussion of these graphs he says first that it has been "plausibly proposed" (Keightley 1989: 197, referring to Wu Hung 1985) that the Liang chu graphs "should be read as the words *yang niao*, 'sun birds'," and then a few lines further on he says in reference to the Liang chu and Ta wen k'ou graphs in general that "they probably served as emblems of ownership or identity on these pots and jades, rather than as words in a writing system which were recording true speech" (ibid.). I think there can be no question that the second option is the more plausible; Wu Hung's claim that the Liang chu graphs (figure 12) might stand for the words *yang niao* 陽鳥 is highly suspect for the simple reason that there is no evidence that these or any other graphs at this time stood for words of any kind, *yang niao* or other.

The Ta wen k'ou graphs, including the Liang chu "sun-bird" graphs, are significant, I think, for a different reason, touched on by Keightley's suggestion that they might have been "emblems of ownership or identity." The prominent central position of the pictographs as single insignia on pottery vessels or jade *pi* 璧 is curiously matched by the emblems on Shang bronzes of a few centuries later that are generally taken to be clan-name insignia (Chinese *tsu ming* 族名 or *tsu hui* 族徽, Japanese *zokuhyoshiki* 族標識). Figure 13 shows some representative examples of these emblems found on early bronzes. Although these graphs are sometimes casually treated as no more than fancy Chinese characters for clan names, they are clearly different from the quotidian characters one finds in other Shang inscriptions.[7]

[7] Two recent studies, for example, illustrate the ease with which scholars assume these insignia to be normal Chinese characters. Chang and Liu 1982 discuss these clan names from a historical perspective, assuming without comment that they are simply the normal way of writing the names. Kao 1980a claims that these are the clearest examples of pictographs known from the formative stage of the Chinese script.

Chang Kwang-chih refers to these clan-name graphs as "emblems," and points out that among them many must represent clan names based on occupation, e.g., T'ao 陶 'pottery' (cf. Eng. Potter), Ch'i 錡 'cooking vessel' (cf. Eng. Cook), So 索 'cordage' (cf. Eng. Roper, Corder), Fan 繁 'decorative plumage of a horse or carriage' (cf. Eng. Plumer, Plummer), etc. (Chang 1980: 230–33; for the English surnames, see Bardsley [1873] 1969: 393, 365, 399, and 336 respectively). If clan names arose in ancient China based in part on the occupation or craft of the clan, where it is reasonable to suppose a clan pursued and became expert in a given occupation, craft, or skill for an extended number of generations, then this would constitute a close parallel to the origin of many Western clan names. Some doubt arises, though, given the generally low prestige associated with craftsmen in ancient China, about whether clan names suggestive of craftsman skills are likely to be found on bronze vessels, which are normally associated with the ancestral sacrifices of aristocratic elites (Robert W. Bagley, private communication).

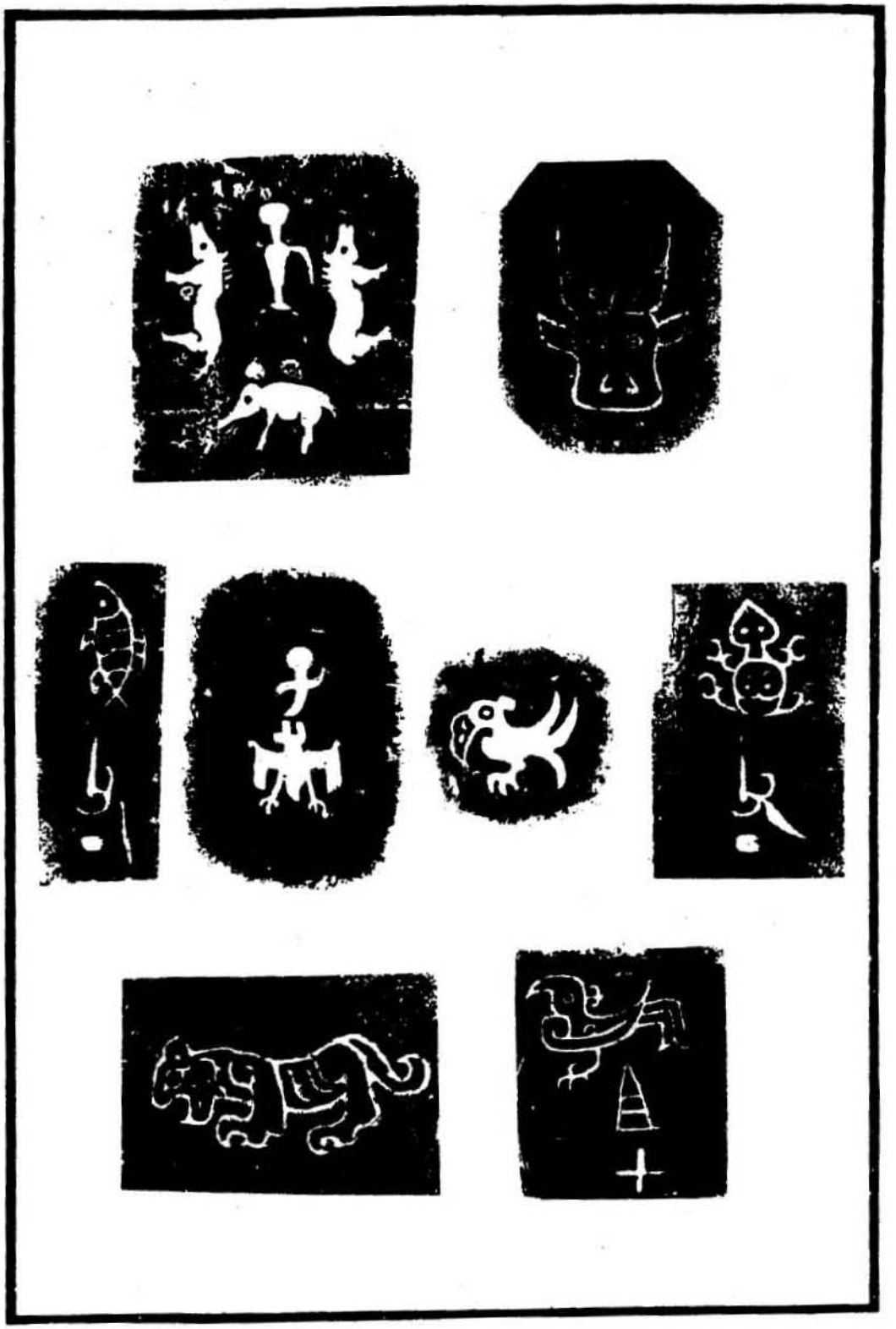

FIG. 13. Examples of clan-name emblematic inscriptions (*tsu ming* 族名) found on early bronzes. (From Lo 1917, Wang 1935)

They are clearly defined by a higher degree of pictographic realism, and are delineated in considerably more detail and with greater care, than the characters of normal inscription texts. They are also sometimes found encased in fancy rectangular cartouches, a device that recalls the cartouches surrounding the names of royalty and deities in Egyptian hieroglyphic writing. These are often called in Chinese "*ya* characters" 亞字 because the shape of the cartouche superficially resembles the character 亞 *ya*. Examples are given in figure 14. Furthermore these emblematic characters often occur singly on bronzes with no written context, and it is in that respect especially that they are reminiscent of the Ta wen k'ou pictographs. When they do occur within a text, the substance of the text is usually no more than the specification of a particular ancestor's name or a statement of the name of the maker of the vessel.

What seems clear is that the Shang clan-name insignia, even though they co-exist alongside a fully developed script, stand apart from that script, and are not a regular manifestation of the Shang writing system. In the terms we introduced above, these graphs are unquestionably [+S], that is, characterized by a conventionally associated pronunciation. In fact nearly all of the indications point in the other direction, that they are [−P], and do not represent words or names, but are decorative emblems.[8]

THEY HAVE MEANING, BUT WE CANNOT SAY WITH CERTAINTY THAT THEY ARE [+P], THAT IS,

they have meaning, but we cannot say with certainty that they are [+P], that is,

These clan-name insignia include a high proportion of very realistic animal and bird figures. It is far from clear what the significance of these animal and bird figures was; they are sometimes suspected of having had totemic associations, but this is speculative. If they did, that might explain their use as clan insignia. There were insignia other than animal and bird depictions as well; one of the commonest is the "dagger-axe," which appears in a variety of shapes, as shown in figure 15. This may be significant in view of the fact that two of the Ta wen k'ou pictographs have also been identified by the Chinese archaeologists as axes (nos. (i) and (ii) of figure 9).

I would like to suggest that the Ta wen k'ou pictographs may be the pre-Shang counterpart to the Shang clan-name insignia, and that there may be a continuous line of development from the one to the other. In the case of the clan-name insignia on Shang bronzes the intention was, it is generally

[8] See the discussion in Shirakawa 1971. Cheng Te-k'un suggests that "this similarity in the written character and the decorative design substantiates the fact that the art of writing and the art of drawing in China have served ever since the very beginning similar practical and intellectual ends. They could be used interchangeably" (Cheng 1963: 135). This is a somewhat impressionistic view that tends to blur the fundamental distinction between writing and design. The clan-name emblems are typically not writing proper, even though some graphs in the writing system show significant formal similarities to them.

There are a few instances of early inscriptions where a proper name (as opposed to a clan) seems to be written with a graph that has the same depictive realism that characterizes the clan name emblems. The graphs in such cases must be regarded as [+P] and as writing proper in spite of their similarity or identity to a clan-name emblem.

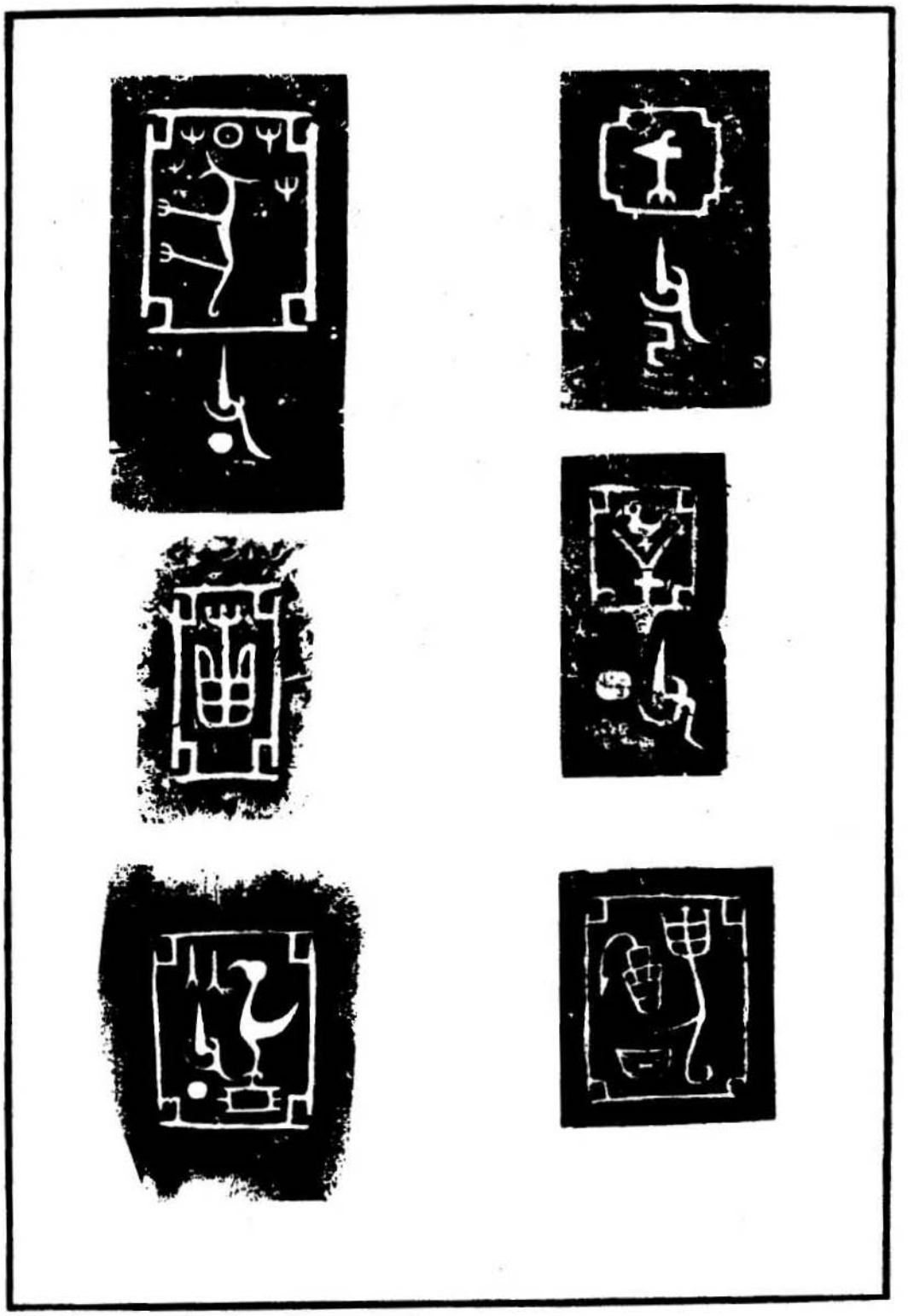

FIG. 14. Clan-name emblematic inscriptions from Shang bronzes characterized by the *ya*-style cartouche. (From Lo 1917, Wang 1935)

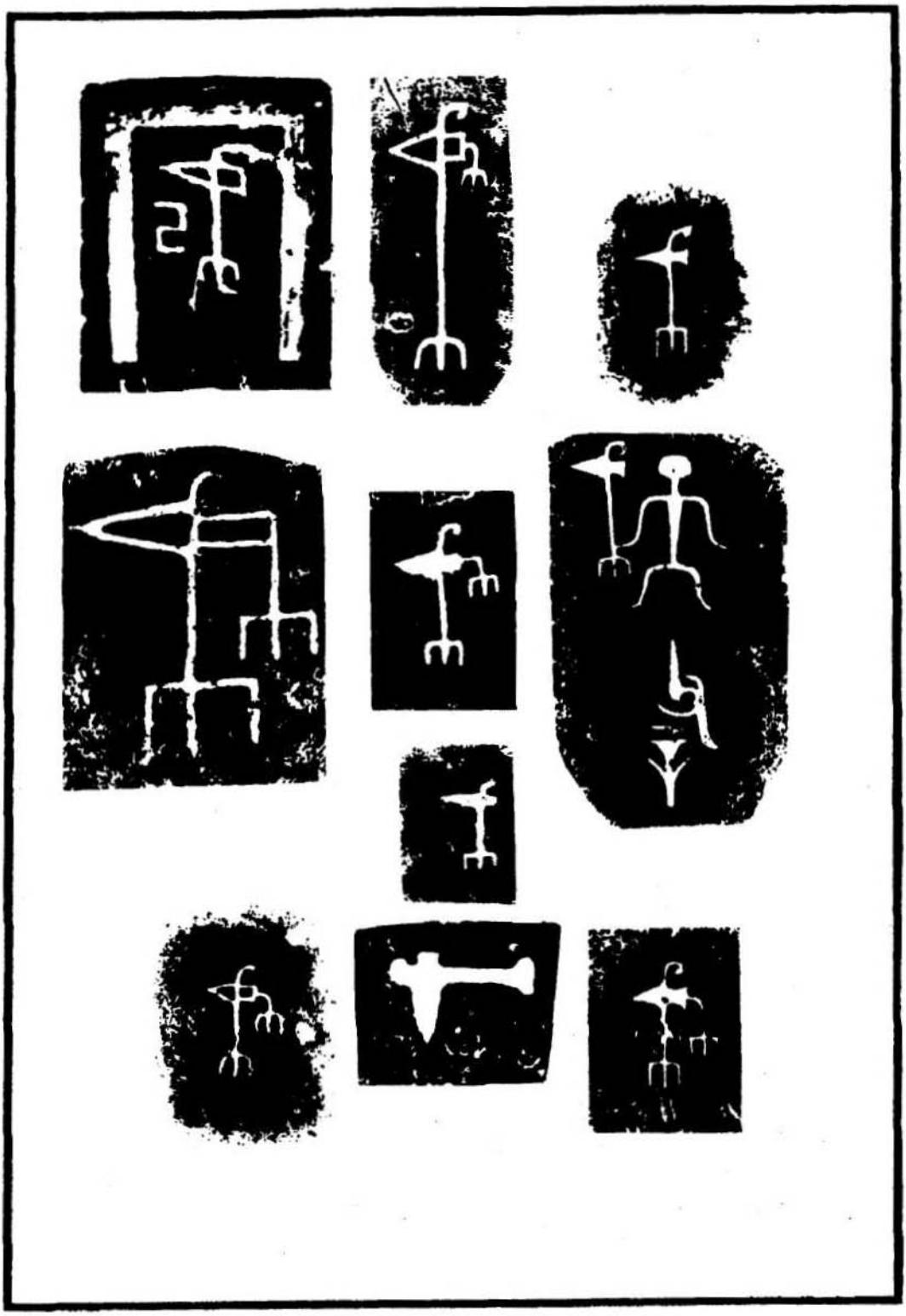

FIG. 15. Examples of Shang emblematic clan-name inscriptions based on a "dagger-axe" motif. (From Lo 1917, Wang 1935)

supposed, to designate the clan with an emblem or ensign, just as a European clan might have a coat of arms as a heraldic emblem. But such emblems, in Shang China as in Europe, were not intended, at least originally, to write the name of the clan so much as to represent the clan's identity symbolically. We may surmise that the pre-Shang graphs from Ta wen k'ou are just earlier examples of the same Shang practice, and that the graphs and partial graphs identified on the Ta wen k'ou artifacts are a primitive kind of clan-name insigne or emblem.[9]

There may well have come a moment when someone recognized a relation between the drawing of the clan emblem and the *name* of the clan so represented, to the extent of fixing an association of the clan emblem with the name of the clan, thus matching a specific graph with a specific word. The moment when that association became permanent and conventional was the moment at which the pictographic emblem changed from being non-phonetic, i.e., [−P], to phonetic, [+P], and became a form of writing. From that time on the graph standing for the clan name would have been susceptible to simplification and regularization, that is, it would not have been necessary any longer to use the pictographically realistic or elaborate emblem merely to write the name of the clan, because the phonetic association of a simplified graph would have done the job just as well, and have been far easier to execute. The fancy clan emblem might well have continued in use for its original non-phonetic purposes contemporaneously with the fully developed writing system of the Shang, whenever its more dignified or more elaborate pictographic quality was called for.

If the Ta wen k'ou graphs are early representations of clan name insignia, and if there was a phoneticization of these clan name insignia such that they came to be conventionally associated with the *name* of the clan, then, the Ta wen k'ou pictographs attest to the development from non-phonetic but meaningful graphs to phonetic and meaningful ones, i.e., from semasiographs to logographs, and thus constitute true forerunners of writing in China. The objections we raised against the scratch marks of the first group as having any connection with writing do not apply to the Ta wen k'ou graphs. These are obviously deliberate depictions of objects or acts, even if the specific thing depicted is not immediately identifiable or the specific purpose clear. As pictographs, they fit into the general evolutionary pattern of writing as the type of graph we would expect to find associated with the initial stage of a script. Still, there is no evidence that the Ta wen k'ou pictographs are a part of any writing system; indeed there is no evidence that any writing system existed at that time at all. They do not occur in any form that would suggest a text, or appear to have any linguistic context. If they

[9] This same speculation has been discussed by Wu Hung (1985: 35–36), in connection with a very similar kind of emblem found on a number of Liang chu jade *pi* 璧, which he suggests may result from Ta wen k'ou influence to the north of the Liang chu area.

are related to writing at all, it is only as forerunners, providing a setting in which graphs may have become associated with pronunciations in a way that led to the invention of writing.

The same coupling of a name, that is, a pronunciation, with a graph could well have happened in other contexts too, but we have no indication of what those contexts might have been. Because we are able to propose a possible, if speculative, link between the set of Ta wen k'ou pictographs, which predate the advent of writing, and the origin of writing itself, these Ta wen k'ou graphs, unlike other marks on neolithic pottery, are credible candidates for true precursors of writing in China. They provide a context for the evolution of a [−P, +S] graph into a [+P, +S] graph, just as the geometric token-signs seem to have done, though in a somewhat different way, in the case of the cuneiform script in Mesopotamia.

Logographs and Zodiographs

At the first stage of writing it was the *word* that was represented by a single graph, not a syllable, not a single phoneme, and in the vast majority of cases not a phrase. Such is the testimony not only of the earliest known examples of Chinese writing, but also of the earliest Mesopotamian cuneiform and Egyptian hieroglyphic writing of ca. 3000 B.C.

Giovanni Pettinato, one of the principal decipherers of the recently discovered Ebla texts, which are written in a West Semitic language using an archaic variety of cuneiform script, has recognized this feature of early cuneiform in general: "As regards the internal structure of cuneiform, it should be observed that in the first phase only logograms were employed: to one character one word corresponds" (Pettinato 1979: 55).

Some oracle-bone inscription scholars would like to allow for the possibility that some single graphs in Shang inscriptions might stand for the performance of a ritual or sacrificial act, perhaps serving as a kind of shorthand notation for a "set of instructions" of some kind. The first question that must be asked about such a graph, as indeed about any graph, is "does it unambiguously and conventionally represent a specific utterance in the language in question?" If it does, even if that utterance is a whole phrase, then the graph is by definition writing. If on the other hand the graph stands for an act, or a series or sequence of acts, or anything else that is not speech, and evokes different linguistic responses arbitrarily, even if the different responses mean the same thing, then it is not writing. For example if the graph  is always read exactly "no smoking" in English, so that it becomes a conventionally accepted sign for those two words and no other, then it is writing. But if it evokes the various responses "no smoking," "smoking prohibited," "smoking not permitted," "you can't smoke here," "don't smoke!" etc., then it is not writing, because it does not unambiguously stand for a certain specific utterance, even though it has a clear and unambiguous meaning. It is an example of a [+S, −P] graph, that is, a semasiograph.

The evidence of the oracle-bone inscriptions suggests that the vast majority of graphs are logographs, that is, each graph stands for a single word.[10] This conforms to the nature of early writing in Mesopotamia and Egypt. If there are graphs that stand as a kind of shorthand notation for acts, but do not represent any specific utterance of the language, then they are outside the scope of writing proper, and must be seen as something other than writing. But clear evidence for the existence of such graphs, which ought, if they do exist, to be called *dromenographs*, has yet to be brought forth.[11]

The recognition that at the inception of writing we are dealing with graphs that write whole words, that is, with logographs, follows logically from the way in which writing originated and evolved. After the realization that graphs could be associated with words, and that that association could be made conventional, the first halting efforts at writing were for the Chinese just as practical and straightforward as they were for their Mesopotamian and Egyptian counterparts. These efforts consisted in the simple graphic depiction of the object intended. It is not only intuitively reasonable but also archaeologically demonstrable to suppose that people drew pictures before they wrote words. But we must always remember to distinguish between graphs that are drawings of things, standing, however simplified or standardized, for the thing in question, and graphs that are drawings of things but that stand for the *name* of the thing in question. The former are [−P] graphs, types 1 and 2 of the chart on p. 19 above, while the latter are [+P], types 3 and 4, and it is only the advent of this second type of graph that marks the beginning of true writing. Precisely the same observation has been made about the origins of Egyptian writing:

> The turning point at which true writing . . . was created and separated from pictorial art was reached when it was realized that artistic representations of individual objects could convey not only visual associations, but also associations of sound, which could be "read" and understood as words, an elementary

[10] The so-called *ho t'i wen* 合體文 (or just *ho wen* 合文) that occur in some oracle-bone inscriptions, and on some early bronzes, appear to be an exception to the general rule of "one character—one word."

The *ho t'i wen* are characters that combine two recognizable single characters into what appears to be one graphic unit, intended to stand for the two-character phrase. Even as one graphic unit, the individual characters are usually not actually integrated in their graphic form, but typically are simply placed closer together than they are when they are not written as *ho t'i wen*. Moreover, they are mostly orthographic devices for writing set phrases, e.g., place or personal names, or phrases consisting of numbers functioning as adjuncts to nouns (numbers plus moon for months, numbers plus animal names for sacrificial offerings, etc.). See Kao 1982: 519–56 for a list of such characters.

Because of the very specialized nature and limited use of these *ho t'i wen*, I do not think that they can be regarded as significant counter-evidence for the general claim that Chinese writing from the earliest stage was fundamentally based on an isomorphism of one word to one graph.

[11] See *Early China* 3 (1977): 6.

> mental observation which necessarily had to precede the invention of phonetic writing. (Iversen 1961: 12)

The crucial word in Iversen's comment is the word *realized*. The distinction he makes between pictorial art and true writing depends on a *realization*, i.e., a "mental observation" as he calls it, on the part of the writer/reader, not on any objective, independent characteristic or feature of the graphs themselves. When a given drawing or graphic configuration is the picture of an object, and stands for that object, we call it a *pictograph*, and we may reckon it as a precursor of writing, but not as writing proper, no matter how simplified or conventionalized that drawing may be. When that same drawing comes to stand primarily for the *name* of the object, i.e., for the *word* rather than for the *thing*, then the graph is writing, and we can, following Boodberg, call such a graph a *zodiograph*.[12] This new term gives us a way of emphasizing that the graph's primary association is no longer a *thing*, but is now a *word*.

The actual shape and appearance of the graphs themselves may be the same when they are pictographs as when they are zodiographs. The distinction between the two is one of function, not of form. Note also that, because they stand for words, zodiographs are logographs. Indeed, because they are in origin direct graphic representations of things, we may consider them in some sense the most primitive type of logograph. Zodiographs, therefore, constitute a subset of logographs; all zodiographs are logographs, but not all logographs are zodiographs.

The distinction between pictograph and zodiograph is a matter of definition, and is not derived from or contingent upon the interpretation of any body of data, or any empirical evidence. If, for example, the graph  is intended to be the picture of an elephant, and to stand for the animal itself, or for something symbolically (but not linguistically) represented by an elephant, like the "Pachyderm Clan," for example, or the Republican party, then it must be classed as a pictograph (Kao 1980: 197). But if it comes to stand for the word *hsiang* < **dzjangx* 'elephant', then it has become a zodiograph, and is an example of true writing. The fact that in some particular case, or indeed, in many cases, we may not be able to determine with any certainty whether a given graph is functioning as a pictograph or as a zodiograph does not in any way invalidate the distinction we have established by this definition.

Often, but not necessarily, the transition from pictograph to zodiograph, that is, from a precursor of writing to true writing, is accompanied by conventionalization of the graph in question. It makes sense to assume that, since a pictograph is intended to represent a *thing*, its iconic role requires that it be an easily identified, fairly realistic representation of that thing. When on the other hand a graph has become representative of a *word*, something which after all has no visible form, the intimate bond between graph and thing has been interrupted by speech. The graphic reflection of speech can be less realistic and more uniform or conventional without any loss of efficacy.

[12] Boodberg 1957. The word "zodiograph" is from Greek *zōdion* 'a small picture, painted or carved' (originally of an animal), diminutive of *zōion* 'animal'.

Conventionalization of graphs is a pervasive phenomenon in the development of Mesopotamian cuneiform script. In referring to the Sumerian cuneiform script of the Uruk IV period, approximately 3300 B.C., Driver says that already "in the earliest texts there are many pictographs or signs representing objects of which the identity is not immediately apparent, while others have been so far conventionalized that the objects depicted cannot be identified at all" (Driver 1976: 47). Describing the archaic cuneiform characters of the Ebla texts Pettinato says:

> . . . many graphic characters either bear no similarity to the object it [*sic*] stands for, such as the character indicating 'sheep', or are so stylized that a possible or probable likeness with the object indicated is no longer verifiable. (Pettinato 1979: 54)

On the other hand some of the graphs on the early Uruk tablets are clearly discernible depictions of real things. The two tablets illustrated in figures 16 and 17 show this feature of the script very well. Both are Sumerian, from the southern Mesopotamian region, and both show the Sumerian script in a very primitive, pre-cuneiform, state. Falkenstein dates the second of the two to the Uruk III–II stratum, ca. 3000–2900 B.C. By ca. 2600–2400 B.C. the graph in figure 17 that was so realistically depicted as a quadruped of some sort had moved markedly away from this depictive realism (Falkenstein 1936: 67).

Sumerologists have no doubt that what appears on these early tablets is writing, even though complete translations are still not possible. Several of the graphs can be identified with forms that occur in later Sumerian cuneiform texts. The middle graph in the top half of the second tablet (fig. 17), for example, stands for the Sumerian word DUG 'vase, jar', and is the zodiographic precurser of Classical cuneiform  , having passed through a graphic evolution with  and  as intermediate stages, after, like many Sumerian logographs, having been rotated through 90° (Labat, 309). We may be able to see the form of a "vase" in the original character on the tablet once we know that the graph represented the word DUG 'vase'. Without that knowledge, I suspect such a recognition would come to mind only very uncertainly, if at all. The point I wish to illustrate with these examples is that even when graphs appear to us as realistically depictive, they may function as zodiographs standing for words, not as pictographs standing for things. On the one hand, the early Sumerian documents support our claim that the script has a pictographic origin, but they also show very clearly that the pictographic aspect had given way to a zodiographic function in that the graphs were being used in a written text, and that even at this early stage there was considerable conventionalization of graphic form. For obvious practical reasons conventionalization that erases the depictive realism of a graph can only come about when graphs have begun to be used not as pictographs standing for things directly, but as zodiographs standing for words.

Conventionalization of Shang oracle-bone inscription graphs was likewise widespread and general. Numerous characters seem to be zodiographs

FIG. 16. Sumerian limestone tablet with clear zodiographic writing; Lower Mesopotamia, end of the fourth millennium, B.C. For decipherment and discussion see the notes of Béatrice André-Leicknam, *Naissance de l'écriture* . . . , p. 52. Reproduced through the courtesy of the Musées Nationaux, Paris; Louvre—AO19936.

in that they are made up of only a single constituent element, and yet are not pictorially intelligible except in the light of their known meaning. In fact the majority of oracle-bone inscription zodiographs show the effects of graphic conventionalization and are not readily recognizable as realistic depictions of anything specific.

In figure 3 we listed examples of oracle-bone inscription characters with "identifiable pictographic origins." But in fact some, if not most, of those examples are identifiable only after it is known what word the character represents. Numbers 3 ( 'mouth'), 6 ( 'cultivated field'), 7 ( 'kneeling woman'), and 11 ( 'horse') are by no means clear-cut representations of the things in question; and numbers 10 ( 'sheep'), and 14 ( 'tripod') are not likely to suggest anything to anyone pictographically except in the most arbitrary, and therefore irrelevant, way. When the word for which the graph stands is known, we might then be able to see the pictographic significance of the graph itself. In number 10, for example, knowing that the character stands for *yang* 'sheep', we may recognize the  as a stylized representation of a ram's horns, or in number 14, knowing that the graph writes the word

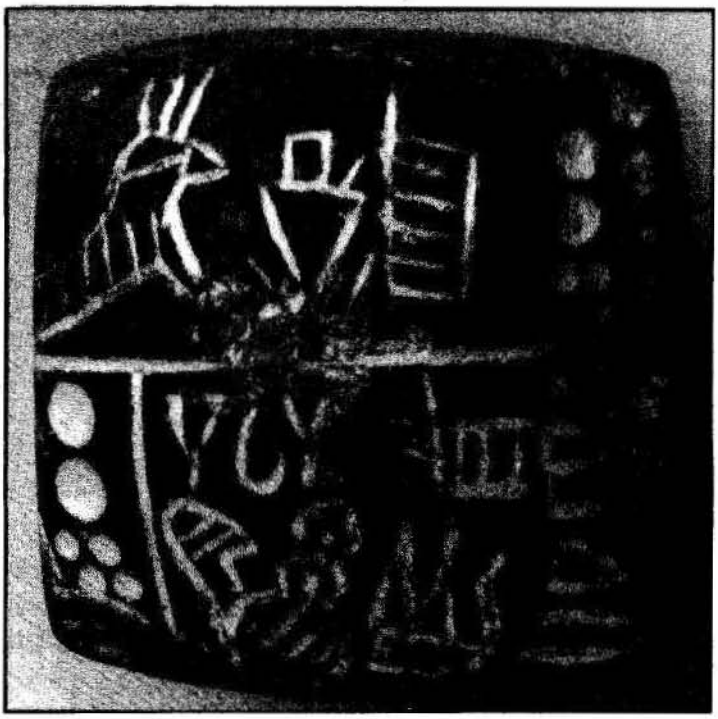

FIG. 17. Sumerian translucent stone tablet with clear zodiographic writing; Mesopotamia, Uruk III period (ca. 3000 B.C.). For notes on the inscription see Béatrice André-Leicknam in *Naissance de l'écriture* . . . , p. 52. Reproduced through the courtesy of the Musées Nationaux, Paris; Louvre—AO8844.

ting 'three-legged cauldron, tripod', we may see it as depictive of that kind of vessel, which is in fact characterized by bulbous, hollow legs that look a bit like the 丁 part of the graph. But neither of these characters in their graphic guise alone calls forth the actual thing originally depicted, without prior knowledge of the word written. So, *sensu stricto*, they do not appear in the Shang script as pictographs despite their likely pictographic origins. It is just this point that confirms that we are here dealing with graphic elements in a writing system whose primary function is to represent words, i.e., sounds, not to depict things directly, and that graphs such as these when they become part of a script need not be pictographically realistic. Compared to the examples given in figure 3 of chapter 1, the characters in figure 18 are more typical of the Shang script in general in that they preserve little or no discernible iconic resemblance to the things or acts they presumably depicted in origin. We detect little resemblance even when the words they write are known to us.

The outstanding exception to the tendency toward conventionalization with its concomitant lessening of the depictive realism of graphs is, of

	OBI graph	modern character	modern reading	meaning
1.		人	*jen*	'person'
2.		又	*yu*	'hand' > 'hold, have' (mod. 有)
3.		自	(*pi*) -	'nose' (mod. 鼻)
4.		耳	*erh*	'ear'
5.		且	(*tsu*)	'ancestor' (mod. 祖)
6.		牛	*niu*	'ox'
7.		糸	*ssu*	'(silk) thread, line' (mod. 絲)
8.		舟	*chou*	'boat'
9.		土	*t'u*	'earth, ground'
10.		水	*shui*	'water, stream'
11.		雨	*yü*	'rain'
12.		虫	*ch'ung*	'insect'
13.		言	*yen*	'speech'
14.		首	*shou*	'head'
15.		足	*tsu*	'foot'

FIG. 18. Examples of Shang oracle-bone inscription characters the pictographic origins of which are not directly or readily identifiable, even when the word written by the character is known.

course, the system of Egyptian hieroglyphs as it was perpetuated down to Hellenistic times. Even here, though, there was a kind of conventionalization that, while it did not render the graphs non-depictive, did standardize their appearance and systematize their usage vis-à-vis the phonograms with which they were combined.

In any case, conventionalization is entirely a superficial phenomenon and is only a possible side-effect of the transition from pictographs to zodiographs. The essential feature of the transition is whether the graph stands for a thing or for the name of the thing. This shift from understanding a graph as representing an object to that of seeing it as representing a word is the crucial conceptual breakthrough. While zodiographs may be very limited in their capacity to represent the richness of any real language graphically, their use entails the realization, explicit or implicit, that graphs can stand directly for *words*, and only indirectly, through the medium of the word, for things.

From the above description it should be clear that there is no provision, at the point when writing originated, for graphs that stand for ideas alone. Thus, the frequently invoked term "ideograph" is a misnomer and tends to mislead rather than to inform. Early in the evolution of writing, graphs stand for words and are therefore logographs. Words, of course, may stand for ideas, but that is a matter for philosophers and poets, and has no bearing on writing. Writing arose in China, as it did in Egypt and Mesopotamia, and apparently also in Mesoamerica, when speakers of a language came to understand a set of graphs as conventional representations for words in their language. At the outset these graphs were no more than zodiographs. The unfortunate term "ideograph" arose and endures, primarily because Western scholars are unaccustomed to seeing a single graph standing for a whole word, which of course has a meaning. They have therefore often misconstrued the function of a Chinese character as representing the meaning alone, i.e., an "idea," as if the meaning of a word could exist apart from the word itself, and could further be represented by a graph distinct from any graphic representation of the word proper.

Once we recognize that a character stands for a word, including its meaning *but also including its sound*, we will be able to dispose of the misleading term "ideograph" and call such a graph by the correct term "logograph" or "lexigraph." Gradually, of course, Chinese scribes devised ways to allow for the representation of words that did not lend themselves to direct depiction. But at no time did any of the graphs that were invented stand for ideas directly; they always primarily represented the sounds of a language, and meaning only as it was associated with those sounds. This is as true for Chinese characters as it is for the graphs of Mesopotamian cuneiform and Egyptian hieroglyphic scripts.

Graphic Multivalence

The first stage in the invention of writing comes, then, with the advent of zodiographs, arising through an effort to depict a particular thing or action concretely, and then shifting to represent the *name* or *word* for that thing or action. Clearly such a device as drawing a picture to represent the

intended word can only be a very rudimentary recourse, and will soon prove itself unable to cope with even the simplest abstractions, much less with the manifold semantic complexities of a real language. Once the possibility of writing words by means of zodiographs was realized, it could not have been long before these limitations were felt. While scribes must have been quick to see the usefulness of writing as a means for the direct graphic representation of speech, they must just as quickly have been confounded by the difficulty that, at this initial stage, if something could not be depicted it could not be written. And this, of course, left a lot of words unwritable.

Although the zodiographic stage reflects the recognition that a graph can stand for a spoken word, and is thus of fundamental significance in the evolution of writing, still in view of these considerable limits on what words can be satisfactorily depicted, the recognition does not yet summon into existence anything that can reasonably be called a writing *system*. In the face of the extremely limited capability of zodiographic writing, efforts had to be made to expand the scope of what could be written beyond the class of things directly depictable. To this end the Chinese resorted to exactly the same expedients as the early Mesopotamians and Egyptians when confronted with the same problem, that is, they realized that zodiographs could be used in two derivative ways.

The first of these entails writing a word difficult or impossible of concrete depiction by means of an established zodiograph that stands otherwise for a semantically unrelated but phonetically similar or identical word. This is often called *rebus* writing, writing "by things"; technically it is known as *paronomasia*. It is often seen in children's puzzle books as a kind of game, where, for example, a picture of a "bee" is juxtaposed with a picture of a "leaf," and the reader is expected to "read" the abstract word "belief." In the same way the graph *hsiang* 'elephant' standardized as in the Ch'in-Han period (modern 象), was regularly used to write the abstract homophonous word *hsiang* 'image, apparition'. Or, to give another example, the graph (勿) standing zodiographically for the word *wu* < **mjət*, meaning 'the brindled appearance of an ox' > 'ox' > 'animal, creature, thing' and presumably having in origin been suggestively depictive of 'brindled, parti-colored' (*GSR* 503 b–g), came to represent the homophonous word *wu* < **mjət* 'do not', a negative grammatical particle not readily depictable in any direct way itself.[13]

[13] The graph , found in the earliest period oracle-bone inscriptions, both with and without the addition of the 牛 'ox' semantic determinative, does not appear to be realistically depictive of any concrete thing. The primary meaning of the word **mjət* seems to have been 'brindled', as of an ox; thus, 'parti-colored, striated, streaked'. The semantic trajectory may have been 'brindled (ox) > ox > animal > living creature > any natural thing > thing in general'. Notice that in pre-Han texts the word is often used in the restricted sense of either 'animal' or 'natural thing, creature', rather than simply as 'thing' in the most general sense.

The word is probably cognate with 文 **mjən* > *wen* 'parti-colored, patterned, mottled, dappled', and the zodiograph is likely explicable not as a concrete, tangible thing, but as a suggestive abstract representation of 'streaked, parti-colored'. That this would be a satisfactory way

In using the rebus method, the Chinese were following exactly the same path as the Egyptians and Mesopotamians in the development of their writing. This may be called *rebus writing* or *paronomastic writing*, and is one of two expedients characteristic of the second stage in the evolution of the script. Using a graph paronomastically means separating it from its original semantic association and attaching it, on the basis of its phonetic value alone, to an independent and in many cases unrelated word that happens to be homophonous, or nearly so, with the word that the graph originally represented. Boodberg has called this a "phonetic breakthrough," because it amounts to the realization of a theoretical principle comparable in importance to the realization that characterized stage one (Boodberg 1957: 115).

Even when used paronomastically a graph is still [+P, +S], and therefore still a logograph, because although the word it now represents is semantically distinct from the word it originally represented, it is a word nonetheless. We might specify this in formal terms as G: [+P, +S] ~ [+P, +S′], or more concisely, G: [+P, +S, +S′] where S′ designates a meaning different from S, indicating that the same graph G is used variously for a word pronounced [P] with the meaning [S], or a word with the same or a very similar pronunciation but with the different meaning [S′]. According to this convention we would characterize the two examples given above as

	G:	[+P, +S]		[+P, +S′]
(1)	象	*hsiang* < **dzjangx* 'elephant'	~	*hsiang* < **dzjangx* 'image'
(2)	勿	*wu* < **mjət* 'creature'	~	*wu* < **mjət* 'do not'

In theory it is possible for one graph with its associated pronunciation to stand for any number of homophonous, or nearly homophonous, words of different meanings. Thus, we could have G: [+P, $+S_o$, $+S_1 \ldots +S_n$], where S_o = the original meaning, and S_1 to S_n are the additional meanings of homophonous words to which the graph might be applied, with no

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to represent the word**mjət*, meaning not just 'parti-colored' in the abstract but 'parti-colored, as of an ox' suggests that this feature was in some way especially important in regard to oxen. Later texts indicate that sacrificial oxen, the highest in status of all sacrificial beasts, were required, or at least preferred, to be of a pure color, not brindled. See *Tso chuan*, Huan 6: 吾牲牷肥腯 "My sacrificial beasts are whole, fat, and corpulent." The word 牷 *ch'üan*, surely the same word in origin as 全 *ch'üan* 'complete', means 'whole, pure' with respect to sacrificial victims in two senses, 'corporally whole', i.e., with all limbs intact, and 'pure-colored'.

The fact that the word **mjət* came to be the general word for 'creature > thing', together with its likely etymonic association with 文 **mjən* > *wen* 'parti-colored', suggests that in choosing sacrificial beasts the feature of 'brindled' vs. 'pure-colored' was more important than 'maimed' vs. 'corporally intact'. The primary importance thus attached to the feature 'brindled' in connection with oxen accounts for the semantic shift 'brindled ox' > 'ox in general'.

theoretical limit on the value of *n*. In practice, examples where *n* is greater than three or four are rare, because speakers are not likely to overburden the lexicons of their languages with an inordinate number of homophones. The reason for this is, clearly, that with each homophone goes a certain degree of ambiguity, and the functional efficacy of a language varies inversely in proportion to the extent of ambiguity. Just as the ambiguity to which homophony gives rise cannot be allowed to increase to unmanageable proportions, so neither can the ambiguity inherent in the use of an undifferentiated graph for a number of distinct words be allowed to expand unchecked. As a practical matter, both kinds of ambiguity must be kept within fairly narrow bounds.

Graphs of the kind we have just described, used paronomastically to write more than one word, where the words are homophonous, or nearly so, are said to be *polysemous*, because they are associated with more than one word, hence more than one meaning. Using graphs in this polysemous way was not only a device for writing words that were difficult or impossible to depict directly, as our examples of 勿 *wu* 'creature ~ do not' and 象 *hsiang* 'elephant ~ image' above illustrate, but was also a matter of efficiency, in that it provided for the maximum utilization of established graphs, and thereby put a check of sorts on the proliferation of new graphs. It was, then, not only an expedient way to get around the problem of depicting abstractions, but just as importantly for the overall development of a workable writing system, it was a way to get the most service from the already established graphs.

The second of the two derivative ways in which a zodiograph might be used relies on the graph's depictive structure and on the semantic associations it might suggest irrespective of sound. A zodiograph that is already conventionally associated with one word may be used to write a second word the *meaning* of which is readily suggested by the *depictive quality* of the graph itself, regardless of any phonetic similarity or cognate relation between the two words. In other words, a given graph could be applied to different words that were *semantically* congruent enough for the same graph to be pictorially suggestive, even though the phonetic values may have been entirely different. This we call the *homeosemous* or *parasemantic* use of a graph. It served precisely the same ends of efficiency and versatility as did the paronomastic, polysemous use of zodiographs already described above.

Just as a polysemous graph had a fixed pronunciation, but when used paronomastically was applicable to more than one word (G: [+P, $+S_o$, $+S_1$ . . .]), so another graph might be used for more than one pronunciation, but with its semantic value held more or less constant, that is, remaining within the bounds defined by the meaning that the zodiograph conveyed directly. That is to say, a graph might be used with a fixed or at least restricted meaning but a variable pronunciation, exactly as it might be used with a fixed or restricted pronunciation and variable meaning. On analogy with the latter, which we have already called polysemy, we can call

the former *polyphony*, and characterize it formally as G: [+P, +P′, +S] where [+P] and [+P′] are two different, and not necessarily related, pronunciations. Or, if there are more than two pronunciations involved, we would have G: [$+P_0$, $+P_1$, . . . $+P_n$, +S], again with no theoretical limit on the value of *n*. Recall that the paronomastic use of a graph required only approximate homophony, not necessarily exact homophony. Similarly, the polyphonic use of a graph requires that the meaning of the graph in its original usage be semantically congruent with, but not necessarily identical with, the meaning of the graph in its second (or other) usage. Polyphony turns out to have played a crucial role in the formation of the Chinese script. For now, I will give just two examples to illustrate the principle. The evidence for these two examples will be laid out in chapter 3, where the role of polyphony will be examined in detail.

1) The graph 𠙵, modern 口, is in origin a pictograph of a mouth, or other opening of some sort. It became established as the zodiograph for the word *k'ou* < **khugx* 'mouth', and remains the everyday graph in modern Chinese for *k'ou* 'mouth'. Early in the evolution of the script it seems also to have been used to write the word *ming* < **mjing* 'call, name' (modern 名). We can see two things about such a usage. First, neither the verb 'call' nor the noun 'name' is readily amenable to direct depiction, and from a *semantic* point of view it would be logical to choose the graph for 'mouth' to write such a word. Second, the words *k'ou* < **khugx* and *ming* < **mjing* do not seem to be in any way related phonetically. Thus the use of 𠙵 to write **mjing* 'call', simultaneously with its use for the word **khugx* 'mouth', is a case of true polyphony (Boodberg 1937: 342).[14]

2) The graph  , modern 目, seems to have originated as a depiction of an eye, and it represents the word *mu* < **mjəkw* 'eye' in early (as well as later) texts. In addition, just as the graph for 'mouth' came to be used for the verb 'call', so this graph for 'eye' was apparently used to write two verbs for 'see', corresponding to modern Chinese 看 *k'an* < **khans* and 見 *chien* < **kians*, probably two variants of a single root or etymon (Boodberg 1937: 343).

Polyphony was an important feature of the evolution of writing in Egypt and Mesopotamia as well as in China. Driver in fact suggests that the polyphonic use of graphs in early cuneiform writing was *the* natural extension of the zodiographic stage (which he calls "pictographic"), and that the rebus method of writing was an unworkable and almost abusive employment of a sign (Driver 1976: 56–57, see infra p. 86).

Studies of the Chinese script have heretofore failed for the most part to recognize the importance or even the existence of the polyphony of graphs,

[14] Jerry Norman has pointed out to me in this connection the modern Vietnamese words *miệng* 'mouth' and *miếng* 'mouthful'. These two words, clearly related to each other in Vietnamese, may be in some remote way vestiges of the Chinese word **mjing* 'name, call' and its semantic association with 'mouth'.

because the evidence is indirect and the conclusion inferential. Polysemy, by contrast, is direct and observable. We can still now, as much as three millennia after the fact, see many cases like 象 *hsiang* in which the same graph stands for more than one word with the same pronunciation. Examples of polyphony are far less apparent, largely because the original single logograph has not continued to be used by itself with more than one reading. The "second" readings, and by extension meanings, have come to be written with augmented graphs, as, e.g., 名 from 口 for *ming* 'call, name', 看 and 見 from 目 for *k'an* 'look, watch' and *chien* 'see', thus obscuring the fact that these words were at first written 𠙵 and 𥄉 respectively. Nevertheless, polyphony was a central feature of the evolution of the Chinese script, just as it was in the development of other scripts, and it appears to have been widespread in the formative stages of writing in China.[15]

The second stage in the evolution of the script, we said, was characterized by rebus or paronomastic usages, because of the numerous cases of graphs used to write two or more different but homophonous or nearly homophonous words. We can now see that this is but one of two possible kinds of graphic versatility, the second being polyphony, where a character is used by virtue of its graphic appropriateness for two or more words that are semantically congruent but dissimilar in pronunciation. Hence the second stage actually should be thought of as the stage of *graphic multivalence*, that is, the stage in which graphs may vary either in meaning or pronunciation.

What does not follow from this multivalent use of graphs, and is not a regular part of the development of any writing system either in principle or in practice, is the *simultaneous* variance of both the phonetic and the semantic values of a single graph. We do not find, nor would we logically expect to find, a graph used to write two (or more) separate words that have nothing in common either in pronunciation or meaning. When such cases appear to exist within a writing system, the reason is usually the fortuitous convergence into a single graphic form of two originally independent and graphically distinct signs. If we encounter a graph that seems to be serving to write two or more unrelated words at the earliest stage of the script, when we cannot assume a previously distinct graphic history that has led to a convergence of originally different graphic forms, then we must reckon with two possibilities. Either the case is an anomaly, the kind of thing that arises in all human endeavors now and again, or else the two words are in fact related and we have merely failed to detect the relation.

The second possibility just mentioned might indeed be phrased more compellingly as a hypothesis or principle: when the same graph is used, other than through the convergence of originally distinct graphs, to write

[15] Cases of polyphony in modern Chinese are sporadic and quite rare. One of the most widely recognized is the graph 石, normally read *shih* meaning 'stone', but also read *tan* meaning a unit of weight (equivalent to 133⅓ lb. avdp.). (Cf. British 'stone', a unit of weight equivalent to 14 lb. avdp.)

two different words, those words, except in a minority of anomalous cases, will ultimately prove to be related to each other either phonetically or semantically, or both. According to this hypothesis, when confronted with two words that are apparently neither phonetically nor semantically similar to each other, but that are written with the same graph, we should accept the explanation that the case is anomalous only as a last resort, and then only after having sought unsuccessfully to identify and elucidate a phonetic or semantic relation between the two.

If, for example, the graph 谷 is used to write the two distinct words (i) *ku* < **kuk* 'valley' and (ii) *lu* < **luk* 'part of a titular designation within the Hsiung-nu hierarchy', we should assume that there is either a phonetic or a semantic relation between them. The reason for making such an assumption, and the rationale for stating the assumption as a principle, is simply that the extended use of graphs to write words other than those for which they were originally devised is not capricious and haphazard, but is in some sense logically motivated. In this example it seems likelier that the relation is phonetic than semantic, since the two words **kuk* and **luk* are obvious rimes, and thus already show partial phonetic similarity, whereas the two meanings have no perceptible or demonstrable link between them. Having decided that the relation is likely phonetic, that is, that the graph 谷 is used to write both the word **kuk* 'valley' and the word **luk* 'Hsiung-nu title' because the pronunciations are nearly homophonous, the question becomes "how different can two pronunciations be and still be considered 'nearly homophonous' for purposes of graphic paronomasia?" Is **kuk* close enough to **luk* to account for the use of the same graph to write both words?

This kind of question is not amenable to a theoretical answer. It is answerable only by a judgment based on what appears to be the most satisfactory account of all similar cases taken as a group. According to widespread assumption, cases of the 谷 **kuk* ~ **luk* type are explained by positing an initial consonant cluster that reconciles the divergent initials, thus, **kl-* ~ **gl-*, where **kl-* > *k-* and **gl-* > *l-*.[16] The implication is that the homorganic initials *kl-* and *gl-* are close enough to have allowed use of the same graph (as are *k-* and *g-* as single initial consonants), but that *k-* and *l-* by themselves are not. Most scholars would probably agree with the second part of this assumption, that **kuk* and **luk* are too different to have permitted use of the same graph, but not all would agree that **kluk* vs. **gluk* is the correct Old Chinese reconstruction. The matter becomes at this point a question of historical phonology, not of the history of the writing system, and we need not pursue it further at present. What is important for our understanding of the script is the recognition that the two words **kuk* and **luk* must have been phonetically similar enough to permit them both to be written with the same graph, viz., 谷.

[16] Karlgren proposed this solution already in 1923 (Karlgren 1923: 31).

To give another example, the graph 𠙵 was used to write the three words (i) *hsi* < **rjiak* 'night', (ii) *yüeh* < **ngwjat* 'moon', and (iii) *ming* < **mjiang* 'brighten'. Again, if we are to credit the Chinese writing system with any rational structure and logic, we must assume that there was either a phonetic or a semantic basis (or both) for the use of one graph to write three different words. In this example the explanation is surely the semantic basis common to *hsi* 'night' and *yüeh* 'moon'. Of course these are two quite different words, and we are in no way suggesting that they are cognate; only that when it came to the question of how to write the word *hsi* 'night', an intangible thing not directly depictable, the graph 𠙵, depicting the crescent moon, was deemed suggestive enough to provide a logical and workable solution because of the obvious semantic association between 'moon' and 'night'. (Modern 月 and 夕 both devolve from the same archaic form.) The crescent moon was, at the same time, suggestive of the fundamentally processive verb *ming* < **mjiang* 'brighten', given the waxing and waning stages through which a crescent moon passes (cf. Eng. *crescent* 'growing'). It was precisely such a process of brightening and "debrightening" that corresponded to the meaning of the word *ming*, a word that is not really as stative as it is often supposed to be, so it is not surprising that early scribes used the graph for *yüeh* 'moon' to write the word *ming* 'brighten' as well (see Boodberg 1940: 273).

In the example of the graph 谷 writing both **kuk* and **luk*, we concluded that the basis was phonetic rather than semantic, and thus 谷 was being used paronomastically. In the case of 𠙵 standing for *hsi* 'night', *yüeh* 'moon', and *ming* 'brighten', we decided that the basis must be semantic, and so the graph 𠙵 must be regarded as a polyphone. Both cases are good examples of the versatility that characterizes the second stage in the development of the writing system, the stage of graphic multivalence.

Like the polysemic use of graphs, polyphonic use had not only the advantages of efficiency and versatility but also the disadvantage of ambiguity. The ambiguity that arises from using a graph for more than one homophonous word—as, for example, 象 used for *hsiang* 'elephant' and for *hsiang* 'image'—is *semantic ambiguity* because it is the *meaning* that may be in question in a particular case. By contrast the ambiguity of a graph used to write two semantically congruent words with different pronunciations is *phonetic* ambiguity because it is the pronunciation that is uncertain. The ambiguity of the graphs 口 and 目, the examples given above, is fundamentally phonetic; do they represent the words **khugx* 'mouth' or **mjing* 'call', **mjəkw* 'eye' or **khans* ~ **kians* 'see'? And does the graph 𠙵 stand for **rjiak* 'night' or **ngwjat* 'moon'?

In modern Chinese neither the graph 口 nor 目 has any polyphonic use; each is still used for its "primary" nominal sense, 'mouth' and 'eye' respectively (though *mu* for 'eye' is literary rather than colloquial). Both have lost their second readings. That is to say, the second reading has come to be

written with a character that combines the original □ or 目 with additional graphic components, distinguishing it unambiguously from the primary □ *k'ou* or 目 *mu*. That there was such a second reading is, as we shall see in chapter 3, inferable from the structure of derivative graphs in both cases, but it is not superficially obvious. The ambiguity of the graph  has been resolved according to a different pattern at a later stage of the script, by assigning the two distinct meanings to two distinct variants of the graph, writing 夕 for *hsi* and 月 for *yüeh* exclusively. Thus there is no longer any ambiguity in the use of either character in modern Chinese.

Determinatives

The gathering ambiguity that resulted from the increasing use of rebus and polyphonic writing at the multivalent stage ushered in what we may call the third stage in the development of the Chinese script, the *determinative stage*. In order to resolve the semantic ambiguity arising out of the paronomastic or rebus use of graphs at stage two, an auxiliary, aphonic graph was attached to the original, resulting in a distinct compound graph which could then be uniquely used to write one of the two or more possible words that the ambiguous graph had stood for. Graphs chosen for this auxiliary, determinative role come from the regular inventory of established logographs, and thus stand for words in their own right in other contexts quite apart from their use as determinatives in compound graphs. It is this independent usage that is the basis of their use as determinatives. When the need is to determine which of two or more meanings is intended, it is the meaning of the word for which the auxiliary graph independently stands that is relied on. Thus, a graph with a known pronunciation, but ambiguous as to meaning, because it could be used to stand for two or more homophonous words, would have appended to it a secondary graph with a generic meaning distinctive enough to *determine* which meaning was intended.

If we take the example of modern Chinese *wu* < **mjət*, written at the zodiographic stage  , meaning 'creature, thing' and used paronomastically at the rebus stage for homophonous *wu* < **mjət* 'do not', the ambiguity inherent in using the graph for both words 'creature, thing' and 'do not' was resolved by the addition of a secondary graph 牜/牛 'ox' to the original graph when the word *wu* 'creature, thing' is intended, giving rise to the derivative graph  /物. When *wu* 'do not' is written, the original graph /勿 stands alone. Since the secondary graph appended to the original is meant to *determine* the meaning of a semantically ambiguous graph, it is called a *semantic determinative*.

Because such determinatives came later to constitute a basis for lexicographic classification they are sometimes also called *semantic classifiers*. In modern parlance they are often inaccurately called "radicals." Given that they are, without exception, secondary accretions to an original graph, they

are precisely *not* radicals, i.e., they do not reflect in any way the "root" or "core" of the graph. From here on we shall call them *determinatives* (abbreviated "dt.") when referring to their function of determining the intended meaning of a semantically ambiguous graph, and *classifiers* (abbreviated "cl.") when we are talking about them as the basis of a classificatory scheme for analyzing characters. The two terms are largely interchangeable, and in most contexts either one may be used.

In exactly the same way that a secondary graphic element can be appended to resolve cases of semantic ambiguity, so too a secondary graph can be appended to resolve phonetic ambiguity. In such cases it is the pronunciation of the appended graph that is important, not its meaning, although that may sometimes come into play. The fundamental way to eliminate the phonetic ambiguity that arose from the polyphonic use of a graph was to attach a secondary graph whose pronunciation would indicate the intended pronunciation of the original graph.

In the example given above of the graph 𠙵 / □ used polyphonically for both *k'ou* < **khugx* 'mouth' and *ming* < **mjing* 'call, name', the secondary graph 𠦂 / 夕 (zodiographically 'moon'), standing for the word *ming* < **mjiang* 'brighten', was added to the □ to specify the pronunciation *ming* < **mjing*, and thereby to resolve the ambiguity. This is the origin of the modern graph 名. The unaugmented graph 𠙵 / □ was then left to stand only for the word *k'ou* < **khugx* 'mouth'. As we saw above, the graph 𠦂 / 夕 ~ 月 itself was a polyphone, representing both *hsi* < **rjiak* 'night' and *yüeh* < **ngwjat* 'moon' in addition to *ming* < **mjiang* 'bright', but because the graph is being used in this case only as a means for specifying a pronunciation and has no semantic impact, its polyphony as an isolated graph does not affect its role in the character 名.

A graph that functions to resolve phonetic ambiguity rather than semantic ambiguity will be called, on analogy with the term "semantic determinative" for the latter, a *phonetic determinative*. The twin devices of semantic and phonetic determination characterize the third stage of the development of the Chinese script.

What we know or can reasonably infer about the origin and early development of all three great writing systems of antiquity, Egyptian, Mesopotamian, and Chinese, as well as Mayan hieroglyphics in the New World, suggests that up to this point they all evolved stage by stage according to the same basic principles. And in all four cases it is only with the determinative stage that we have a really workable, full-fledged writing system, one capable of transcribing all of the manifold complexities of real speech. The script of the Shang oracle-bone inscriptions includes characters with determinatives, showing very clearly that the writing system had already reached this stage. This is not to say that every character known in subsequent periods of written Chinese had arisen and taken its modern form by the Shang dynasty. In fact the vast majority of characters known from later written sources are not

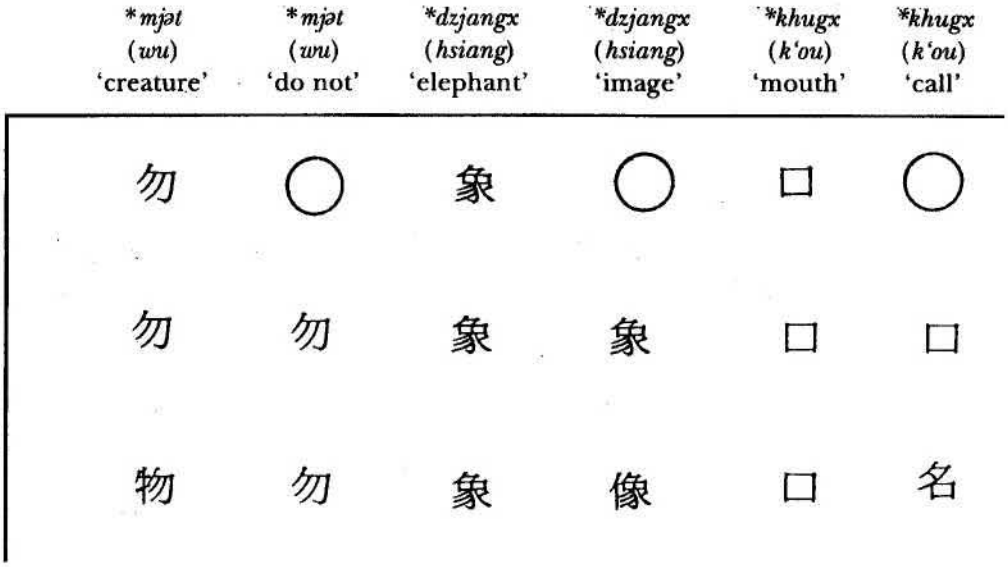


FIG. 19. Summary of the three stages of the early development of Chinese characters.

attested at all in Shang or even early Chou texts, and many that are attested in early texts are found in a graphic guise different from their later standard form. But the principles inherent in all later forms of the Chinese writing system are already reflected in the script of the Shang inscriptions.

We have summarized the three fundamental stages of the development of writing in figure 19 and have treated them in the present discussion as if they were neatly sequential steps in a diachronic evolutionary process. The fact is, of course, that in all likelihood this is an artificial portrayal. In the actual development of the script, except at its very inception where the first stage, that of the invention of zodiographs, was the only possibility, the processes characteristic of each stage must have operated by and large simultaneously.

Thus, while it may be correct to think of individual characters as having passed through these stages sequentially, for the writing system as a whole it was undoubtedly the case that different characters were being introduced as zodiographs, being used multivalently, and acquiring determinatives all at the same time throughout the formative period of the script. In fact, I would define the formative period as that period when all three of these processes were active. Once the point is reached where new zodiographs cease to be created and enough characters have acquired determinatives to cope with the ambiguity inherent in the multivalent stage, we can say that the script has achieved a workable stability, and the formative period has ended. Of course, occasional new characters may well continue to be introduced, used paronomastically or polyphonically, and given determinatives

when necessary, but these will be in a small proportion relative to the total inventory of established and invariant graphs overall.

Three further points remain to be mentioned in connection with the determinative stage. First, on even the most cursory inspection of the modern standardized Chinese script we encounter a great many characters with more than two constituent elements. According to the operations described above the acquisition of a determinative, either semantic or phonetic, adds a secondary element to an original zodiograph, yielding a two-element character. But whence the hundreds of modern characters with three, four, five, even occasionally six constituent elements?[17] The answer is that the "add determinative" operation was recursive. That is to say, if we view each stage in the development of the Chinese script somewhat mechanistically as part of a "character generating device," where the output of stage one is the input for stage two, and the output of stage two is the input for stage three, then we must recognize that a graph that has been generated by a pass through stage three can still be used paronomastically at the stage-two level. It then may receive an additional determinative by passing through stage three again to eliminate the new ambiguity that its paronomastic (stage-two) use had introduced.

Take, as an example, the graph 名 standing for *ming* < **mjing* 'call, name', which we have already explained as resulting from the addition of 夕 *ming* (*sic*) as a phonetic determinative to the originally polyphonic zodiograph 口 to distinguish the reading *ming* 'name, call' from *k'ou* 'mouth'. The resultant graph 名 was used (or had the potential to be used) paronomastically for the word *ming* < **ming* 'inscription' (as, for example, those typically cast on bronze vessels).[18] Then, in order to resolve exactly the same kind of ambiguity that arises when single-element zodiographs are used paronomastically, the graph was provided with another determinative, this time a semantic determinative, viz., 金 'metal', yielding 銘, to specify the meaning 'inscription' as opposed to the meaning 'call, name'. This is what we mean by "recursion" at stage three.

Such recursion is not limited to one pass; it may occur several times, yielding characters with four or five constituent parts, in rare cases even more. In theory there is no limit to the number of passes for a given character, but in practice characters with more than five constituent parts seem to have been considered awkward and unwieldy, and they did not proliferate.

[17] Characters with more than six components are rare, and are often not genuine parts of the script, at least not at the core level. They frequently amount to no more than graphic anomalies and curiosities.

[18] The relation between *ming* 'name, call' and *ming* 'inscription' may be more than simple homophony. These may be etymologically related words, or even in origin the same word, with a subsequent semantic specialization in the latter case. Chu Chün-sheng treats them in his *Shuo wen t'ung hsün ting sheng* as a *chuan chu* pair (*SWKL 0579*). See also Kao 1989: 72 for examples of the interchange between 名 and 銘.

In most cases the acquisition of multiple determinatives was due, we must presume, to a real need for further specification, though it may have occasionally been the result of nothing more than an aesthetic sensitivity to graphic balance and elegance.

The second point to be mentioned in connection with determinatives is that the effectiveness of adding a semantic determinative to a graph seems to have been felt so strongly that the theoretical possibility of using *desemanticized* graphs to represent just sounds alone, i.e., syllables without an associated meaning, never became a reality. The bond between sound and meaning associated with each graph seems to have been especially strong in early China in any case, and was reinforced visually whenever a semantic determinative was present. In fact, the semantic-phonetic bond was in all likelihood reinforced by the presence of a phonetic determinative as well, because, in specifying which of two or more pronunciations was intended, the phonetic determinative was in effect specifying which of two or more *words* was intended. So phonetic determinatives are in a sense latent semantic determinatives at the same time.

The recurrent presence of this kind of determinative as a secondary graphic constituent in Chinese characters served as a constant reminder that the character stood for a whole word, with a meaning, and not just for an asemantic, syllabic sound value. Consequently, any move towards a system that correlated graph to sound without reference to meaning was impeded at this early stage by the strength of the sound-meaning bond. The resultant evolution from a logographic script to a syllabary in the Far East did not ensue until the Chinese script was adapted to write Japanese more than a millennium and a half later, and by that time it was much too late to have had any effect on the script's development within China (Miller 1967: 90–140).

Whether the same graph-pronunciation-meaning (GPS) bond was equally strong for Egyptian hieroglyphs and Sumerian cuneiform is hard to say, but we do know that those scripts eventually, though in different circumstances, both gave rise to syllabaries through the desemanticization of individual characters.

That Old Chinese was in the main a monosyllabic language probably also contributed to the fact that the script remained permanently logographic. Given the predominant isomorphism between words and syllables, the recognition of a syllable as a sound without an associated meaning most likely did not occur. And if there was no notion of a purely phonetic, asemantic syllable to begin with, there would naturally be no impulse to devise a way to write such a syllable.

The third point that needs to be stressed about determinatives is that, according to the outline of the evolution of the script given above, there is no provision for the invention of Chinese characters that do not have a phonetic element. In the case of zodiographs used in their primary sense or

used paronomastically, the character is a single-element graph, indivisible, and unanalyzable into constituent parts, and is associated with one or more pronunciations and one or more meanings. Characters that have acquired a determinative at stage three are made up of two or more constituent parts, and are therefore analyzable into component elements, at least one of which serves as a phonetic indicator. When an ambiguous graph at stage two is disambiguated by adding a semantic determinative, e.g., by converting 勿 into 物, the original graph is the "phonetic" (better: *phonophoric*, literally "bearer of the sound") element. When a graph is specified by the addition of a phonetic determinative, as when 夕 is added to □ (*ming*), to give 名, the phonetic determinative is, obviously, a phonetic element. There is no way a character can be "invented" by putting together constituent elements none of which is intended to have any phonetic function. To allow otherwise would be to make the construction of new graphs arbitrary, capricious, and without any underlying phonetic principle. And that would in turn make the writing system unpredictable and ultimately unworkable. When characters occur with two or more constituent parts, and none appears to be phonophoric, we must assume that there is a phonetic element in the character somewhere that we have not yet uncovered. The only alternative is that such a character is one of the occasional anomalies that we must expect to encounter now and then. As a rule, we cannot but insist that "phonetic-less" characters simply do not exist.[19]

[19] Many of the "classic" cases of this kind of thing, i.e., characters constituted of two or more elements allegedly based only on the meaning of the elements, not the sound, are after careful analysis explicable as phonetic compounds. See Boodberg 1937: 345–53.

3. THE MULTIVALENCE OF GRAPHS

According to the sketch we laid out in the preceding chapter there are three identifiable stages in the early development of the Chinese script, (i) the zodiographic, (ii) the multivalent, and (iii) the determinative. These three stages characterize the early history not only of Chinese, but of Egyptian, Mesopotamian, and Mayan writing as well. The starting point for the appearance of writing everywhere in antiquity was the realization that a graph could stand for a name or word, i.e., for sound or speech, beyond standing iconographically as a visual image for a thing proper. This recognition marks the transition from pictographs to what we called zodiographs, from non-writing to writing, and defines the zodiographic stage.

Apart from this initial moment when the phonetic capacity of graphs first came to be realized, marking the advent of writing proper, the single most crucial turning point in the development of writing was the recognition that a zodiograph could be used either paronomastically or polyphonically to write words that did not lend themselves to direct pictographic, and hence zodiographic, representation. The paronomastic and polyphonic applications of zodiographs, taken together, are what we mean by the term *graphic multivalence.* This development defines the multivalent stage, i.e., the second stage in the evolution of writing.

Because of the ambiguity that it entails, the multivalent use of graphs is often looked upon retrospectively as an unsatisfactory and less than ideal recourse that had to be in some sense "remedied" by the introduction of determinatives which in the end rendered these multivalent applications largely unambiguous, and which made the script as a whole workable. In some respects this perception of the multivalent use of graphs as imperfect and makeshift is correct. But it is also important to recognize that it was precisely the realization that graphs could be used with this kind of multivalent versatility and adaptability that accounts for the evolution of writing into a full-fledged, workable system suitable for representing speech as a whole. This is so not only for the obvious reason that the multivalent use of graphs allowed the writing of words otherwise not amenable to graphic representation, but also because it served as an alternative to the unchecked proliferation of new graphs, thereby keeping the total number of characters in the writing system down to a manageable size. It offered a means for getting the most use, so to speak, out of the inventory of already existing graphs.

Early users of the script showed a marked preference for the multivalent use of those zodiographs that were already in existence, even when we can conceive of a way wherein they might have written a particular word with a

newly created zodiograph. While there are some words that are clearly not graphically depictable by any stretch of the imagination, there are also words that we could imagine being directly depictable if we allowed for the creation of elaborate and intricate individual zodiographic signs. That these kinds of elaborate zodiographs were not used to any extent, as far as we know, in the developmental stages of any writing system is due, we suspect, to the *sub facies* operation of a kind of "efficiency principle."

The empirical evidence of early scripts in Egypt, Mesopotamia, and China alike, suggests that rather than invest a considerable effort into the design and execution of intricate new signs to represent large numbers of words zodiographically, it was deemed preferable to utilize those graphs already invented in as versatile a way as possible. That versatility amounted to the widespread paronomastic and polyphonic use of zodiographs. Reinforcing this trend was the fact that the transition from pictograph, which was of necessity reasonably realistic in its depiction of an object or action, to zodiograph, which because it stood for a word and not a thing, could therefore be less realistic, was accompanied by, indeed characterized by, a conventionalization of graphic structure and execution that often left the zodiograph much less realistically representative of a thing than it originally may have been. To introduce into the script zodiographs that had to be intricately composed and tediously executed if they were to convey the word that they were intended to represent would have gone against the more general trend towards conventionalization of representation and efficiency of execution.

Beyond this, the proliferation of a myriad of different zodiographs, each a single unit in itself, some constituted of intricate and complex internal structure, would have imposed a considerable burden on a writer's or a reader's memory in a way that the multivalent use of a limited number of graphs did not. When multivalency gave rise to ambiguity, that ambiguity was, as we have said, resolved by the use of secondary graphic elements attached to the ambiguous primary graph. Those secondary graphs seem by and large to have been drawn from the same inventory of primary zodiographs that came to be used multivalently in the first place. In other words, the early development of writing systems everywhere in the ancient world seems to reflect a preference for graphs of componential structure, constituted of usually no more than two or three elements each, over the proliferation of ever more intricate new zodiographs.

In the end it was the realization that zodiographs could be used multivalently, and that secondary graphs functioning as phonetic or semantic determinatives could be added to eliminate ambiguity arising from such multivalent use, that allowed the script to develop into a fully workable system. The expected pattern is that cases of semantic ambiguity are resolved through the use of semantic determinatives, and those of phonetic ambigu-

ity by phonetic determinatives. Beyond this we must also note that because phonetic ambiguity is also latent—and very restricted—semantic ambiguity (see above, p. 63), phonetic ambiguity may sometimes be resolved through the addition of a *semantic* determinative instead of a phonetic one.

To give examples of these processes, and to show how the developmental pattern in Chinese matches in both principle and practice that of writing in Egypt and Mesopotamia, we shall examine the structure of the writing system in each of these other two areas in some detail, with particular attention to the multivalence of graphs at the formative stage, and how the ensuing ambiguity was resolved through the introduction of determinatives. What we shall see is that the two kinds of determinatives, and the patterns of their use, are directly observable, but that the multivalent use of zodiographs, especially their polyphonic use, is in large part only inferable after the fact. This is so because the addition of determinatives to the original graph serves to camouflage, if not entirely eradicate, evidence of multivalent usage. Our approach must be to infer back from the kinds of determinatives present in a particular graph to what the earlier form and use of the graph must have been, such that it would have given rise to what we find at the determinative stage. With semantic determinatives this is a fairly straightforward process of induction, but with phonetic determinatives the correct analysis of the graph's evolution is less obvious. This is especially the case with Egyptian hieroglyphs because the Egyptians devised an elaborate scheme of uniconsonantal, biconsonantal, and triconsonantal phonetic determinatives that came to be employed widely throughout the writing system, apparently even when not strictly necessary to eliminate ambiguity.

In Chinese, because of the nature of the process of adding determinatives, semantic and phonetic alike, the existence of paronomastic multivalence is easily and directly inferable, but that of polyphony is much less obvious, and is often overlooked. When we recognize the pattern of development for writing in general, and see the place of polyphony and the use of phonetic determinatives in relation to that, it becomes clear that polyphonic multivalence was as central a part of the evolution of the script in China as was paronomastic multivalence.

Egyptian

Zodiographs. Examples of both phonetic determinatives and semantic determinatives are readily found in Egyptian hieroglyphic writing, so much so that it is only a minority of characters that do not have one or the other as a component element, and many have both. Nevertheless, single unadorned zodiographs occur regularly enough, especially in the texts of early periods, for example, the so-called Pyramid texts (ca. 2500–2000 B.C.), so as to leave no doubt about the primacy of their role in the formation of the

script. One need only to look briefly at Gardiner's "Sign-list" to see how many of the single hieroglyphs that he registers there can be used as zodiographs (what he calls "ideographs," 1957: 442–543). We shall give only a few examples here.[1]

(1) The graph  , presumably in origin a depiction of the sun, stood logographically for the word *rˁ* 'sun' (Gardiner 1957: 485).

(2) The character stood as a zodiograph for the word *i* 'reed', and is supposed to be in origin depictive of some kind of reed or rush (Griffith 1898: 27).

(3) The graph  stood zodiographically for the word *tp* 'head', and is clearly representative of a head in profile (Gardiner 1957: 449).

(4) The graph  was the zodiographic scription for the word *ḫprr* 'dung-beetle', and as with (3) above, looks very much like it was depictive of the thing in question (Gardiner 1957: 477).

(5) The graph  stood zodiographically for the word *nb-t* 'basket', and was in origin presumably a depiction of a basket of some sort. It normally occurs with the feminine suffix *-t* written secondarily with the uniconsonantal phonogram  , viz. (Gardiner 1957: 525). Griffith points out that the sign  'basket with loop handle' often appears in Pyramid texts without the loop handle, standing for the word *nb* 'basket' (1898: 47). This seems to me tantamount to recognizing the sign as a zodiograph for *nb* 'basket', which we might have expected in the first place.

Multivalent Usages. Beyond this first stage of zodiographic usage we can find some direct textual evidence for the polyphonic use of zodiographs, though examples are not numerous.

(6) The hieroglyph that we gave as example (1) above standing for the word *rˁ* 'sun' is known from textual evidence to have been used also to write the word *ḥrw* 'day', thus giving it a second reading, and making it a polyphone (Gardiner 1957: 485). The semantic rationale behind using the same graph to write both words *rˁ* 'sun' and *ḥrw* 'day' is not hard to see. Because of the natural and logical semantic association between the words 'day' and 'sun', we can see in this example that the rule we formulated in chapter 2, with respect to keeping the semantic value of a graph constant when the phonetic value is allowed to vary, holds.

Unambiguous examples like this are not often found, yet they can sometimes be discerned, as the following example shows.

(7) Gardiner observes in his Sign-list glossary that the hieroglyph representing a head in profile, which we listed above as example (3) of a zodiograph, standing for the word *tp* 'head', may also have "possessed the value

[1] Because the Egyptian writing system does not represent vowels at all, and because there is no other sure way to know what the vocalization of the words might have been, the usual convention in transcribing the script is to write only the consonants.

ḏ3ḏ3 in some cases where there is no evidence to prove it" (Gardiner 1957: 449). His suggestion is based on his observation that in one Middle Egyptian story "the spellings  and  alternate for the [word] 'head' of a goose . . . " (ibid.). What he seems to sense, but does not say explicitly, is that the graph was a polyphone, standing for the word *ḏ3ḏ3* as well as *tp*, both meaning 'head', and that in some occurrences, but not all, the reading *ḏ3 ḏ3* is specified unambiguously by the addition of the phonetic determinatives *ḏ3 ḏ3*. (On the use of phonetic determinatives, see immediately below.)

It is precisely the use of phonetic determinatives like the *ḏ3 ḏ3* in the above case that often camouflages the fact that a particular zodiograph had a second reading, and was thus used polyphonically. If it were not for the variation within the same text between the graph by itself and where it is augmented by phonetic determinatives, in a way that suggests both graphs must stand for the same word, namely *ḏ3ḏ3* 'head', Gardiner would not have been likely to suspect that the graph by itself had the reading *ḏ3ḏ3*. Yet when we look at such a pattern of graphic alternation in the light of what we have proposed as the evolution of the script from the straightforward zodiographic stage through a multivalent stage, Gardiner's inference about the hieroglyph having two readings is entirely probable, and indeed not surprising.

Just as zodiographs were used with a second reading, functioning thus as polyphones in the writing system, so they were also used paronomastically, that is, standing for two or more words that happened to have the same or similar pronunciations but different meanings. In such cases it is the pronunciation, i.e., the phonetic value of the graph, that is held constant and the meaning that is allowed to vary.

(8) The graph , standing zodiographically for *i* 'reed', as given in example (2) above was used paronomastically to write the homophonous word *i* 'say' (Gardiner 1957: 344).

(9) The graph stood zodiographically for the word *r* 'mouth' (Gardiner 1957: 452), and was in origin presumably a depiction of an orifice of some kind. It came to be used paronomastically, as a logograph to write the preposition *r* 'to', a word that would have been difficult, if not impossible, to write zodiographically (Gardiner 1957: 577).

(10) The graph , originally *nb-t* 'basket', example number (5) above, came to stand paronomastically for the words *nb* 'all' and *nb* 'master' (Gardiner 1957: 573).

The convention in writing Egyptian hieroglyphs strongly tends to favor the use of determinatives, phonetic and semantic alike, so paronomastic and polyphonic uses of zodiographs have normally become specified through the addition of an appropriate determinative, and have not remained in their potentially ambiguous graphic guise. Clear instances of the paronomastic or polyphonic use of zodiographs, unadorned by supplementary determinatives, are therefore relatively uncommon.

(11) The graph  , originally a zodiograph standing for the word *ỉr(-t)* 'eye' (*-t* being the feminine suffix, the full scription for *ỉr-t* 'eye' being ), served paronomastically for the verb *ỉrỉ* 'to make' (Gardiner 1957: 58, 450).

Phonetic Determinative Usages. In general phonetic determinatives, typically called by Egyptologists *phonograms*, predominate over semantic ones. They may take one of three possible forms.

(i) Signs standing for single consonants, called *uniconsonantals* or *uniliterals*, of which there came to be established a fixed inventory of twenty-four.

(12)  , originally *ỉ* 'reed', paronomastically *ỉ* 'say' (see examples (2) and (8) above), and then conventionally the uniconsonantal phonogram for *ỉ* ("consonantal" [y], corresponding to Hebrew *yodh*; Gardiner 1957: 27). See, for example,  *ỉh* 'ox' (Gardiner 1957: 554), where = *ỉ* and = *h*, and the element is presumably the original zodiograph, read *ỉh*, but also with other readings, e.g., *k3* 'bull' (Gardiner 1957: 458), and hence augmented by the two uniconsonantal phonetic determinatives shown here to specify the reading *ỉh*.

(13)  , originally *r* 'mouth', paronomastically *r* 'to' (see example (9) above), used conventionally as the uniconsonantal phonogram for *r* (Gardiner 1957: 27). See example (19) below.

(14) , originally *3* 'vulture' as a zodiograph in Pyramid texts (Gardiner 1957: 467), from which arose the uniconsonantal value *3* (=[ʔ], "glottal stop"); e.g.,  *3d* 'aggressive, angry', where is the second uniconsonantal phonogram, standing for *d*, and the 'crocodile' must have in origin been read *3d* by itself, as a second reading in addition to its reading *msh* 'crocodile' (Gardiner 1957: 475). Gardiner speculates that the 'crocodile' graph is phonetic in  *ỉt* [for *ỉty*] 'sovereign', through a process of phonetic evolution of *3d* > *3t* > *ỉt*, thus implying a reading *3d* for itself (ibid.). This is consistent with our suggestion here that the graph had such a second reading.

(ii) *Biconsonantal* phonograms, also called *biliterals*, i.e., those phonetic determinatives standing for a sequence of two consonants, numbering altogether slightly more than fifty. Examples are:

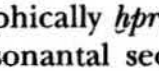
(15) , zodiograph for *ḏw* 'mountain', used as a biconsonantal phonogram for *ḏw* in  *ḏwỉ* 'call', where is a uniconsonantal phonogram for *ỉ* and is the semantic determinative ('man with arm raised in invocation'), (Gardiner 1957: 445, 489).

(16) , zodiograph for *pr* 'house', conventionally used as the phonogram for *pr*, see, for example, *ḫpr* 'become' (usually written with *ḫpr(r)* paronomastically) where is *ḥ* (Gardiner 1957: 492).

(iii) *Triconsonantal*, or *triliteral*, phonograms, standing for a sequence of three consonants. There are altogether about fifty triliterals. Because a triconsonantal sequence is often tantamount to a whole word, recognizing the distinction between a triconsonantal phonogram and a paronomastically-

used zodiograph with the addition of one or more determinatives is not always possible. Examples of triconsonantal phonograms are:

(17)  , zodiographically *ḫprr* 'dung-beetle' (see (4) above), was used to represent the triconsonantal sequence *ḫpr* (Iversen 1961: 16), e.g.,  *ḫprš* 'the blue crown', also attested written zodiographically  ( and  represent *r* and *š* respectively; Gardiner 1957: 504).

(18)  , zodiographically *sḏm* 'hear', in origin depicting an 'ear', used as a triconsonantal phonogram for *sdm* in, for example,  *sdm* 'paint (eyebrows)', where  is an additional uniconsonantal phonogram for *m*, and  is the semantic determinative for 'eyes' (Gardiner 1957: 463; see also below numbers 26 and 27).

In most of these cases it is clear that the phonetic determinatives have been added secondarily to original zodiographs to specify the consonantal values of the word in question. (With the triconsonantals it is not always clear.) In this way the phonetic determinatives essentially spell out the consonantal pronunciation of the logograph in question.[2] Thus:

(19) To the graph  , which as we saw above (examples (1) and (6)) could stand either for *rʿ* 'sun' or for *hrw* 'day', the uniconsonantal phonograms  for *r* and  for ʿ (= Semitic *ayin*, [ʕ]) were added to specify the first of the two readings, giving *rʿ* 'sun', a complex hieroglyph that leaves no doubt what word was being written (Gardiner 1957: 485).

(20) Similarly, the word *hrw* 'day', could be spelled out with phonetic determinatives as , where , , and stand for the sound values *h*, *r*, and *w* respectively, and the is the original logograph to which the three uniconsonantal phonograms have been added (Budge [1920] 1978: 450).

It is customary to mark the logographic use of a graph with a vertical stroke, either underneath or to the side of the logograph, to distinguish it clearly from the phonogrammatic use of the same graph, thus the scription  in both of the preceding examples.

Each of these cases illustrates how phonetic determinatives can be added to a basic graph that is phonetically ambiguous (*rʿ* or *hrw*?) to specify the intended reading when necessary. The unmodified graph  itself was used, according to Edgerton, for both words in all known periods of hieroglyphic texts, showing that phonetic determination was in some cases a possible but not an essential feature of the script. Edgerton goes on to say "This use of a word-sign to represent, not the name of the pictured thing, but another word expressing some related idea, was also, in all probability, an integral part of the system from the time of its invention" (Edgerton 1940: 475).

[2] No orthographic means for indicating vowels was ever devised. Egyptologists conclude from this that, as with the kindred Semitic languages, vowels in Egyptian were morphologically predictable, and therefore did not need to be expressed overtly in the writing system.

Strictly speaking, the use of phonograms like this would be necessary only when the original logograph was susceptible of two or more readings, and was thus ambiguous as to its pronunciation, and by extension, its meaning. In fact, comparatively few hieroglyphs occur without at least partial phonetic specification by means of phonetic determinatives. The evidence of the script sometimes shows that the phonograms were used specifically to resolve cases of phonetic ambiguity inherent in an originally polyphonic logograph like ⊙. At the same time, in other cases it is not clear that a particular logograph had more than one reading, and it may be that the phonograms were attached to it as a convention of the fully developed script irrespective of real phonetic ambiguity. As an example of the use of phonograms to indicate the consonantal values of a word written logographically even when the reading of the logograph is not ambiguous or in question, we may cite the following example:

(21) The word *nfr* 'good' may be written with a single logograph, ; but the word is just as regularly written  , i.e., the original logograph *nfr* supplemented by the two uniconsonantal phonograms *f* and *r*, spelling out the last two of the three consonants of the word. By the same token, the word is attested written with just the last of the three consonants expressed, viz., (all forms from Budge [1920] 1978: 370); and, rarely, with all three consonants represented by phonograms: , where = *n* (Gardiner 1957: 465).

While it may indeed be the case that phonograms are attached to a logograph only by general convention and orthographic preference, without there really being any ambiguity in the pronunciation of the logograph, Gardiner's suspicions in connection with the graph , example (7) above, alerts us to the possibility that some logographs were indeed polyphonous, but direct evidence of that polyphony has not survived. The peculiar pattern of alternation between and gave Gardiner the hint he needed to speculate that itself might have been read *ḏ3ḏ3* as well as *tp*. We should not overlook the same kind of possibility in other cases for which we may not have direct textual indications.

Semantic Determinative Usages. Semantic determinatives are frequently found in combination with the use of phonograms in Egyptian hieroglyphic writing as a kind of apparently redundant device for specifying the intended word. We can also find clear cases of the use of semantic determinatives alone, functioning to specify meaning for zodiographs used paronomastically, without the aid of phonograms. It is the occurrence of this latter type, what we might call the primary or exclusive use of semantic determinatives, that unequivocally verifies in the specific case of Egyptian the general claim we have made about the use of determinatives to resolve semantic ambiguity that arises out of paronomastic multivalence. For example:

(22) The graph given in examples (2) and (8) above,  , read *i* 'reed' or used paronomastically for *i* 'say', came to be written as  in the first instance, showing the addition of the semantic determinative  for 'plants'. In the second instance, for the verb *i* 'say', it came to be written  , the semantic determinative  showing a kneeling man pointing to his mouth being suggestive of 'saying' (Gardiner 1957: 550, 344).

As we said above, clear cases of the paronomastic use of zodiographs are not frequently encountered in texts. But the presumption that they must have been common is readily inferable from the evidence of the use of semantic determinatives.

(23) The graph we have already seen used zodiographically for *r* 'mouth', and paronomastically for the preposition 'to'. In addition a hieroglyph  , read *r* and meaning 'a kind of goose', is textually attested (Gardiner 1957: 471, 577). While the graph  by itself is not attested, so far as I know, read *r*, meaning 'a kind of goose', that it likely had such a use is directly inferable from the existence of the complex graph . The likeliest explanation for the latter is that it arose from the paronomastic use of for *r* 'kind of goose', augmented by the semantic determinative  for 'geese' in general.[3]

(24) The graph , depicting in origin a 'sickle', stood zodiographically for a word *m3* 'sickle-shaped' (Gardiner 1957: 516). At the same time the compound hieroglyph  is attested for the word *m33* 'see', and consists of the same 'sickle' zodiograph augmented by  , the 'eye' semantic determinative (Gardiner 1957: 450). We can only conclude from these data that the graph must have been used paronomastically to write *m33* 'see', nearly homophonous with *m3* 'sickle-shaped', and was then embellished with the addition of the 'eye' semantic determinative. Even though there is no direct or *prima facie* evidence that the graph ever stood by itself for the word *m33* 'see' in any text, still it is logically inferable that it had such a value, even if only fleetingly or potentially, before it was supplemented with , the 'eye' semantic determinative.

Just as we can infer paronomastic usages of zodiographs from the patterns of use of semantic determinatives, so we can infer polyphonic usages from the evidence of phonetic determinatives.

(25) Gardiner 1957: 30 registers the logograph  as a component in the graph  *rk* 'time'. One might assume the here is merely a semantic determinative of secondary graphic status, but it is entirely logical, and consistent with what we know of the multivalent use of graphs, to allow for

[3] Alternatively, we could explain the complex hieroglyph as based on the logographic use of , here read as *r*, with the addition of the phonetic determinative *r*. What makes this explanation less likely than the one proposed in the text is the fact that used logographically is not attested either as *r* or with any other reading.

the possibility that the logograph ⊙ had a reading *rk* itself, meaning 'time', and the two phonograms 𓂋 *r* and 𓎛 *k* are phonetic determinatives in the writing 𓂋⊙ *rk* 'time', serving to specify the reading *rk* and hence the meaning 'time' as against the other two known readings *rˁ* 'sun' and *hrw* 'day'. Such a speculation is predicated on the assumption that the two words *rˁ* 'sun' and *rk* 'time' were deemed closely enough akin to each other in meaning for the use of the same graph to write them to be appropriate.[4]

(26) The graph 𓁹 functions logographically to write the word *msḏr*, 'ear', presumably depicting an 'ear', perhaps of an ox (Gardiner 1957: 463). At the same time the graph enters into the scription 𓁹𓈖 writing the word *sḏm* 'to hear', where 𓈖 is the uniconsonantal phonogram for *m*, serving here to specify the reading *sḏm* for the 𓁹 rather than its other reading *msḏr* (Gardiner 1957: 593). Thus the 'ear' logograph can be inferred to have been polyphonic, and the *m* phonogram was a phonetic determinative that served to disambiguate the reading of the original logograph by specifying the final consonant of the intended reading. (See above, number 18.)

(27) The 'ear' logograph had still another reading as *idi* meaning 'deaf', as is shown by the hieroglyph 𓏲𓁹, i.e., the original 'ear' supplemented by two uniconsonantal phonograms 𓏲 *i* and 𓂝 *d*, spelling out, so to speak, the first two-thirds of the word, and hence constituting phonetic determinatives (Gardiner 1957: 556; see also immediately above and number 18).

(28) The graph 𓂝, depicting presumably a disembodied pair of "walking legs", and known to stand for the word *iw* 'come' as a zodiograph (Davies 1987: 30), figures in the complex hieroglyphic sign 𓉐𓂝 for the word *prˀi* 'to go forth' (Gardiner 1957: 565). Given the presence of the two phonograms 𓉐 *pr* and 𓂋 *r* in that sign, one might at first conclude that these two graphs "spelled" the word in question, and that the 𓂝 'walking legs' element was a semantic determinative. Such an analysis is doubtful, because it reduces the whole graph to a combination of secondary elements, with no primary graphic constituent recognized.

The conventional analysis is further brought into question by the following two hieroglyphic signs, both incorporating the 𓂝 element: (i) 𓂝𓀀 standing for the word *pry* 'champion', and (ii) 𓂝𓃒 standing for *pry* 'champion bull' (Gardiner 1957: 565; the fact that the second is in all likelihood etymologically the same word as the first does not affect our argument).

[4] It may be that the two words *rˁ* 'sun' and *rk* 'time' are cognate, given their similar phonetic structure, but this is not essential to the polyphonic use of the graph ⊙ that we have suggested here. It may also be that the use of ⊙ in *rk* is paronomastic, the reading *rk* 'time' being thought similar enough to *rˁ* 'sun' to substantiate such a use. If the latter is actually so, then the addition of the two phonograms 𓂋 *r* and 𓎛 *k* to indicate the reading intended by ⊙ would be a (rare?) instance of *semantic* ambiguity resolved through *phonetic* determinatives. (Semantic ambiguity, by definition, is the type of ambiguity entailed in the paronomastic use of graphs.)

Neither the graph  nor the graph  has any reading close to *prì*. Both of them would seem to be natural semantic determinatives in their respective hieroglyphs here. How, then, do these two hieroglyphs register their pronunciation? The only possibility is through the  element, which then must have been read *prì*, or something close to it.

If was read *pry* in the two graphs for 'champion', then it is not unlikely to have had the similar reading *prì* standing for the word 'to go forth', which we know was written  . And if that, in turn, is so, then surely the is the primary element in the sign for *prì* 'to go forth', intended to be read not *ỉw*, but *prì*, and the phonograms  *pr* and  *r* are genuine phonetic determinatives specifying this reading.

As if to confirm that the graph was polyphonic, read *prì* in addition to its well-attested reading *ỉw*, we sometimes find the *ỉw* 'come' reading written with the phonetic determinatives  *w*, viz.,   (Gardiner 1957: 552). Such a variant of the simple zodiograph for *ỉw* would not have been necessary unless that graph was susceptible of a second reading.

The processes outlined and exemplified here for Egyptian hieroglyphic writing account for, I think, the fundamental features of the development of that writing system. The script continued to evolve, of course, in ways that are intrinsically interesting, but that do not bear directly on the comparative analysis that we are pursuing here. In what we might call its "conventional" or "standard" form, that of the Middle Egyptian period (ca. 2000–1500 B.C.), the Egyptian script is characterized by very great numbers of hieroglyphs consisting at once of both phonetic and semantic determinatives. This phenomenon of regularly using both kinds of determinatives simultaneously, and seemingly redundantly, seems to have become the rule rather than the exception, but it need not concern us because it is subsequent, in a developmental if not genuinely chronological way, to the fundamental pattern of graph formation.

Sumerian

Although many points about the Sumerian cuneiform script remain obscure, its overall pattern of development is relatively clear, and matches that which we have sketched for Egyptian hieroglyphs in all of its fundamental features.[5] The individual characters of the script, as well as the physical materials used for writing, and the nature and content of the earliest texts, all differ radically from their Egyptian counterparts, of course, but the process

[5] Miguel Civil in discussing problems in the study of the Sumerian writing system has emphasized that "[i]n the study of an extinct language, the description and analysis of its writing system(s) forms an *integral* part of its grammar" (Civil 1973: 22, emphasis original). This includes, he avers, identification of "rules which establish correspondences between the graphic symbols and the elements of the spoken utterances. . . . [O]ther considerations . . . about the origin, history, shape, etc., of the symbols used, have no place in the grammar.

through which the writing system arose and took shape seems to be identical in all basic respects with the one we have seen for Egyptian. We can illustrate this with a few examples, starting with clear cases of zodiographs, and tracing the script's development through a multivalent stage that is, as it was with Egyptian, largely inferential, to a stage characterized by graphs that made use of determinatives for purposes of specifying either pronunciation or meaning in cases where they would otherwise be ambiguous.

Zodiographs.

(1)  () SAG 'head', originally an obvious pictograph of a human head:  , which has been rotated, like many Sumerian zodiographs, through 90° (Labat, 115).[6]

(2)  () MUL 'star', originally , a reasonable depiction of a star, sometimes occurring with more rays (see Labat, 129 and 129a).

(3)  () DU 'leg, foot', originally pictographic:  ; showing that it was rotated through 90° as with SAG 'head', example (1) above (Labat, 206).

As we mentioned in chapter 2 above, it is very often the case that the earliest attested form of a zodiograph does not convey anything pictographically. Examples like the three given immediately above are in the minority. They are, nevertheless, numerous enough to leave no doubt that pictographs constituted the principal, but not necessarily the exclusive, basis for the development of zodiographs. Many examples could be cited that show an early form of the graph that can be pictographically understood only when the word for which it stands is already known. For example:

(4)  () PA 'branch, leaf', attested as  in the earliest period of Sumerian texts, the early third millennium B.C. (Labat, 295). Once we know the meaning 'branch', it is not hard to understand the graph , but without that knowledge the graph would probably not convey anything definite. As was the case with the Chinese zodiographs discussed in chapter 2, this

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They are irrelevant to the message-conveying function of the signs, and fall within the realm of anthropology or archaeology" (ibid.).

Our concern in this section, unlike Civil's in the article cited, is precisely with the origin and history of the script. How the writing system conveys the utterances of the language at later stages is an issue distinct from the script's history, and can for our purposes here be set aside.

[6] We will give cuneiform graphs in their classical Sumerian forms, with the more commonly used later Akkadian forms given in parentheses. All forms are given as recorded in Labat 1976 or Deimel [1928–33] 1961. Because these two works, together with Borger 1971, are the only ones by those authors cited in the present work, and because they are the three standard lexicons for Sumero-Akkadian graphs, we will forgo the usual full reference in citing them, and give simply the name of the author followed by the serial number assigned to the graph in question. (All three use the same numbering system.) Sumerian pronunciations are conventionally given in capital letters; Akkadian, i.e., Babylonian and Assyrian, are given in lower-case italics. We follow this practice here.

shows that the graph represented primarily a linguistic entity, i.e., the word PA, which meant 'branch', not the thing 'branch' itself.

Multivalent Usages.

(5) () AN 'heaven', DINGIR 'god, deity'; this is in origin the same graph as number (2) above, which stood zodiographically for MUL 'star' (Labat, 13). Sumerologists tend to treat MUL and AN as different graphs. Witness Labat, who follows Deimel in assigning them different numbers. This distinction seems to be based mainly on the fact that they came to have different Akkadian forms, vs. respectively, and on the occurrence in early Sumerian texts of a variant with more than eight rays for MUL 'star', but apparently not for AN 'heaven'. The latter point is inconsequential, because the free variation of equally effective, but slightly different, zodiographs for the same word is a common and expected phenomenon, especially at the early stages of a script's orthographic history. The former point is also unexceptional. A graph that was used polyphonically for two words, in this case > for MUL 'star' and AN 'heaven', could naturally become written in two different ways at a later time when the need was felt to distinguish the two words in writing. This is exactly the same phenomenon that we saw with Chinese becoming 月 *yüeh* 'moon' and 夕 *hsi* 'night' (see above, p. 66).

(6) (), zodiographically DU 'leg, foot' (example (3) above), is used polyphonically for GUB 'stand', GIN 'go', and TÚM 'bring' (Labat, Borger, 206). All of these uses are the natural application of a graph originally used for the word DU 'leg, foot' to write words for semantically associated actions.

(7) (), originally a zodiograph standing for the word APIN 'plough' (noun), was used also to write the verb URU_4 'to plough' and the semantically related, but phonetically distinct, word ENGAR 'ploughman', and is thus a polyphone (Labat, 56).

In the study of Mesopotamian cuneiform writing polyphony is generally acknowledged to have functioned as the primary device responsible for the development from a primitive zodiographic stage to a stage of expanded and more versatile utilization of graphs, what we have termed the multivalent stage. The paronomastic use of graphs, which we earlier described as just as fundamental to the development of the Egyptian hieroglyphic script as the polyphonic use of graphs, has been considered in cuneiform studies to be a less appropriate, even "abusive," extension of the application of the original zodiographs. Driver, for example, summarizes the role of these two devices as follows:

> . . . the use of signs depicting concrete objects was extended to express similar concrete concepts and analogous abstract conceptions. Thus the pictograph consisting originally of four crossed strokes terminating in eight points and so depicting a star became the ordinary sign for AN 'sky, heaven'

> and the symbol for DINGIR 'god'; it came to serve also for the adjective 'high' and a number of other conceptions. Again, the pictograph for DU 'leg' did duty at the same time for several verbs including GUB 'to stand' and GIN 'to go' and TÚM 'to carry off', and so on. This principle was seriously strained when the use of a sign was stretched to make it serve for something with which it had no semantic or logical connexion but of which the name had a similar sound. The earliest example of this abusive employment of a sign occurs in the writing of a proper name occurring on several tablets from Jamdat Nasr, where by  TI 'arrow' is improperly used for  TI(L) 'life; to live' in EN.LÍL-TI '(may the god) Enlil (grant) life'. (Driver 1976: 56–57)

Driver adds a footnote to this passage saying that "the final L of TIL 'life' was commonly dropped in pronunciation, which aided the confusion" (ibid.). The "confusion" he is referring to is the potential ambiguity to which the use of the graph TI , originally 'arrow', for the final syllable of EN.LIL-TI gives rise. But in fact the dropping of the final L had nothing to do with the "confusion," which was not likely to have been significant anyway; it simply made this paronomastic use of TI phonetically possible.

In contrast to his prejudice against the paronomastic use of graphs in cuneiform writing Driver finds nothing objectionable or "abusive" about their polyphonic use. Rather, he recognizes this as a normal and expected extension of a graph's proper function; and in fact examples of such usages are easily found. Two of the most frequently cited Sumerian examples are the graphs  read DU 'leg', but also read GUB meaning 'stand', GIN for 'go', and TÚM 'bring', and  read APIN meaning 'plough' or ENGAR meaning 'ploughman' (Driver 1976: 60), both of which we mentioned earlier in this chapter. Examples of this sort could be multiplied many times. The natural trend towards the polyphony of graphs in Sumerian writing was greatly accelerated when the script came to be used to write Akkadian. This, together with the concomitant use of graphs to write single syllables rather than whole (polysyllabic) words, eventually led to a point where, as Driver puts it, "almost every sign ultimately became a polyphone" (1976: 59).

Gelb has pointed out that the Sumero-Akkadian orthographic conventions are not quite as confusing as the heavy load of polyphony implied by Driver might lead one to think (Gelb 1952: 108–10). This is mainly because much of the polyphony of individual graphs that scholars recognize occurred *over time*. That is to say, while a given graph might in fact have had a multiplicity of readings, numbering to four or five or even more, in all likelihood it never had all of those readings, or even most of them, at the same time.[7]

While examples of the paronomastic use of zodiographs in Sumerian are not easy to find, there are some examples besides Driver's TI(L) 'arrow', that show the process to have been a genuine part of the multivalent stage.

(8)  () NU, originally a logograph for the word NU 'statue, figurine' (given by Labat [75] as  in its earliest form, perhaps a conventionalized

[7] This point is emphasized in Herbert H. Paper's review of Gelb 1952 (Paper 1954: 92).

zodiograph), used paronomastically for the negative particle NU 'not' (Borger, 75).

As was the case with Egyptian hieroglyphs, the paronomastic use of cuneiform graphs is more frequently inferable from the later use of characters with added semantic determinatives than it is from direct testimony of textual usages of the unmodified graphs themselves. Because the writing is better attested and better understood in Akkadian times, and in what we may call the Sumero-Akkadian use of characters, than it is for Sumerian itself, many of these examples perforce come from that stratum, and may not be directly attested in pre-Akkadian Sumerian texts. Nevertheless, the structure of the characters still leads us to the same conclusion about the multivalent use, specifically the paronomastic use, of zodiographs as a central device in the development of the script. We can provide this indirect evidence for paronomasia, and illustrate the use of semantic determinatives at the same time.

Semantic Determinative Usages.

(9) The graph  () read MUG stood for three apparently homophonous words: (i) 'thread, ribbon', (ii) 'craftsman', and (iii) 'ferula, fennel'. Because of the inherent semantic ambiguity in this situation, the basic graph was augmented in meanings (ii) and (iii) by means of an appropriate semantic determinative, viz., for (ii) 'craftsman' the semantic determinative LÚ 'man, person' was added, yielding the complex graph  ^{LÚ}MUG 'craftsman', and for (iii) 'fennel' the semantic determinative ŠEM designating aromatic plants and herbs was added, giving  ^{ŠEM}MUG 'fennel'. (See Borger, Labat, 3). Neither the LÚ nor the ŠEM graphs are intended to be read; the compound graphs ^{LÚ}MUG and ^{ŠEM}MUG are to be read only as MUG, but the meaning in each case is not in doubt, thanks to the presence of those semantic determinatives. (The convention is to write the transcription for semantic determinatives raised before the primary word.)

(10) The graph  (), standing zodiographically for SAG 'head', as we saw in (1) above, occurs augmented by the semantic determinative DUG, 'pot, vase', thus ^{DUG}SAG  , representing the word SAG 'censer, thurible' (Labat, 115).

Phonetic Determinative Usages.

(11) The graph  (), our examples (3) and (6) above, serving as a zodiograph for DU 'leg, foot', and standing polyphonically for GUB 'stand', GIN 'go', and TÚM 'bring', was augmented by phonetic determinatives to specify which of the several possible readings was intended. Phonetic determinatives in cuneiform writing take the form of secondary graphs the pronunciation of which recapitulates the final consonant of the intended reading of the primary graph to which they are added (Labat, 22). Thus GUB 'stand' was written  GUB-BU (Deimel, 206.90) where stands for the syllable

BU, but the two-grapheme combination is still to be read only GUB, not GUB-BU with two syllables. The addition of the graph  for BU serves to determine the reading GUB unambiguously, by repeating the final consonant -B. Similarly, TÚM 'bring' was written  (Deimel, 206.87) where is the graph for MA, and GIN 'go' was  (Deimel, 206.63) with NA appended. In both cases the final consonant of the intended reading is specified by the appended graph.

The Sumerian practice of specifying a pronunciation by adding a phonetic determinative, sometimes called a phonetic complement, that indicates the final consonant only is somewhat reminiscent of the Egyptian use of phonetic determinatives, particularly the uniconsonantal ones, where only one or two of the consonants of a word might be spelled out. In both cases there is only a partial specification of the pronunciation of the word, but in both cases also that partial specification is sufficient to register the intended reading unambiguously, and therefore is an adequate device for phonetic determination of graphs in general.

* * *

The patterns for the use of determinatives that we have illustrated for both the Egyptian hieroglyphic and Sumerian cuneiform scripts follow logically from the kinds of ambiguity to which the multivalent use of graphs gave rise. That is, the paronomastic use of graphs entails semantic ambiguity, and is resolved through the use of semantic determinatives, while the polyphonic use of graphs gives rise to phonetic ambiguity, and is correspondingly resolved by means of phonetic determinatives. Given that there are two kinds of ambiguity resulting from graphic multivalence, and two kinds of determinatives that appear to resolve this ambiguity, we have, in theory at least, a total of four possible combinations of matching determinative to ambiguity, as the following chart shows:

TYPE OF AMBIGUITY	TYPE OF DETERMINATIVE: *Semantic*	TYPE OF DETERMINATIVE: *Phonetic*
Semantic	I Semantic ambiguity resolved by semantic determinative	II Semantic ambiguity resolved by phonetic determinative
Phonetic	III Phonetic ambiguity resolved by semantic determinative	IV Phonetic ambiguity resolved by phonetic determinative

Chart I.

Quadrants I and IV represent the normal and expected pattern, as has been illustrated above for both Egyptian and Sumerian, and in chapter 2 for Chinese (though more about Chinese will be said later in the present chapter). Apart from this expected pattern we also find cases of the quadrant III process, that is, phonetic ambiguity resolved through the use of a semantic determinative. This recourse is possible and effective because phonetic ambiguity is technically semantic ambiguity as well, although the variation in meaning of the different words written with the same graph must fall within what we may call a unified semantic field or scope. The two words *yüeh* 'moon' and *hsi* 'night' in Chinese, for example, must be perceived as having a common semantic field, if they are to be both written with the same graph, as indeed they were in early Chinese inscriptions. So when the graph  stands for both of them, we refer to it as a polyphone. If it gives rise to any ambiguity at all, we would expect that to be phonetic ambiguity. But strictly speaking the two words *yüeh* 'moon' and *hsi* 'night' are semantically different, even if they can be accommodated within a single semantic field. So when both of them are written with the same graph, viz., in Shang inscriptions, this entails secondary, or latent, semantic ambiguity as well as primary phonetic ambiguity. It could then be resolved through the use of a semantic determinative, though in the Chinese case apparently it was not. Compare the following Sumerian and Egyptian examples:

Sumerian: (12) The graph  (Labat, 56) has, in addition to the reading URU$_4$ 'to plough', the two readings, APIN, meaning 'plough' (noun), and ENGAR, meaning 'ploughman', as we noted above in example (7), and is thus a polyphone entailing phonetic ambiguity when written by itself. To resolve that ambiguity the *semantic* determinative 'wood' (GIŠ) is added to specify the reading APIN and the meaning 'plough' (presumably because ploughs are made of wood), giving a complex graph (Deimel, 56.2) now unambiguously standing for APIN 'plough'; the semantic determinative  'man' (LÚ) is added to specify the reading ENGAR and the meaning 'ploughman', yielding the equally unambiguous  (Deimel, 56.4) for ENGAR.

Egyptian: (28) The zodiograph  stood for the word *sb3* 'star' and also for the word *dw3* 'adore' (< 'look up to', as, e.g., to a star), clearly showing it to be a polyphone. In the latter reading (and meaning) it came to be augmented by the addition of the *semantic* determinative  'man standing with his arms raised in supplication or adoration', thus (Gardiner 1957: 487, 445).

Given these two examples, we can see that for both Egyptian and Sumerian the process defined by quadrant III of the chart, namely the resolution of phonetic ambiguity by the use of a semantic determinative, is valid and applicable. We shall see that it is so for Chinese as well.

The process represented by quadrant II, that of resolving semantic ambiguity through the use of a phonetic determinative seems an unlikely

expedient, since in cases of semantic ambiguity the point at issue is not pronunciation, so there would appear to be no role for a phonetic determinative to play. It is possible in Egyptian that because of the precise consonantal values of the phonograms, and the possibility of paronomasia based on similar rather than identical pronunciations, the process represented by quadrant II actually exists. See the example of  *rk* 'time' from the zodiograph ⊙ *r*^{c} 'sun', and the phonograms  *r*, and *k*, given in note 2 to the present chapter.

CHINESE

(a) Paronomasia.

When traditional scholars, Chinese or Western, have looked at the history of the Chinese writing system it was the paronomastic use of graphs that they saw to the virtual exclusion of any other possibility as the transition stage between the primitive and limited zodiographic stage and the fully developed stage of Chinese characters that exists from Han times on.

In addition to the examples that we gave in chapter 2 of 象 *hsiang* 'elephant' vs. 'image' and 勿 *wu* 'creature, thing' vs. 'do not' to illustrate the paronomastic use of graphs, we could cite literally hundreds of further examples, most of which would be of characters that later acquired a semantic determinative in the standardized script of the Han and after, just as 勿 *wu* 'creature, thing' did, coming to be written with classifier 093 牛 for 'ox' giving 物. The acquisition of a semantic determinative to resolve semantic ambiguity in this way is represented by quadrant I of the chart on page 88, and is the usual explanation offered to account for the origin of a conventional *hsieh sheng* 諧聲 ("shared phonophoric") series. We can in fact define a *hsieh sheng* series as a set of characters for which the following three conditions are true: (i) all the characters share a common graphic component that stands in each case for the pronunciation of the word that the given character represents, (ii) all of the pronunciations of the words of a given set are homophonous or nearly homophonous with one another, and (iii) all save for the primary graph itself have become graphically differentiated through the acquisition of a semantic determinative according to the process represented by quadrant I. A *hsieh sheng* series is, in other words, normally recognized as based on the paronomastic use of a common graphic element.

We can take the 由 *yu hsieh sheng* series as an example to see how each of these three conditions is met:[8]

[8] The most convenient listing of a large number of *hsieh sheng* series is Karlgren's *GSR*. This series is *GSR* 1079. Meanings are often taken over just as Karlgren has given them.

Set 1

(*a*)	由	*yu*	< **rəgw*	'to draw forth, proceed or follow from'
(*b*) with cl. 075:[9]	柚	*yu*	< **rəgws*	'pomelo'
(*c*) same, also read:		*chu*	< **drjəkw*	'cylinder for the warp of a loom'
(*d*) with cl. 085:	油	*yu*	< **rəgw*	'to flow; vitreous'
(*e*) with cl. 208:	鼬	*yu*	< **rəgws*	'weasel'
(*f*) with cl. 038:	妯	*ch'ou*	< **thrjəgw*	'anxious'
		or	< **drjəgw*	
(*g*) with cl. 064:	抽	*ch'ou*	< **thrjəgw*	'to pull out'
(*h*) with cl. 040:	宙	*chou*	< **drjəgws*	'canopy of heaven'
(*i*) with cl. 130:	胄	*chou*	< **drjəgws*	'eldest son of principal wife'
(*j*) with cl. 177:	軸	*chou*	< **drjəgws*	'helmet'
(*k*) with cl. 145:	袖	*hsiu*	< **zrjəgws*	'sleeve'
(*l*) with cl. 159:	軸	*chu*	< **drjəkw*	'wheel-axle'
(*m*) with cl. 162:	迪	*ti*	< **driəkw*	'to proceed or follow along'
(*n*) with cl. 118:	笛	*ti*	< **driəkw*	'flute, flue-pipe'

Condition (i) is satisfied by the fact that all of the characters listed have the graphic component 由, and in each of them it seems to represent the pronunciation of the word in question. Specific pronunciations vary, as can be seen, between **rəgw,-s* and words with either **dr-*, **thr-*, or **zr-* initials, all of which must be considered phonetically close enough to **r-* to allow 由 **rəgw* to stand as the *phonophoric* (the element "bearing the sound," often called the "phonetic"). If the sounds **r-* and **dr-*, **thr-*, **zr-* are deemed not phonetically similar enough to allow this paronomastic use of 由 **rəgw*, it is the Old Chinese reconstructed values that are thereby brought into question, not the fact of these characters constituting a *hsieh sheng* series.

As we shall explain immediately below, all that is needed to meet the requirement of condition (ii) is for the pronunciations of the characters to belong to the same *Shih ching* 詩經 rime group, which means that they have the same head vowel, and have final consonants that are either identical or homorganic. There is thus a natural association of the generalized pronunciation of the set, reflected as a given *Shih ching* rime group, with the common graphic element. In this case the common graphic element is 由, and the *Shih ching* rime group in question is the 幽 *yu* < **-əgw*, **-əkw* group.

[9] The abbreviation cl., as mentioned in chapter 2, means "classifier," that is, "radical"; cited according to the conventional system of 214 classifiers established during the K'ang-hsi period, and forming the organizational framework of the *K'ang-hsi tzu tien* 康熙字典.

One of the major unresolved issues in the study of Chinese historical phonology is the question of how much phonetic latitude is allowable between two or more words while still preserving the degree of similarity necessary to recognize in them a single *hsieh sheng* series. In other words how different can the Old Chinese pronunciations of two words have been, while still permitting them to be considered members of the same *hsieh sheng* series? Phrased in terms of the development of the writing system, we would ask how different could the pronunciation of two words have been while still having allowed the graph for one to stand paronomastically for the other.[10] The conventional, but not entirely satisfactory, approach to this question is not to demand an explicit answer, but rather simply to accept what seems intuitively reasonable without establishing or defining precise limits on the degree of phonetic divergence permissible.

The problem resolves itself into two parts: what is the minimum degree of phonetic similarity required of the initials, and what is it of the finals? For the initials, our first approximation might be to say that the requirement is one of *homorganicity*. That is, the initial consonants of the words in a single *hsieh sheng* series must all have the same point of articulation, e.g., they must be all bilabials, or all dentals or all velars (including laryngeals), etc. This having been said, we must quickly qualify the rule in several ways. For example, although dental stops [*t, th, d*] and dental affricates [*ts, tsh, dz*] have the same point of articulation, they rarely occur together in a single *hsieh sheng* series. Conversely, palatal stops reconstructed by Karlgren as [*t̂, t̂h, d̂*] alternate freely with dental stops in a single *hsieh sheng* series, even though their point of articulation is different. Because F. K. Li thinks it is necessary to adhere strictly to the rule of homorganicity, he modifies Karlgren's reconstruction of the palatal stops so that they are instead dental stops followed by an [*r*]. This preserves the homorganic feature of the initials in those *hsieh sheng* series where Karlgren allowed an alternation between palatals and dentals (Li 1971: 8–12). Apart from these apparent exceptions to the rule of homorganicity, we find numerous cases of the following kind, showing alternation between non-homorganic initial consonants:

告	*kao*	:	造	*tsao*	(both 宵	*hsiao*	< **-agw/-akw* rime group)
公	*kung*	:	松	*sung*	(both 東	*tung*	< **-ung* rime group)
谷	*ku*	:	俗	*su*	(both 侯	*hou*	< **-ug/-uk* rime group)
各	*ko*	:	洛	*lo*	(both 魚	*yü*	< **-ag/-ak* rime group)
魚	*yü*	:	魯	*lu*	(both 魚	*yü*	< **-ag/-ak* rime group)
其	*ch'i*	:	斯	*ssu*	(both 之	*chih*	< **-əg/-ək* rime group)
庚	*keng*	:	唐	*t'ang*	(both 陽	*yang*	< **-ang* rime group)
京	*ching*	:	涼	*liang*	(both 陽	*yang*	< **-ang* rime group)
今	*chin*	:	貪	*t'an*	(both 侵	*ch'in*	< **-əm* rime group)

[10] The only attempt that I know of in recent scholarship to answer this question precisely is that of E. G. Pulleyblank (1984b).

兼	*chien*	:	廉	*lien*	(both 元 *yüan* < **-an* rime group)
果	*kuo*	:	裸	*lo*	(both 歌 *ko* < **-ar* rime group)
文	*wen*	:	吝	*lin*	(both 文 *wen* < **-ən* rime group)
少	*shao*	:	眇	*miao*	(both 宵 *hsiao* < **-agwl-akw* rime group)
匕	*pi*	:	尼	*ni*	(both 脂 *chih* < **-id/-it* rime group)

It would be both counter-intuitive and contrary to the Chinese lexicological tradition to deny that these are *hsieh sheng* pairs. Many more such pairs could be adduced. What becomes obvious is that there seems to be a wide variety of alternations between initials of entirely different points of articulation within some individual *hsieh sheng* series, so much so that to try to put limits on what kinds of initials might occur within a single series becomes an artificial and useless effort.

The variety of initial alternations exhibited in *hsieh sheng* series of mediaeval and modern Chinese is likely the consequence of a rich and complex system of initial consonant clusters that must have existed at the Old Chinese stage. Because we know only to a very small extent what the nature of that system of initial clusters was, and how it devolved into later stages of the language, it is premature to say that certain alternations of initials are permissible within a given *hsieh sheng* series while others are not. In the present state of our understanding we must allow for any kind of alternation of initials, since we have no basis for excluding any particular case. This means that as far as the initials are concerned we recognize no constraints on what can occur in a given *hsieh sheng* series. This most assuredly does not mean that we are claiming there were no constraints; it only means that because we have no knowledge at present of what those constraints might have been, we cannot *a priori* exclude any possibilities.

The conventionally assumed restriction on the phonetic latitude of the finals allowable in a single *hsieh sheng* series is that defined by a single *Shih ching* rime group. All of the words that make up a *hsieh sheng* series must typically have finals belonging to the same rime group. The one qualification that needs to be made to this is that the allowable range of finals may include both the nasal consonants together with the homorganic oral consonants in the same series. The head vowels must be the same. While there are a few cases where we seem to find exceptions to this restriction on the finals, they are far less consequential than would be the exceptions to an enforced homorganicity constraint on the initials. In fact we may consider this description as to the restrictions on finals, including the one general qualification made in respect to the compatibility of homorganic oral and nasal final consonants, to be a workable definition of allowable phonetic latitude.[11]

[11] We must acknowledge that there is the appearance of a certain circularity in this statement as we have expressed it, because one of the criteria for determining into what *Shih ching* rime group a particular word belongs is its *hsieh sheng* affines. We are saved from actual

In conclusion, to determine that conditions (i) and (ii) of the definition of a *hsieh sheng* series are met we need only show that all characters of the set share a common graphic constituent and belong to the same *Shih ching* rime group. We then conclude that the common graphic constituent represents the pronunciation in each case, and this satisfies these two conditions.[12]

The third condition of the definition, regarding graphic differentiation by means of the acquisition of a semantic determinative, pertains only to quadrant I *hsieh sheng* series, and can readily be seen to be met by direct inspection of the characters. In the 由 example listed above, each character has a different determinative, i.e., classifier, in some cases with an obvious semantic classificatory function, e.g., 木 cl. 075 'tree, vegetation' in (*b*) 柚 *yu* 'pomelo', and 鼠 cl. 208 'rodent' in (*e*) 鼬 *yu* 'weasel'. In other cases there may be only an obscure relation, or no perceptible relation at all, such as 女 cl. 038 in (*f*) 妯 *ch'ou* 'anxious'.

It so happens that all of the characters of the 由 *yu hsieh sheng* series listed above have classifiers that occur in the conventional scheme of 214 classifiers established during the K'ang-hsi period (1662–1722), and that are still generally considered standard. This is of course just a coincidence. The semantic determinatives that were added to differentiate the various paronomastic uses of a graph may or may not have remained isolable and identifiable as semantic classifiers at later stages of the script. The characters 軸, read *chou*, item (*j*) in the above list, for example, has a variant 冑 where the bottom element is *Shuo wen* classifier 277, 冃, which is defined as a kind of 'cloth head covering', but is not one of the 214 K'ang-hsi classifiers.

The implicit assumption in the way we have defined a *hsieh sheng* series, and the way we have outlined the conditions for its identification, is that at a certain time in the evolution of Chinese characters all of the *words* represented in a single series were written paronomastically with the single graph on which the members of the series are all based. Taking the *yu* series as an

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circularity by the fact that the apparent *hsieh sheng* relations are only one of several criteria on which rime group membership can be based. The chief other one for words not occurring in riming position in the *Shih ching* itself is the Middle Chinese evidence, including the *Ch'ieh yün* rime category. Since this latter has nothing to do with *hsieh sheng* series, as far as we know, and since in any case Middle Chinese reconstructions are based on other kinds of evidence as well, this gives the *Shih ching* rime group identity an independent correlate that allows us to use it as a determining factor in establishing a *hsieh sheng* series.

[12] It is important to realize that the specific phonetic details of any Old Chinese reconstruction cannot be used either to justify or to invalidate a proposed *hsieh sheng* series. The *hsieh sheng* series is established on the basis of graphic form matched against phonetic categories, in particular phonetic categories seen diachronically as they devolved from the Old Chinese to Middle Chinese. When the Old Chinese reconstructions appear to conflict with the *hsieh sheng* series, it must be the former that are held to be misconstrued, not the latter. The *hsieh sheng* series are an important kind of evidence for establishing Old Chinese reconstructions, and, all other things being equal, they must be given priority over those reconstructions when there is any discrepancy.

example, all of the words represented in it, with pronunciations varying between **rəgw,-s*, **drjəkw*, **thrjəgw*, **drjəgw,-s*, **zrjəgws*, and **driəkw*, were, or at least in theory could have been, once written with 由. This would have been a heavy burden of semantic ambiguity for any single graph to bear, standing as it would seem to have done for fourteen different words. Because of this, all of the words save the primary word **rəgw* 'proceed from' came to acquire a semantic determinative to specify unambiguously which of the dozen or so possibilities was intended.

In all likelihood the actual development of the script did not follow quite this path. We must allow two possible qualifications. First, we need not assume that the paronomastic use of 由 for the words (*b*) through (*n*) of set 1 occurred at the same time. There is nothing that requires us to recognize a fourteen-way ambiguity at any one time. In fact it is entirely reasonable to suppose that the writing system never had such extensive semantic ambiguity. The explanation rather may be that 由 **rəgw* might have been paronomastically used for one, or perhaps two, other words, which then would have acquired semantic determinatives, and at some later time the same graph 由 **rəgw* would again be used paronomastically for a different word, which then would acquire its own semantic determinative, and so on. Second, it was undoubtedly the case that once the practice of using semantic determinatives to resolve the semantic ambiguity inherent in paronomasia had become a well established and recognized pattern, scribes who found it necessary to devise new characters could construct compound characters consisting of an appropriate phonophoric element and semantic classifier jointly, bypassing altogether the paronomastic stage. This was likely common after the initial stages of the evolution of the script were complete, and it surely accounts for the invention of hundreds, if not thousands, of later characters.

There is a further aspect of *hsieh sheng* series that becomes apparent when we begin to look at the relation between the words and graphs that constitute a given series. Consider for example the following set:

Set 2

(*a*)	安	*an*	<	**?an*	'security, stability; settled'
(*b*)	按	*an*	<	**?ans*	'to press down, hold down, make secure'
(*c*)	晏	*yen*	<	**?rans*	'quiet, at rest, settled'
(*d*)	案	*an*	<	**?ans*	'stool, seat'
(*e*)	鞍	*an*	<	**?an*	'saddle'
(*f*)	恁	*an*	<	**?an*	'feast' < 'mat for kneeling'

These six graphs clearly satisfy all of the conditions we established for the identification of a *hsieh sheng* series. But there is an additional feature of

the set that becomes obvious on a second look: the first three words mean basically "settle(d)" and the second three have meanings that refer to various accoutrements for being settled, namely "seats" of one kind or another.[13] The relation between the first three and the second three is very much like the relation between the words "settle" and "seat" in English. That is to say, the related words seem to be variant derivatives of a common root or stem. The difference between the English case and the Chinese is that for English we are able to say what that root is, and how the words "settle" and "seat" (as well as many others, e.g., "sit," "sedate," "saddle") are related to it more specifically than we are for the Chinese set.

Both "seat" and "settle" come ultimately from the Indo-European root ***sed-*** via the Germanic forms **(ge)setjam* and **setlaz* respectively. The latter gave Old English *setl*, modern English *settle*; the former is the source of modern English *seat*. The two reconstructed Germanic forms can be derived from variant forms of the Indo-European root ***sed-***. The form **setlaz* is from a suffixed form, reconstructed as **sed-lo-*, and **(ge)setjam* is from a suffixed and lengthened grade form **sed-yo-*. The *ge-* prefix is a collective akin to the Latinate prefix *com-*, Latin *cum* 'with' (Watkins 1985: 56).

In specifying this relation between "seat" and "settle" we have resorted to identifying each of the words diachronically with its ultimate source, Indo-European ***sed-***, through the reconstructed Germanic forms **(ge)setjam* and **setlaz*, each of which was derived from an altered form of the root ***sed-***. Those altered forms are presumably the result of morphologically motivated affixation, but it is not always possible to specify the morphological function of the affix. It is important to recognize that the intrusion of diachronic considerations into the explanation of the relation between *seat* and *settle* is entirely ancillary; that is, it is there because the morphological relation cannot be seen without it. But the essential aspect of the relation between the two words in question is morphological, not diachronic. If we were asking instead about the relation between *seat* and *seated*, or between *settle* and *settled*, we could specify it very easily in synchronic morphological terms, without having to resort to any diachronic considerations, because the suffixing of *-ed* or *-d* to verbs in English to form a perfective participle is still a recognized and productive process in modern English.

We can try to analyze the relation between the six words of the *an* 安 *hsieh sheng* series in the same way, but we must be careful to guard against the facile assumption that that relation will turn out to resemble the kind of morphological relation seen in Indo-European languages. It may in part show such relations, but until we know more than we do at present about the phonological and morphological structure of Old Chinese we cannot assume we will find a phenomenon parallel to that of Indo-European. There may be fundamental differences that we are as yet unable to identify.

[13] For a thorough examination of the "saddle" in ancient China, including the likely semantic and phonetic affinities of the word, see Goodrich 1984, especially pp. 289–92.

What we can say with some confidence is that these six words are all related in both pronunciation and meaning, and thus are likely to be cognate with one another, though the precise structure of that cognate relation is not yet completely specifiable. We can show that they all have finals belonging to the same *Shih ching* rime group, viz., the 元 *yüan* group. And we can devise a rubric, or "tag," to use as a kind of *semantic common denominator* to represent the scope of related meanings reflected in the set. In this case I would suggest √SEDO to represent the range of meanings "seat," "settle," "set," "saddle," "sit," etc.

Beyond being able to specify a shared *Shih ching* rime group and a semantic common denominator for any set of words that we want to consider cognate, we may be able to explain certain phonological features of some of the members of the set in a way suggestive of the morphological derivation characteristic of Indo-European. We can offer two examples of this possibility here.

(1) Pulleyblank (1973a: 118) has identified what he tentatively calls a "causative *-r-* infix" in Old Chinese, in, for example, 致 *chih* < **trjids* 'cause to arrive' (cf. 至 *chih* < **tjids* 'to arrive'), and 黜 *ch'u* < **trhjət* 'expel' < 'cause to go out' (cf. 出 *ch'u* < **thjət* 'to go out'). It is possible that the *-r-* of 晏 **?rans* 'quiet, at rest' < 'made or caused to be settled' is the same causative infix added to the word **?an* 'settled'. Appealing as this hypothesis may be, it must remain entirely speculative until those cases where we might expect a causative *-r-* infix but do not find one are explained, and in general until we can see such an infixing process operating on a significantly wider scale than we now do.

(2) In a classic article on identifying these kinds of morphological derivations within word families, G. B. Downer collected several examples of pairs of words that differ in that one member is a modern fourth-tone word, devolved from the Middle Chinese departing tone (*ch'ü sheng*) and is a noun, and the other member is a non-departing tone word and is a semantically related verb (Downer 1959). For example, he cites, these pairs:

(*i*)	磨	*mo*^{4}	'a mill'	~	磨	*mo*^{2}	'to grind'
(*ii*)	鑽	*tsuan*^{4}	'a drill'	~	鑽	*tsuan*^{3}	'to drill'
(*iii*)	扇	*shan*^{4}	'a fan'	~	搧	*shan*^{1}	'to fan'
(*iv*)	縴	*ch'ien*^{4}	'a tow-rope'	~	牽	*ch'ien*^{1}	'to tow'

Since Downer wrote this study the proposed evolution of the departing tone in Middle Chinese from a final **-s* suffix in Old Chinese has become a widely recognized hypothesis. (See, for example, Pulleyblank 1962, 1973a, 1973b). This means that Downer's observation about morphological derivation by a change of tone from a non-departing tone to a departing tone can be restated in segmental terms for Old Chinese as "derivation by *-s* suffixation." The pattern of the four examples given above leads to the surmise that nouns in Old Chinese can be derived from the corresponding verbs by

suffixing an *-s* to the verb. If we examine the *an* 安 *hsieh sheng* series with this possibility in mind, we immediately recognize that the pair 安 **?an* 'settled' and 案 **?ans* 'stool' fits the pattern perfectly. So we might explain this part of the word-family relation as a case of deriving a concrete noun from the root by suffixing an *-s*. The root itself we would reconstruct as **?an*, since this is the phonetic form common to all members of the set.

Just as with the hypothesis of a causative *-r-* infix mentioned earlier, there are numerous examples of pairs that do not conform to the hypothesis suggested by Downer. He lists, for example, these pairs:

(*v*)	瓦	*wa*^{4}	'to tile'	~	瓦	*wa*^{3}	'a tile'
(*vi*)	泥	*ni*^{4}	'to daub on mud'	~	泥	*ni*^{2}	'mud'
(*vii*)	漁	*yü*^{4}	'to fish'	~	魚	*yü*^{2}	'fish'

Clearly the relation here is just the inverse of the examples given above as (*i*) through (*iv*). Here the departing tone member is verbal, and the non-departing tone form is nominal. In conclusion what this means is that, while a few morphological processes seem identifiable, we still confront a great many inexplicable cases, and we cannot yet say with any degree of certainty that the word-family relations in Chinese are structurally or formally the same as they are in Indo-European languages.

The *an* 安 *hsieh sheng* series contains, of course, more than the six characters listed above. Note, for example, the following:

Set 2, continued.

(*g*)	荌	*an*	<	**?ans*	'kind of grass'
(*h*)	鴳	*yen*	<	**?rans*	'kind of bird'
(*i*)	頞	*o*	<	**?at*	'root of the nose'

These words do not seem on the face of it to be related semantically to the first six of the set, and are not likely to be a part of the √SEDO set. Yet they are indisputably part of the *an* 安 *hsieh sheng* series. While one might be able to imagine a plausible (or implausible) way to derive the meaning of one or more of them from the semantic common denominator √SEDO, it is not necessary to find such explanations or derivations for every member of a *hsieh sheng* series.[14] It is perfectly acceptable, and even normal, for a given

[14] Goodrich states that E. G. Pulleyblank has suggested a possible semantic link between 鞍 *an* < **?an* 'saddle' and 頞 *o* < **?at* 'bridge of the nose', and also mentions that Liu Hsi 劉熙 (fl. A.D. 200) in his *Shih ming* 釋名 , a compendium of paronomastic glosses, equates these two words with each other, explaining that the bridge of the nose is curved like a saddle (Goodrich 1984: 287).

By the same token we may speculate that 鴳 *yen* 'kind of bird' is to be understood etymologically as the "nester," i.e., the "thing that nests," from Eng. *nest*, the Indo-European root of which is ***nizdo***, a form consisting of two independent morphemes, ***ni*** 'down' and ***sed*** 'sit'.

hsieh sheng series to have some members that show a semantic relation between them, and others that are based solely on the graphic and phonetic conditions we laid out at the beginning of this discussion. It is important to note that the former is entirely accidental to the structure of the *hsieh sheng* series, while the latter are the essential criteria that underlie our definition of a *hsieh sheng* series.

Our assumption is that those words, like (*a*) through (*f*) in the *an* 安 series, for which we can identify a semantic common denominator, are cognate with one another, and constitute what we call a *word family*. The other words in the *an* 安 *hsieh sheng* series, (*g*) through (*i*), do not share the same semantic common denominator, and are therefore not cognate with the first six, and do not belong to the **ʔan*: √SEDŌ word family. A word family, then, is defined as a set of words cognate with one another, and is a feature of the language, quite unrelated to and unaffected by the script. Word families could exist whether there were writing systems or not. A *hsieh sheng* series is, of course, exclusively a phenomenon of the writing system, and does not exist except as a part of it. That word families can sometimes be identified by means of a *hsieh sheng* series is just a coincidence—a by-product, so to speak—of the way *hsieh sheng* series have evolved.

There are, to be sure, many word families in Chinese that do not bear any obvious relation to a *hsieh sheng* series, just as there are many *hsieh sheng* series that do not suggest a word family. A word-family relation between members of a *hsieh sheng* series is not a requirement of the *hsieh sheng* series itself, but an accidental feature of it. Still, we can see such a relation within a *hsieh sheng* series fairly often, and so it is a possibility to which we should always be alert. In the **rəgw* series, for example we would probably be justified in grouping together as cognates the following: (*a*) 由 **rəgw* 'draw forth, proceed from', (*g*) 抽 **thrjəgw* 'pull out', and (*m*) 迪 **driəkw* 'to proceed along, follow along'. We can identify a semantic common denominator in these three words of 'conducting, following from or along', a meaning that we may express as √DUCT. On further inspection we may want to consider adding (*b*) 柚 **drjəkw* 'cylinder for the warp of a loom', (*k*) 袖 **zrjəgws* 'sleeve', and even (*n*) 笛 **driəkw* 'flue-pipe', recognizing all of them as "conduits" of a kind, clearly akin to the semantic common denominator √DUCT. It quickly becomes a matter of opinion, and sometimes of spirited debate, how much semantic latitude one ought to allow in identifying word families.[15]

Such an etymology would then put the word 鴛 *yen* into the √SEDŌ word family based on 安 *an* 'settle(d)' and its derivatives, just as English "nest" belongs to the Indo-European ***sed** set.

While the possibility of semantic, and hence cognate, relations between 頤 *o* 'bridge of the nose' and 鴛 *yen* 'kind of bird' and the √SEDŌ set cannot be positively ruled out, either one, or both, of these identifications may be more fortuitous and folk-etymological than actual. There is at present no definitive way to demonstrate whether they are genuine cognates within the √SEDŌ set or not.

This is, as we have said, a problem of the language itself, not of the script, and so we need not pursue or resolve that issue here.

It is not hard to find *hsieh sheng* series that seem to incorporate word families within them. We shall give a few more examples to illustrate the scope and possible phonological and semantic structure of such sets.

Set 3

(*a*)	戔	*ts'an*	<	**dzan*	'to cut down, pare down, cut to pieces'
(*b*)	殘	id. with (*a*)			
(*c*)	棧	*chan*	<	**dzranx,-s*	'stick and twig lean-to'
(*d*)	剗	*ch'an*	<	**tshrianx*	'to pare or shave down'
(*e*)	錢	*ch'ien*	<	**dzjan*	'coin'
(*f*)	淺	*ch'ien*	<	**tshjanx*	'shallow' (sc. water)
(*g*)	俴	*chien*	<	**dzjanx*	'shallow, thin'
(*h*)	諓	*chien*	<	**dzjanx,-s*	'insincere, shallow words'
(*i*)	賤	*chien*	<	**dzjans*	'low, mean, cheap'
(*j*)	踐	*chien*	<	**dzjans*	'to trample, stomp to bits'
(*k*)	幾	*chien*	<	**dzjanx*	'narrow'
(*l*)	箋	*chien*	<	**tsian*	'bamboo or wooden slips or chits'
(*m*)	綫	*hsien*	<	**sjans*	'thread, fiber'

The words (*a*) 戔 (*b*) 殘 **dzan* 'cut to pieces', (*d*) 剗 **tshrianx* 'pare or shave down', (*j*) 踐 **dzjans* 'stomp to bits' all seem to have the meaning of 'to render into bits or pieces'. The words (*f*) 淺 **tshjanx* 'shallow (water)', (*g*) 俴 **dzjanx* 'shallow, flimsy', (*h*) 諓 **dzjanx,-s* 'shallow words', (*i*) 賤 **dzjanx* 'cheap, of slight value' all seem to have the relatable meaning of 'insubstantial, inconsequential, attenuated, flimsy' or 'of trivial value or substance'. On further inspection it is not difficult to see how this sense of 'slight, flimsy, diminished, attenuated' underlies the meanings of the remaining words (*c*) 錢 **dzjan* 'coin' (not 'money' in general, but a token of a small unit or amount of money), (*k*) 幾 **dzjanx* 'narrow', and (*l*) 箋 **tsian* 'bamboo slip' (something shaved or pared down). We can conclude that all of the words listed for this *hsieh sheng* series have a shared sense of 'thin, shave(d), pare(d), cut down', or 'bit, piece, chip' which appears either literally or figuratively in the various members of the set. We can characterize this by the semantic common denominator √TENU-.

There are characters that occur in this same *hsieh sheng* series standing for words that do not seem to be semantically relatable to this root mean-

[15] Notice that the English set 'seat', 'settle', 'sit', etc. includes also the word 'soot', i.e., what *settles*; a word we might not have recognized as semantically congruent with the set at first glance. See Watkins 1985: 56.

ing, and that we therefore do not include in the "pare ~ bit" word family. For example:

(*n*)	餞	*chien*	<	**dzjanx,-s*	'to give a farewell feast'
(*o*)	濺	*chien*	<	**tsjans*	'to gush forth'
(*p*)	醆	*chan*	<	**tsrianx*	'cup; half-clarified spirits'

As we mentioned above in connection with the *an* 安 *hsieh sheng* series, it is not necessary to find a way to reduce every member of the *hsieh sheng* series to the same semantic common denominator, i.e., the same word family. Word families and *hsieh sheng* series are independent of each other, and do not necessarily coincide in their individual elements item for item.

Set 4

(*a*)	蜕	*t'ui*	<	**thuads*	'to slough off; exuviae'
(*b*)	捝	*t'uo*	<	**thuat*	'to take away'
(*c*)	捝	*shui*	<	**hruads*	'to wipe off'
(*d*)	脫	*t'uo*	<	**thuat*	'to peel off, take off'
(*e*)	脫	*t'ui*	<	**thuads*	'easy, leisurely, relaxed'
(*f*)	悅	*yüeh*	<	**ruat*	'pleased, relaxed'
(*g*)	說	*shuo*	<	**hruat*	'to explain'
(*h*)	稅	*shui*	<	**hruads*	'tax'

Words (*a*) through (*d*) can all easily be seen to have a semantic common denominator on the order of 'take or peel off or away', which we could represent as √EXUO. At first (*e*) and (*f*) seem distinct from this, but the sense of 悅 *yüeh* 'pleased' (frequently written 說 in early texts) must be something like 'relaxed' and 'not tense or wound up'. Thus it is comparable to 脫 read *t'ui* 'at ease, leisurely', both words having an underlying sense of √LAX, a meaning not incompatible with the √EXUO semantic common denominator. Finally, both (*g*) and (*h*) are specialized senses of the same semantic common denominator; 'to explain' is to 'unwind', 'untangle', or 'unravel' figuratively (說 *shuo* in origin is not just 'talk', but 'explain', cf. the reading *shui* < **hruats* meaning 'persuade' as a semantic extension of 'explain'). And 稅 *shui* 'tax' is 'tax in kind', something 'peeled off the top' of the harvest or crop (cf. modern Eng. 'skim', as in 'off the top [of unreported profits]').

Given the obvious fact that the modern Chinese script is structurally based on a large number of such *hsieh sheng* series, it follows that the paronomastic use of graphs at an early stage in the script's development is easily recognized, and indisputable, even when the majority of what were in origin paronomastic uses of the same graph have become graphically distinct through the acquisition of semantic determinatives. Thus it is that the process of semantic determination represented by quadrant I of the chart is recognized as the usual way that the script developed from the multivalent stage to the determinative stage.

(b) Polyphony.

The multivalent complement to the paronomastic use of graphs as a means for expanding the scope of what could be written, and for achieving the maximum efficiency from the set of established graphs, was polyphony—that is, the homeosemous, or parasemantic use of a graph. In the few examples of polyphony in Sumerian and Egyptian that we cited above we can see the single essential feature of this kind of graphic development: while the pronunciation of the signs may vary widely, the meanings of the words written with a particular sign must be semantically congruent, or akin, and able to be suggested by the depictive capacity of the graph in question. Recall Edgerton's comment about the use of the Egyptian hieroglyph ⊙ to stand not just for the name of the thing it depicted (*rᶜ* 'sun'), but for "another word expressing some related idea" (*hrw* 'day') as well. (See p. 79 above.) This is what we called *homeosemy*, and it is based on the premise that the depictive quality of the graph itself must suggest the second word just as it presumably suggests the first, for which it was originally devised. This premise is the best indication yet of the fundamentally pictographic origins of writing.

It must make semantic sense to use an established graph for a second word, or else there would be no overall advantage in allowing a graph with an already well-fixed associated reading to acquire a second reading. When that second reading is a word semantically akin to the first, but not amenable to direct depiction, any ambiguity that the use of a single graph for two different words might entail is outweighed by the advantage of having a means to write the second word where otherwise there might be none. In the Egyptian example of ⊙ the two meanings 'sun' and 'day' are easily relatable. Likewise, the meanings of the various readings of the cuneiform graph  , viz. DU 'leg', GUB 'stand', GIN 'go', and TÚM 'bring', are also perceivable as linked in a semantic complex centered around the sense 'foot, leg'. The original form of the graph was  (Labat, 206, and Sumerian example (3) above), clearly depictive of an 'ankle and foot', and therefore graphically suggestive of all of the words that cluster around the 'foot' semantic complex. This is what we mean by saying that it must make "semantic sense" to use the graph polyphonically to write these several different words, and by extension that the phenomenon of polyphony in general attests to the pictographic origins of writing.

It is important to emphasize that polyphony is in no way a violation of the principle on which we insisted in chapters 1 and 2, namely that script does not stand for meanings or ideas directly apart from real words, but must represent speech, i.e., the *sounds* of language at some level. Just because a single graph can be read in more than one way, and thus stands for more than one word, it does not mean that the graph stands for an idea or concept abstracted from the words themselves. For example, cuneiform

character  cited above stands for several distinct words having to do with 'feet'; it does not follow from this that the graph itself represents the "idea" of a 'foot', or of notions or concepts associated with 'feet'. It is simply that the relation between graph and word in Sumerian, as in Egyptian and Chinese, was not neatly isomorphic. And this one-to-many correspondence of graph to word is actually an effective expedient for rendering writable a large number of words that would not otherwise be so in a rigidly zodiographic script, while at the same time keeping a reasonable check on the proliferation and complexity of new graphs.

Polyphony in China, as in Egypt and Mesopotamia, gave rise to potential ambiguity as to what reading should be attached to a given occurrence of a character. This is the kind of ambiguity that underlies quadrants III and IV of the chart, and we have already seen that it can be resolved by the use of either kind of determinative. The usual expectation is to find it resolved through the addition of a phonetic determinative. This is the process represented by quadrant IV of the chart.

The main problem in identifying polyphony in Chinese is that a graphic constituent that has been used polyphonically to produce derivative characters almost never carries more than one of its different readings into later stages of the language. For example, in chapter 2 we identified the graph □ as a polyphone with the readings *k'ou* < **khugx* meaning 'mouth, orifice', and *ming* < **mjing* meaning 'name, call'. The second reading is not preserved for the graph □ alone; only the first. So when we see a set of characters like:

	Set 5				
(*a*)	名	*ming*	<	**mjing*	'name, call',
(*b*)	鳴	*ming*	<	**mjing*	'bird-call',
(*c*)	命	*ming*	<	**mrjings*	'fate'

we are not at first prepared to recognize □ as a phonophoric element with the reading *ming*, because such a reading does not now exist for the graph □ itself, nor is it directly attested in any extant documents. But on further consideration it is clear that all of the conditions for a *hsieh sheng* series are satisfied by this set, and we can infer that □ is the phonophoric. This hypothesis implies that □ itself had a reading *ming* at the formative stage of the script, that is, at the time when it could have been used as a phonophoric in these characters.

The set 名 *ming* < **mjing* 'name, call', 鳴 *ming* < **mjing* 'bird-call', 命 *ming* < **mrjings* 'fate' looks formally like a *hsieh sheng* series as we defined it above. All of the words share a common graphic element □, and all belong to the 耕 *keng* < **-ing Shih ching* rime group. The striking difference is that in a conventional *hsieh sheng* series, the original "core" graph is easily identified as the phonophoric element because it has a pronunciation that conforms to the

phonetic structure of the series as a whole, but in this alternative kind of *hsieh sheng* series that is not the case. Another way of looking at this would be to say that in the conventional case the original graph on which the *hsieh sheng* series is built is itself an obvious member of the series. But with the 名, 鳴, 命 *ming* series, although we may notice that the three graphs all belong to the same *Shih ching* rime group and have a common graphic constituent, that graphic constituent is not normally thought of as anything but *k'ou*, and is therefore not associated with the pronunciation *ming* of the three characters in which it appears. Thus it is not conventionally recognized as a phonophoric, and is not taken to be a member of the *ming hsieh sheng* series.

The failure to see any connection between the graphic constituent □ and the similar pronunciation of the three characters 名, 鳴, and 命 generally precludes the identification of these three as a *hsieh sheng* series in the first place. But when we allow that □ could have been polyphonic, with a reading **mjing* standing for the word 'name, call', we can see at once that these three characters do in fact constitute a *hsieh sheng* series. It is no different from the conventional kind we identified as characteristic of quadrant I, except that this is a *hsieh sheng* series based on a lost second reading of the core graph and one in which the graphic constituents other than the core element □ of each character are not obviously semantic determinatives. These two departures from a conventional *hsieh sheng* series make the *hsieh sheng* structure of the set liable to escape notice. But a *hsieh sheng* series it definitely is, according to the first two criteria that we established above, namely that all of the characters share a common graphic element, and that all of the words represented belong to the same *Shih ching* rime group. That it does not adhere to condition (*iii*), that is, does not show graphic differentiation by means of the acquisition of semantic determinatives, means only that it has arisen through a slightly different process of graphic differentiation, not that it is not a *hsieh sheng* series.

The reason why the second reading for the graph □ is not attested or preserved is precisely that, because it *was* a second reading, it gave rise to ambiguity, and so was subject to the addition of a secondary determinative, sometimes phonetic (quadrant III), sometimes semantic (quadrant IV), to resolve that ambiguity. This was in fact exactly the mechanism that generated the series 名, 鳴, 命. The use of phonetic or semantic determinatives to resolve the ambiguity inherent in the polyphonic use of a given graph inevitably entails the loss of that second reading for the original graph itself. In other words, when a *hsieh sheng* series based on the polyphonic use of a graph arises, it *ipso facto* eradicates the polyphony that was its original reason for having arisen. Once a determinative was added to the originally polyphonic, and hence phonetically ambiguous graph, the written language at that moment "lost" the second reading for the graph in question.

In the case of our example, then, all instances of □ intended to be read *ming*, standing for the word meaning 'name, call' would come to be written 名 precisely because □ itself was ambiguous as to reading, *k'ou* or *ming*. The

夕 element was the determinative, in this case phonetic, that was added to resolve the ambiguity, leaving the unadorned graph 口 to stand for *k'ou* 'mouth, orifice' unambiguously. That the graph 夕 itself was polyphonic, pronounced *ming* < **mjiang* and standing for the word 'brighten', as well as *hsi* < **rjiak* meaning 'night' is suggested by Hsü Shen's 許慎 (ca. 55–ca. 149) entry for 名 in his *Shuo wen chieh tzu* 說文解字 (abbreviated *SW*; see chapter 4 for details about the compilation and nature of this lexicon) where, after analyzing the character as 从口从夕 "derived from 'mouth' and from 夕," he adds 夕者冥也 "as for 夕, it is *ming* < **ming* 'dark'," which must be his way of indicating that the graph 夕 was to be read as *ming*, and understood as a phonophoric in the character 名, not as *hsi* or anything else (*SWKL* 0578). Similarly, the original graph 口 was augmented by the addition of a semantic determinative, 鳥 cl. 196 'bird', to establish an unambiguous character for the word *ming* < **mjing* 'bird-call'.[16]

Just as the graph 口 seems to lie both phonetically and semantically at the heart of the 名, 鳴, and 命 *ming* series with a basic sense of 'call', so the graph 目, usually standing for the word *mu* < **mjəkw* 'eye', can be identified as the common element in the following characters, all in the 元 *yüan* < **-an* rime group:

Set 6

(*a*)	見	*chien*	<	**kians*	'to see'
(*b*)	面	*mien*	<	**mjians*	'face' (OBI:  , see Kao 1980: 5)
(*c*)	宦	*huan*	<	**gwans*	'official' (bronze: , Kao 1980: 387)
(*d*)	憲	*hsien*	<	**xjians*	'law, rule' (bronze: , Kao 1980: 159)
(*e*)	曼	*man*	<	**mjans*	'extended' (bronze: , Kao 1980: 494)

The appearance of initial *m-* in (*b*) and (*e*) of the set is probably due to an original labio-velar. Notice that functionally 見 *chien* and 面 *mien* are synonymous in the meaning 'to face, to have an interview or meeting with', and are undoubtedly cognate words. From these data we can postulate a *hsieh sheng* series, based on the graph / 目 'eye', read **kians* or **mjians* 'to see, to face'. This is exactly parallel to the *ming* set just discussed above, based on 口, in that here also the reading of the common graphic element that underlies the series is not preserved as a reading for the graph itself. Our inference is that just as 口 stood for two words, one the noun 'mouth', the other the associated verb 'call', so too did 目 stand for two words, 'eye' *mu* < **mjəkw* and 'see, face' *chien* < **kians* ~ *mien* < **mjians* (< **ngw-* ?), where the nouns and verbs are entirely unrelated phonetically.

[16] The analysis and explanation of 命 is a little less clear-cut than of 名 and 鳴, because 令 *ling* < **ljing,-s* 'command' seems to play an etymonic role, and in inscriptions the graph 令 stands often for the word *ming* < **mrjings* 'fate, destiny' (*GSR* 823a). The 口 element may be a phonetic determinative (in the reading *ming*) in 命 to specify the reading *ming* < **mrjings* for 令 as against *ling* < **ljing,-s*.

In summary we can distinguish two kinds of processes that gave rise to *hsieh sheng* series: one based on the paronomastic use of a graph, which preserves the identity of the original core graph, and thus results in what we may call a *transparent hsieh sheng* series, and another based on the polyphonic use of a graph, which inevitably obscures the identity of the original core graph, and yields an *elusive hsieh sheng* series. The former is the quadrant I type that is discernibly fundamental to the structure of the writing system as a whole. The latter is not normally identified as a *hsieh sheng* series at all, because the reading of the graph on which the series was based became dissociated from the graph itself. In spite of their differences, both processes are aimed at resolution of the ambiguity characteristic of the multivalent stage of the script, i.e., ambiguity attendant on the paronomastic or polyphonic use of zodiographs. The net effect on the writing system of both processes was the same—a series of characters all sharing a common graphic element and a common phonetic shape.

The differences between these processes are of two kinds, developmental and perceptual. By "developmental" we refer to the fact that the conventional, transparent *hsieh sheng* series crystallized around a core graph with a pronunciation clearly related to the readings of the members of the series, whereas, in the elusive *hsieh sheng* series the relation between the common graphic element and the readings of the characters in the series has become obscured. By "perceptual" we mean that the association, or correlation, of the common graphic element with the common phonetic shape is an automatic and self-evident step in the conventional case, but it is neither automatic nor self-evident for polyphonically based elusive ones.

Nevertheless, once both procedures that generated *hsieh sheng* series are recognized, and the differences between them are made clear, we can begin to spot cases of the second kind, that is, the elusive cases based on the polyphonic use of a graph, and we find that they are more numerous than we might have at first expected.

If we look again at Set 2, the √SEDO word family, graphically based on 安 *an* 'settled', and in particular if we recall our claim at the end of chapter 2 that as a rule, apart from holographs (and the occasional anomaly), characters without a phonophoric constituent somewhere in their graphic structure simply do not exist, then we must try to uncover a phonetic basis for the structure of the graph 安 used to write the word *an* < **ʔan* 'settled'. The traditional graphic analysis, given first by Hsü Shen in the *Shuo wen* is straightforward: 靜也从女在宀下 "'tranquil', derived from a 'woman' underneath a 'roof'" (*SWKL* 3229). No one can quibble with the formal accuracy of this analysis, yet it does not account for the pronunciation of the character 安 in any way.

Western investigators, dazzled by the apparently exotic nature of the Chinese script, and its seemingly unlimited capacity for "ideographic amusements," have eagerly embraced this graphic analysis as an explanation

of the *meaning* of the *word*, espousing the thesis that "peace" (as they render 安 *an*) is best represented "ideographically" by "a woman under the roof," i.e., "a woman in the household." In this approach, having been captivated and mesmerized by the supposed quaintness of the graph and its analysis, they fail utterly to consider the *word an* < **?an* 'settled' itself, and forget the obvious fact that the *word* is something absolutely prior to, and entirely apart from, its written representation. We must suppose, given the likelihood that people spoke before they wrote, that the word *an* < **?an* existed long before the graph 安 arose, and that it had the meaning 'settled, stability' irrespective of the 'woman under a roof' graphic structure. There is no reason to assume that the meaning of a word is reflected by the *combination* of constituent elements used to write it, except in the most superficial and innocuous way. We admit that the structural components of a character may in a few cases reflect an *ex post facto* popular understanding, or folk etymology, of the word in question, but this should not be equated with the word's actual history or etymology, or with the principles according to which the writing system developed. The basis of the script is, as we have repeatedly stressed, phonetic, and the graph represents the meaning of the word only by representing the *sound* of the word, that is, the word itself. Semantically significant components of characters, i.e., determinatives, are inevitably secondary to phonetic components.

Thus we can say that the graph 安 represents the word *an* < **?an*, meaning 'settled, stability', but the question still remains, "how does it represent the pronunciation **?an* ?" In theory there are two possible answers. First, we could sweep the problem aside by claiming that the graph should be taken as a single, indivisible unit, standing holographically for the word *an*. But this is intuitively not very satisfying, because it is obvious that the character 安 is not a single, indivisible unit, but is a digraph constituted of two easily discernible components. We ought to be able to identify one of those two components as a phonophoric element, if our claim that all characters have phonophorics (unless they stand holographically for the word in question) is to remain viable. And this gives us the second answer: we must scrutinize the components of 安 to see if one of them is identifiable as a phonophoric. Notice the following set:

Set 7

(*a*)	安	*an*	<	**?an*	'settled'
(*b*)	晏	*yen*	<	**?rans*	'tranquil'
(*c*)	妠	*nan*	<	**nrans*	'to quarrel'
	also read	*nuan*	<	**nruan*	id.
(*d*)	姦	*chien*	<	**kran*	'licentious'

We can isolate the graph 女 'woman' as common to all four characters, and we recognize that all four belong to the 元 *yüan* < **-an* rime group.

These two conditions alone are sufficient to define this as a *hsieh sheng* series of the quadrants III–IV kind where the phonetic ambiguity is resolved by either a semantic or phonetic determinative, based on 女 as a polyphone. The graph 女 itself has only one directly attested reading, viz., *nü* < **znjagx*, meaning 'woman', and clearly does not belong to set 7. Nevertheless, just as with the 口 of the 名, 鳴, 命 *ming* set, we can speculate that it had a second reading that must have been approximately **?(r)an*, in which it functioned as a phonetic in the four characters listed above.

To explain a graph as having two unrelated readings we must be prepared to show that the *meanings* of the two words in question can both reasonably be seen to be depicted by the graph. For the reading *nü* 'woman', of course, there is no problem, the character 女 is in fact a zodiograph of a woman kneeling with arms crossed in front:  (Kao 1980: 32). Because the graph depicts a *kneeling* woman it is a perfectly appropriate choice to write the word **?an* 'seated, settled' < √SEDO. Recall that 'kneeling' is tantamount to 'sitting' in traditional China, and 'sitting' lies at the heart of the √SEDO word-family. When the moment came, at the formative stage of the script, to write the word **?an* 'settled', or the clearly related word **?rans* 'tranquil', what better recourse than to use the already established graph of the *kneeling*, i.e., 'seated' woman? This must be what underlies the two characters 安 *an* 'settled' and 晏 *yen* 'tranquil', each of which subsequently acquired a determinative to resolve what would otherwise be overt ambiguity in the reading of the graph 女.

Before the **?(r)an* reading of 女 was lost, the graph must have been used quasi-paronomastically to write the other two words in this set, 妠 *nan/nuan* and 姦 *chien*. The term 'quasi-paronomastically' is deliberately vague, because doubled and tripled characters like 妠 and 姦 seem to constitute a special class of character formation, and may conform to special rules we are not fully aware of. In any event it seems reasonable to suppose that the graph 女 in its second reading is the phonophoric in both 妠 *nan/nuan* the 姦 *chien*.

Several examples of bone and bronze forms of the character 安 show an additional small stroke either underneath, or partially underneath and to the side of, what appears to be the anatomical posterior of the woman:  ,  ,  (Kao 1980: 382). No satisfactory explanation of this extra stroke has to my knowledge ever been offered. I suspect that it is in origin nothing but a graphic depiction of the mat on which one customarily knelt or sat, and it is functioning here as a phonetic determinative specifying the **?(r)an* pronunciation of the 女. In and of itself that stroke represents nothing other than the word *yen* < **gran* 'mat', or perhaps the related word *chien* < **?sians* 'mat' (written modern 筵 and 薦 respectively). Given the obvious semantic relation between 'sit' and 'mat', as well as the clear phonetic congruency in initials and finals both between **?(r)an* and **gran*, or even **?sians*, a graph for the word 'mat' would make a natural phonetic determinative in this character; all the more so because it would in effect be a *semantic* determinative as

well. The logical conclusion to this reasoning is to regard the two words for 'mat', 筵 **gran* and 薦 **?sians*, as member of the √SEDO word-family proper, much as the English word *nest* belongs to the ***sed-** root (Watkins 1985: 45).

The *Shuo wen* enters a word 韉 *chien* < **?sian* 'saddle-blanket', which it explains with exactly the same phrase it uses to define 鞍 *an* < **?an* 'saddle' (*SWKL* 1187). (See Goodrich 1984: 291.) The *Yü p'ien* and *Kuang yün* both treat *chien* as the second member of a riming binome 鞍韉 *an-chien* < **?an-(?)sian* (*Yü p'ien* 26, sec. 423; *Kuang yün* 2/2a). What this probably means is that the distinction between 鞍 *an* 'saddle' and 韉 *chien* 'saddle-blanket' is artificial, and that in origin these were just two halves of a bisyllabified (or *dimidiated*) form of the word **?sian* 'mat' > 'saddle-blanket' where 鞍 *an* < **?an* simply restores the weakened *?-* of the *?s-* initial cluster.

The addition of the extra stroke in the early graphs for 安, which we have speculated could be a phono-semantic determinative standing for the word **gran* 'mat' (or **?sians*), was not the only device used to specify the pronunciation of the character. Variants of 安 are attested in early texts where the 宀 cl. 040 'roof' has been written as 厂 cl. 027 'cliff' instead, e.g.,  (Kao 1980: 382). Inasmuch as the graph 厂 stands for the (now obsolete) word **hans* 'cliff', this appears to be another effort to incorporate a phonophoric element into the structure of the original character. Note that this form with 厂 also has the 'mat' stroke, suggesting that the 厂 **hans* was in some sense a secondary or additional phonetic.

Finally we might ask, what of 安 itself, with 宀 not 厂, and without the extra 'mat' stroke? We have shown the likelihood that 女 was polyphonic, with one of its readings being **?(r)an* and thus accounting for the pronunciation **?an* of 安. But what about the 'roof' 宀 cl. 040? In the final analysis it looks like this itself was a phonetic determinative added to the otherwise phonetically ambiguous and ambivalent 女. Notice the following set:

	Set 7a				
(*a*)	安	*an*	<	**?an*	'settled'
(*b*)	寒	*han*	<	**gan*	'cold'
(*c*)	官	*kuan*	<	**kwan*	'domicile, residence' (> 'office')

Following the analytic technique that we have established, we can isolate a shared graphic component 宀 'roof', and we can assign all three words to the 元 *yüan* < **-an* rime group. These features define a *hsieh sheng* series, but again, one based on a non-attested reading of the shared graphic element 宀. We must infer a reading for 宀 with a velar or laryngeal initial, and a final in the 元 *yüan* rime group, i.e., an **-an* type, apart from the registered reading of 宀 which is *mien* < **mjan*. The graph itself may have stood originally for the word **kwan* 'domicile, residence' < 'roofed building'.[17] If so, it would

[17] The graph 宀, originally 冂, seems to occur standing alone in oracle bone inscriptions, and may represent the word *kuan* 'domicile > office(r)', modern 官. See Kao 1980: 381.

be functioning etymonically, i.e., with both phonetic and semantic significance, in 官 *kuan*, and as a phonetic determinative in 安 *an* and 寒 *han*.[18]

We cannot but conclude that 女 was a polyphone, read either as *nü* < **znjagx* 'woman', or as *an* < **?an* 'kneel, sit' > 'settled, stability', and that in 安 the 'roof' element was first added as a phonetic determinative based on its reading **kwan*. For unknown reasons this two-element combination 安 was occasionally deemed phonetically deficient, and so either an additional phonetic determinative was added in the form of the word 'mat' **gran*, written with a single simple stroke, lending a semantic specification to the character as well, or the 宀 was instead written as 厂 to stand for **hans* 'cliff', presumably a more obvious phonetic determinative than either 宀 or the single 'mat' stroke.

Set 8

(*a*)	孚	*fu*	<	**phjəgw*	'to brood, incubate, hatch'
(*b*)	保	*pao*	<	**pəgwx*	'to protect'
(*c*)	毓	*yü*	<	**grjəkw*	'childbirth'
(*d*)	育	*yü*	<	**grjəkw*	'to rear (an infant)'
(*e*)	好	*hao*	<	**həgws*	'to be fond of (as a parent to a child)'
(*f*)	孝	*hsiao*	<	**hrəgws*	'to be filial'
(*g*)	斿	*yu*	<	**grjəgw*	'flowing (sc. streamers)'
(*h*)	汙	*yu*	<	**rjəgw*	'to float'

Five of the eight characters above, (*a*), (*e*), (*f*), (*g*), and (*h*), can easily be seen to have the element 子 *tzu* 'offspring, child, progeny' as a graphic constituent. When we examine the early forms of the other three characters, they also turn out to have the 子 element as a graphic component. According to the *Shuo wen* 保 is analyzed as 从人从采省采古文孚 "derived from 人 'man' and from 采 in an abbreviated form. The ancient graph for 采 is 孚" (*SWKL* 3469). Ting Fu-pao in a note after this entry says that Hui Lin's 慧林 (737–820) *I ch'ieh ching yin i* 一切經音義 cites this as . . . 采省聲 ". . . 采 in an abbreviated form is phonophoric." He goes on to say that the younger Hsü edition (= the *Shuo wen hsi chuan* 說文繫傳 of Hsü K'ai 徐鍇, 920–74), and K'ung Ying-ta's 孔穎達 (574–648) commentary to a passage from the *Tso chuan*, Chuang 6, agree with Hui Lin in designating the 采 element as a phonophoric. Tuan Yü-ts'ai 段玉裁 (1735–1815) concurs, pointing out that both 保 *pao* < **pəgwx* and 采 (= 孚) *fu* < **phjəgw* are in his rime group 3,

[18] In *GSR* 143a Karlgren suggests that the two horizontal strokes at the base of 寒 *han* < **gan* 'cold' may be "mats." If this is so, they would also be functioning as a secondary phonetic determinative, just as in the variant of 安 with an extra stroke. The current scription of 寒 *han* which takes this bottom two-stroke element as cl. 015, 冫 *ping* 'ice', is a popular misconception based on the meaning 'cold' and on the fortuitous graphic similarity between 冫 and 冫, and is without historical validity.

which corresponds to the 幽 *yu* group of modern phonologists. Clearly there is nothing exceptional about a graph pronounced **phjəgw* being phonophoric in the character for a word pronounced **pəgwx*. Attested bone and bronze forms of 保 confirm this graphic analysis, showing the juxtaposition of 子 and 人, sometimes with an additional stroke alongside the 子. (See *SWKL* 3469, and Kao 1980: 18.)

The remaining two characters, 毓 and 育, are allographs for the same word *yü* < **grjəkw* 'childbirth', and both have the element 子 in their graphic structures; it just is not immediately discernible. The 亠 (≠ 云 *yün*) component is in fact nothing other than an inverted 子 in origin. This is easily seen from inscription forms of 育 and 子. In the former the 亠 appears as  (see Kao 1980: 44), and for the latter we find  (Kao 1980: 49).

Given these facts about the graphic history of the characters in set 8, we can correctly say that all eight have the component 子 in some form within their graphic structure. Beyond this, all eight characters stand for words with pronunciations in the 幽 *yu* rime group, that is, with Old Chinese finals **-jəgw/-jəkw*. Thus all of the conditions required of a *hsieh sheng* series are satisfied, and we can consider set 8 to comprise a series based on the character 子 with a pronunciation in the *yu* < **-jəgw/-jəkw* group, not read as *tzu* < **tsjəgx*. This pronunciation does not survive in later stages of the language as a reading for the character 子, of course, but the evidence of set 8 suggests that it must once have been associated with 子, probably as a result of using the simple zodiograph for 'child' to write the word **grjəkw* 'childbirth'. It seems reasonable to suppose that at the early stage of the written language the word for 'childbirth' might be written with the graph that depicts a 'child' and that stands zodiographically for the word **tsjəgx* 'child'.

The two characters 毓 and 育 both stand for the word *yü* < **grjəkw* 'childbirth', and the semantic distinction made between them in the above list is artificial. The earliest attested form of the character for **grjəkw* 'childbirth' is  , which is clearly a depiction of the act of parturition. The top element is a reversed form of  (modern 女 or 母; the two were originally not distinguished) and the bottom element is  , an inverted 子 (Kao 1980: 44). In at least one oracle-bone inscription form the 子 is not inverted, and in another it is accompanied by three additional strokes:  (Kao 1980: 44).

Our hypothesis is that the graph 子 had two pronunciations in Old Chinese, associated with two separate but related meanings. This is tantamount to saying that the graph 子 stood for two different, but semantically congruent words, namely, *tzu* < **tsjəgx* 'child' and *yü* < **grjəkw* 'childbirth'. The character 子 was used zodiographically for the former and, according to our hypothesis, stood parasemantically for the latter. As was the case in the multivalent use of many zodiographs, the parasemantic (and polyphonic) use of 子 for *yü* < **grjəkw* 'childbirth' came to be marked graphically to distinguish

it from its use for *tzu* < **tsjəgx*. There are two attested variants of this. First it was augmented by the 'woman' element (女 or 母) on top, with 子 underneath, in some cases inverted. This yielded the character  or  (modern 毓) with 女 / 母 functioning as a *semantic determinative*. Alternatively, the second way the graph was marked was by the addition of 月 (肉) *jou* < **gnjəkw* 'flesh' underneath the inverted 子, giving the modern graph 育. In this case 月 (肉) *jou* < **gnjəkw* is a *phonetic determinative* specifying the pronunciation **grjəkw* as opposed to **tsjəgx* for the original graph 子 / 𠫓.

The *Shuo wen* registers the graph 𠫓 as 不順忽出也 'to issue forth abruptly and suddenly', and implicitly equates it with 突 *t'u* < **thwət* 'to burst forth suddenly' by citing the line 突如其來如 from the entry for hexagram 30 of the *I ching* (3/38a), writing 𠫓 in place of 突 (*SWKL* 6616). The fact that the graph 𠫓 has, by Hsü Shen's implication, the reading *t'u* < **thwət*, meaning 'to come forth suddenly', does not affect our claim that 𠫓 is an equivalent of 子, read *yü* < **grjəkw*, for two reasons. First, there is no textual attestation that I know of to back up Hsü Shen's claim, and his *Shuo wen* entry may be no more than a Han scholastic inference. Second, even if the character 𠫓 did have another reading and meaning in addition to both *tzu* and *yü*, this would not invalidate our hypothesis, since three unrelated readings for a single character are not impossible, given a graphic structure semantically applicable to the meanings of all three. If the word *t'u* < **thwət* 'sudden bursting forth' were specifically associated with childbirth, then the graph 𠫓 < , otherwise used for **grjəkw* 'childbirth', would be a logical way to write it.

Set 8 can be divided into two semantic subsets, the first including items (*a*)–(*f*), and the second (*g*)–(*h*). All of the words of the first subset have to do with childbirth (毓 and 育), child-rearing (孚 and 保), or child-parent affection and ties (好 and 孝). These can be subsumed under a general semantic sense of 'childing, childship' and constitute a single word family.

The two words with bilabial initials 孚 *fu* < **phjəgw* and 保 *pao* < **pəgwx*, suggest that there was a variant of the word *yü* < **grjəkw* 'childbirth' that was specifically associated with 'child-rearing', and that had a labio-velar initial, perhaps **k*^{w}-, which became fully labialized, possibly through dissimilation from the labio-velar final *-gw*/*-kw*. We might distinguish the word **grjəkw* 'childbirth' from the cognate words **kh*^{w}*jəgw* and **k*^{w}*əgwx* 'rear, incubate, protect'.

The graphs 好 and 孝, standing for the words *hao* < **həgws* 'to be fond of (parent to child)' and *hsiao* < **hrəgws* 'to be filial (child to parent)', are both based on a paronomastic use of 子, not as *tzu* < **tsjəgx*, but as *yü* < **grjəkw*. That is to say, because the two words *hao* 'be fond of' and *hsiao* 'be filial' were phonetically akin to *yü* < **grjəkw* 'childbirth', which we have inferred was written 子, and because those two words had meanings that were directly associated with a parent-child affection, the character 子 was deemed appropriate as a way to write them. This would have meant that the

graph stood for no less than *four* separate words, *tzu* 'child', *yü* 'childbirth', *hao* 'be fond of', and *hsiao* 'be filial', a situation that was not likely to have endured for long, given the degree of ambiguity and confusion it would have engendered. The solution was to add determinatives to distinguish the various readings and meanings one from another. The word *hao* came to be written with a semantic determinative, cl. 038 女, presumably because the meaning of the word, 'be fond of, as a parent to a child', was thought to be more of a maternal trait than a paternal one. The word *hsiao*, by contrast, was augmented by the phonetic determinative 尹, as in *k'ao* < **khlәgwx* 考 and *lao* < **glәgwx* 老, to specify the reading **hrәgws*, and hence the meaning 'be filial'.

The last two words of set 8, 𠫓 *yu* and 汙 *yu*, both have to do with 'flowing', and it is probably this aspect of parturition to which they specifically refer. This may be an inherent sense of the word family represented by (*a*)–(*f*), or it may be a secondary overlapping of two originally independent word families, one for 'childing' and another for 'flowing'. The added three strokes that we mentioned above that occur in some inscription forms of 毓 *yu* <  (whence the 𠫓 of 𠫓) may actually represent the word 'flow', seen in 𠫓 *yu* < **grjәgw* 'flowing' and 汙 *yu* < **rjәgw* 'float', and may be functioning in 毓 as a phonetic determinative. Cf. the same three-stroke element as a possible phonophoric in 穆 *mu* < **mjәkw* (bronze inscription form  , Hsü 1981: 278) and 首 *shou* < **hrjәgwx* (OBI:  , Hsü 1981: 354–55). In 首 *shou* it may depict 'flowing hair' and be playing a semantic role as well. Notice also 修 *hsiu* < **gsjәgw* 'to elongate, prolong'; 翏 *liu* < **gljәgws* 'long and tangled'; and 滮 *p'iao* < **brjәgw* 'to flow'. These last three words share a common sense of 'long < long-flowing', a meaning not incompatible with the 'flow-float' sense of 𠫓 *yu* and 汙 *yu*. We can summarize the word family represented by set 8 as follows:

PARTURITION		>	childbirth / child-rearing	(毓 / 育)
		>	incubate / protect	(孚 / 保)
		>	parent-child bond	(好 / 孝)
	(?)	>	flow (sc. childbirth)	(𠫓 , 汙)

Set 9

(*a*)	茸	*jung*	<	**znjung*	'luxuriant growth of vegetation'
(*b*)	聰	*ts'ung*	<	**tshung*	'intelligent, perceptive'
(*c*)	髶	*jung*	<	**znjung*	'tousled hair'

The first of these three characters, 茸, is analyzed in the *Shuo wen* as 从艸聰省聲 "derived from 'grass', 聰 *ts'ung* in an abbreviated form is phonophoric" (*SWKL* 0470). What is meant by this analysis is that in Hsü Shen's opinion the graphic element 耳, normally associated with the word *erh* < **znjәgx* (Old Chinese 之 *chih* < **-jәg/-jәk* rime group), does not constitute an

acceptable phonophoric in a character pronounced **znjung* (Old Chinese 東 *tung* < *-(*j*)*ung*/-(*j*)*uk* rime group), but rather must be understood as standing *pars pro toto* for the word **tshung* (Old Chinese 東 *tung* rime group) 'to hear acutely, keenly > to be aurally perceptive, wise (through keen aural faculties)', usually written 聰.[19] The only way that Hsü Shen knows to express his belief that 耳 stands for the word **tshung* here is to say that it is an *abbreviation* of 聰 as a phonophoric. But in 聰 *ts'ung* itself the 悤 element, also read *ts'ung* < **tshung*, is clearly the phonophoric, and the 耳 appears to be a semantic determinative of the conventional kind. (See *SWKL* 5353.)

If it is a matter of simply abbreviating the complex graph 聰 when it is to be used as a phonophoric in another graph, then we should wonder why not abbreviate it by eliminating the 耳 'ear', which is apparently the non-phonophoric component, since the word *jung* < **znjung* 'luxuriant vegetation' has little if anything to do with 'ears' or 'hearing'. Why not use the obvious phonophoric of 聰, viz., the 悤, which is already established as a viable phonophoric itself by virtue of its use in 聰? This would give a character 葱, which in fact exists, and is registered in the *Shuo wen* as 菜也从艸悤聲 "'pickings, greens'; derived from 'grass', 悤 *ts'ung* is phonophoric" (*SWKL* 0450).

What Hsü Shen implies by identifying the 耳 of 茸 **znjung* as an "abbreviated phonophoric" is that the graph 耳 *itself* was read like **tshung* and is the real phonophoric in 茸 **znjung* in its own right. This means that 耳 was a polyphone in Old Chinese standing for two independent, though semantically associable, words, viz., **znjəgx* 'ear' and **tshung* 'to hear keenly' > 'be perceptive'. The graph 聰 can then be explained as representing the word **tshung* 'hear keenly', originally written, according to our hypothesis, with

[19] In pre-Han texts the word 聰 *ts'ung* was regularly juxtaposed with 明 *ming*, and the two constituted a complementary pair: "acuteness or perceptiveness associated with the aural faculties" matched by "perspicacity or brightness associated with the visual." In other words *ts'ung* was to the ears and hearing what *ming* was to the eyes and seeing. Note the following passages from *Hsün tzu*:

(*i*) 目不[能]兩見而明耳不[能]兩聽而聰 (1/4a)
"The eyes cannot, having observed duplicitously, remain perspicacious; the ears cannot, having heard duplicitously, remain perceptive."

(*ii*) 是聰耳之所不能聽也明目之所不能見也 (4/4a)
"This is what a perceptive ear does not hear, what a perspicacious eye does not see."

(*iii*) 不聽而聰 (8/5a, 17/9b)
"Not hearing but perceptive."

(*iv*) 耳目聰明 (14/3a)
"The ears and eyes are perceptive and perspicacious."

(*v*) 目明而耳聰 (17/2a, twice)
"The eyes are perspicacious, the ears perceptive."

just the graph 耳, as a parasemantically logical, extended use of the already existing character 耳 'ear'. It was subsequently specified phonetically as **tshung*, not **znjəgx*, by the addition of 忽 **tshung* as a phonetic determinative, leaving the unadorned graph 耳 to stand unambiguously for the word **znjəgx* 'ear'.

Hsü Shen's entry for the third character in this set, 髶, confirms that 耳 itself must have had a reading **tshung* because he analyzes 髶 *jung* < **znjung* as 从髟茸省聲 "derived from 'hair', 茸 **znjung* in an abbreviated form is phonophoric" (*SWKL* 4001). If we were to accept his earlier claim that the 耳 of 茸 is an abbreviation of 聰 as phonophoric, that would then compel us to reach the improbable conclusion that it is 忽, via 聰, via 茸, that explains the 耳 of 髶. This is, clearly, a far more contrived and less satisfactory explanation than that 耳 was polyphonic from the start, and had in addition to its well-recognized reading *erh* < **znjəgx*, a reading **tshung* that accounts for all three characters in this set. In 聰 the 忽 **tshung* component is then functioning as a phonetic determinative.

Set 10

(*a*)	聲	*sheng*	<	**hrjing*	'sound'
(*b*)	聽	*t'ing*	<	**hRing*	'to hear'[20]
(*c*)	聖	*sheng*	<	**hrjings*	'sage, wise person'
(*d*)	耿	*keng*	<	**kringx*	'glowing'

In view of the above four characters it seems that the zodiograph 耳, standing as we have seen primarily for the word **znjəgx* 'ear', but also parasemantically for *ts'ung* < **tshung* '(aurally) perceptive, keen', had still another reading, this one in the 耕 *keng* rime group, Old Chinese **-ing*. We can identify and extract the 耳 component from each of these characters, and correlate it with their common rime in **-ing*, thus establishing it as a phonophoric in the set. The graph 耳 itself may have actually been read **hrjing*, standing for the word 'sound' or **hRing* standing for 'hear'; in either case there is an obvious logic to the parasemantic use of the graph for 'ear'. Beyond this, it seems likely that the first two words of the set bear a probable etymological relation to each other that is not apparent in the second two. We can identify the meaning 'sound' ~ 'hear' as their common semantic aspect, and it is this link with 耳 'ear' that satisfies the requirement of semantic congruency that we suppose must be present to permit the same graph to stand polyphonically

[20] The reconstruction of **hR-* as the Old Chinese initial for 聽 is admittedly *ad hoc* and algebraic in that the exact phonetic nature is left unspecified. It is written this way simply to distinguish it from **hrj-*, which gives Middle Chinese *s-* (e.g., in 聲 *sheng*), and from **kr-*, which gives MC *k-* (e.g., in 耿 *keng*). But it does show that we believe *t'ing* must have had an initial similar to **hrj-* and **kr-*, but that yielded modern Chinese *t'-*, and that must have been voiceless, in view of the fact that *t'ing* is a first tone word.

for more than one word. This means that the two words 聲 *sheng* and 聽 *t'ing* probably constitute a word family which we can label √AUDIO. Once the *-*ing* reading, that is, as either **hrjing* 'sound' or **hRing* 'hear' (or perhaps both), has been established for the character 耳, it can then function in the customary paronomastic way as a phonophoric, standing for words roughly homophonous, but semantically unrelated to it. This appears to be how it comes to be used in the third and fourth characters, 聖 *sheng* < **hrjings* and 耿 *keng* < **kringx*.[21]

In each of the first three characters of set 10 there is a phonetic determinative added to the original graph 耳 to specify the pronunciation. For (*b*) and (*c*) it is the graph 壬 *t'ing* < **hRingx*. (What is often written as a 壬 in both 聽 and 聖 is actually this 壬 *t'ing*.) The Ma wang tui 馬王堆 manuscripts of the *Lao tzu* 老子 regularly write both of these characters without the 壬 *t'ing* element, as 聽 and 卽 respectively; and in fact the A manuscript writes 聲 for 聖 consistently (Boltz 1982: 97–99). The 殸 component of 聲 *sheng* < **hrjing* is read *ch'ing* < **khings* (the word means 'lithophone'), and is undoubtedly a phonetic determinative. Notice also that, according to the opinion of Tu Lin 杜林 (first century A.D.), as cited by Hsü Shen himself, the 耳 element of 耿 *keng* is an abbreviated phonophoric from 聖 *sheng* (从火聖省聲 "derived from 'fire', 聖 *sheng* in an abbreviated form is phonophoric," *SWKL* 5349–5350). This confirms our judgment in placing 耿 *keng* in the present set, and recognizing 耳 as its phonophoric constituent.[22]

[21] In 聖 *sheng*, conventionally translated as "sage," it may actually be the case that the 耳 element is etymonic, not just phonophoric, making 聖 *sheng* a part of the 聲 *sheng* ~ 聽 *t'ing* √AUDIO word family. If so, it means that the *meaning* of 聖 *sheng* has some connection with the common semantic denominator of the √AUDIO set.

The understanding of 聖 *sheng* as "sage" or "saint" is not very satisfactory, because it fails to give a particularly precise or concrete sense of what kind of person is meant. Certainly the Western or Buddhist notion of "saint" or "holy person" is not applicable to 聖 *sheng* in a pre-Han Chinese context. If the word 聖 *sheng* is in fact a part of the √AUDIO word family rather than just a member of the *hsieh sheng* series given in set 10, the sense must be something like "a person who is wise through having heard" or "being aurally keen and therefore illumined." Cf. the discussion of 聽 *ts'ung* above (fn. 19); the difference between 聽 *ts'ung* and 聖 *sheng* is that the former refers to that specific knowledge, perception, or capacity that can be associated with the aural faculties, as opposed to 明 *ming*, perspicacity or capacity of the visual faculties, whereas the latter has a more abstract and arcane sense of being wise through having had one's ear attuned to things over a long term. We may call this sense of 聖 *sheng* 'audient' or 'listful' (cf. Eng. *listen*). Just as Eng. *wisdom* is etymologically akin to *vision* (Lat. *videō*, Skt. *veda*), Chinese 聖 *sheng* may be etymologically related to 'hearing' and 'sounds', 聽 *t'ing* and 聲 *sheng* respectively. See also Boltz 1982: 101.

[22] Two other distinct graphic analyses are given for 耿 *keng* in various recensions of the *Shuo wen*, (*i*) . . . 从烓省聲 ". . . derived from **khwingx* (sic) in an abbreviated form as phonophoric," and (*ii*) . . . 从炯省聲 ". . . derived from **kwingx* in an abbreviated form as phonophoric." The character 烓, usually read *wei* < **hwig*, is registered in the *Kuang yün* (3/44b) with the reading 口迥切, implying Old Chinese **khwingx*. Read as *wei* < **hwig*, 烓 does not

Boodberg long ago recognized that polyphony of the kind we have been exemplifying here was a fundamental feature of the formative stage of the script, and moreover that the so-called "abbreviated phonophorics" (*sheng sheng* 省聲) are often an indication of just such polyphony (Boodberg 1937: 336–45). One of the clearest examples that he was able to show is the case of the graph for 'pig', *shih* 豕, in the character for 'household', *chia* 家. Consider the following set:

Set 11

(*a*)	家	*chia*	<	**krag*	'household'
(*b*)	豬	*chu*	<	**trjag*, **tjag*	'pig'
(*c*)	豭	*chia*	<	**krag*	'pig, boar'
(*d*)	豝	*pa*	<	**prag*	'sow'
(*e*)	豦	*ch'ü*	<	**gjag*	'kind of boar'

All five of these words are in the 魚 *yü* rime group, with finals in **-ag*. The initials, although apparently somewhat divergent in the case of (*b*) 豬 **trjag*, **tjag* and (*d*) 豝 **prag*, are in all likelihood reducible to a velar or labio-velar archetype. The **tr-* of 豬 **trjag* may devolve from **pr-* (see Boltz 1986: 24), making the initials of the set either velar or bilabial exclusively.

The *Shuo wen* analyzes 家 as 从宀 豭省聲 "derived from 'roof', 豭 **krag* in an abbreviated form is phonophoric" (*SWKL* 3207). As Boodberg pointed out, this "is the equivalent of saying that 豕 was also read **ka* [= **krag*]" (Boodberg 1937: 341). The reasoning is exactly parallel to our explanation above for 聰, identified as an abbreviated phonophoric in 茸, and for 聖 that was said to be such in 耿.

The character 豕 by itself is registered in the Middle Chinese riming dictionaries as having only the reading 施是切, reconstructed as *śie* (Shen 1945: 772), which implies an Old Chinese pronunciation like **hrjigx*, a form that is not compatible with a phonophoric role in the characters of set 11.

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seem to be a suitable phonophoric, but as *ch'iung* < **khwingx* it is. There is no phonetic problem with 炯 **kwingx* functioning as phonophoric in 耿 **kringx*.

The existence of these two alternative graphic analyses of 耿 *keng* does not throw any doubt on the validity of our claim here that 耳 is phonophoric read as **hrings*, expressed in the *Shuo wen* as 聖省聲 \"聖 *sheng* < **hrings* in an abbreviated form is phonophoric." Rather, these alternative claims are compatible with ours. The two analyses given above, that either 烓 **khwingx* or 炯 **kwingx* is the "abbreviated phonophoric" in 耿 *keng* < **kringx*, both imply that the graph 火 'fire', normally *huo*, had a reading **khwingx* ~ **kwingx* and is etymonic in both 烓 and 炯, and probably in 耿 as well, the meaning in all three cases being 'shine, blaze'. If 火 was a polyphone, as this suggests, then the use of 耳 **hrings* as a phonetic determinative in 耿 to specify that reading is perfectly normal, and even expected. In the final analysis, what we have in 耿 *keng* < **kringx* is a polyphonic etymon 火 read here **kringx*, meaning 'shrine', augmented by a phonetic determinative 耳 **hrings* which itself happened to be a polyphone, used in what became the "lost" second reading.

Were it not for the graph 家 *chia* < **krag*, we would be inclined to see the 豕 element in (*b*) through (*e*) of set 11 merely as a semantic determinative, the other element in each case being the phonophoric. But given the *Shuo wen* analysis of 家, together with our recognition of the existence and behavior of polyphonic elements in the writing system in general, we can see that each of the apparent phonophorics is in every case actually a phonetic determinative specifying the **kr*(*j*)*ag* ~ **prag* pronunciation of 豕 as opposed to its primary reading of *shih* < **hrjigx*.

Set 12

(*a*)	鹹	*chien*	<	**kriamx*	'alkaline, natronic'
		hsien	<	**griam*	'salty'
(*b*)	鹼	*chien*	<	**kriamx*	'rock salt'
(*c*)	鹽	*yen*	<	**grjam,-s*	'salt'
(*d*)	覃	*t'an*	<	**gdəm*	'to reach to'

The fourth character of this set, 覃 *t'an*, is included because it is analyzed in the *Shuo wen* as 从㫗鹹省聲 "derived from 㫗, 鹹 *hsien* in an abbreviated form is phonophoric" (*SWKL* 2287). The fact that it has a -*ə*- head vowel and is in the 侵 *ch'in* < *-*əm* rime group, where the other three words, including 鹹 *hsien*, are in the 談 *t'an* < *-*am* rime group, serves only to show that the distinction between -*a*- and -*ə*- before bilabial finals was fuzzy, and in some cases, at least, neutralized. The character 咸 *hsien* < **grəm* itself is in the 侵 *ch'in* group, but several of its derivatives, including 鹹 *hsien* < **griam*, are in the 談 *t'an* group.

In spite of the fact that the character 覃 does not appear to have 鹵 in its structure, it is clear from the *ku wen* and seal forms that the top element 西 is in origin 鹵, and the *Shuo wen* analysis is correct. The *Shuo wen* registers a *ku wen* "ancient script" graph [illegible] and a seal form [illegible] as variants of 覃 (*SWKL* 2287). This means that the structure and ostensible explanation that Hsü Shen gives for 覃 is exactly as it was with 茸 *jung* and 家 *chia* above, namely, that the character has an abbreviated phonophoric, and that that abbreviation is based on another character from which the part that might have served as an obvious phonophoric has been removed. And this raises the same question again. If a complex graph, in this case 鹹, was to be abbreviated when used as a phonophoric in another character, why eliminate precisely the part that is *its* phonophoric? The only logical answer is that the 鹵 element was a polyphone that must have meant 'salty' and been pronounced **kriamx* ~ **griam* itself, in addition to its well attested pronunciation *lu* < **lagx* (< **glagx*), and the 咸 *hsien* < **grəm* component was added as a phonetic determinative. Similarly, for (*b*) 鹼 and (*c*) 鹽 above, the 僉 *ch'ien* < **ksjam* and 監 *chien* < **kram*(*s*) components must be phonetic determinatives in those characters as well.

Set 13

(*a*)	珊	*shan*	<	**san*	only in 珊瑚 *shan-hu* 'coral'
(*b*)	姍	*shan*	<	**san*	'to jest'
(*c*)	狦	*shan*	<	**sran,-s*	'kind of lupine animal'
(*d*)	跚	*shan*	<	**san*	'to limp'
(*e*)	刪	*shan*	<	**sran*	'to edit or excise'
(*f*)	扁	*pien*	<	**pjanx*	'writing slip, section of bamboo tablets'

All of the above words belong to the *Shih ching* 元 *yüan* < **-an* rime group, and have the graphic component 冊, Shang inscription form 𠕋 (Kao 1980: 486). The last character listed, 扁 *pien*, is analyzed in the *Shuo wen* as 署也从戶冊 "'writings', derived from 'door', and from 'bamboo tablets'" (*SWKL* 0920). Graphically there is no question that the graphic component 冊 in 扁 *pien* is the same as the 冊 element of the *shan* words. Phonetically, the graph 冊 as an independent character is pronounced *ts'e* < **tshrik*, meaning 'bamboo or wood slip', and is an allograph of 策 *ts'e*. The Shang inscription form 𠕋 is thought to represent bamboo slips strung together with fiber or leather thongs—the characteristic form of books before the invention of paper. (See Chavannes 1905.) This fits well with the meaning of 扁 *pien* (cf. 篇 *p'ien* 'writing slip; section of a book < string of bamboo slips'), but phonetically the word *ts'e* < **tshrik* has nothing in common with either *pien* < **pjanx* or *shan* < **san* ~ **sran*.

The analytic formula 从 X Y in the *Shuo wen*, as we have here for 扁 *pien*: 从戶冊, is often considered defective. When the *Shuo wen* text indicates that a character is derived from two components neither of which is specified as having a phonophoric role, the standard expression is 从 X 从 Y "derived from X, and from Y." When the form 从 X Y is encountered, it is often taken to be the result of a deleted 聲 *sheng* after the Y. Thus the original *Shuo wen* text is presumed to have read 从戶冊聲 "derived from 'door', 冊 is phonophoric." When the *Shuo wen* text was being critically established in the Sung it is supposed that because the Sung editors, mainly the brothers Hsü, could not understand the phonetic basis for certain graphs serving as phonophorics, they deleted the word *sheng* 聲 from those analyses. (See infra, chapter 4, p. 154.)

Clearly a reading *ts'e* < **tshrik* for 冊 is not phonetically compatible with *pien* < **pjanx*, and thus 冊 in that reading cannot be a phonophoric. Since the Sung editors knew only the reading *ts'e* for 冊, they must have wondered at a *Shuo wen* entry that claimed it was the phonophoric in 扁 *pien*, and deleted the character 聲 *sheng*, thereby leaving the defective analysis 从戶冊. But if 冊 were read as **san* ~ **sran*, as it would appear to have been, in view of the evidence of (*a*)–(*e*) of this set, it could have easily served as a

phonophoric in 扁 *pien* < **pjanx*, assuming a complex initial such as **ps-* in 扁 **pjanx*, perhaps **bs-* in 冊 **san* ~ **sran*.[23]

This conjectured reading **san* ~ **sran* for 冊 is further suggested by the *Shuo wen* entries for 珊, 姍, and 狦, all of which include the statement 刪省聲 : "刪 in an abbreviated form is phonophoric" (*SWKL* 0196, 5638, 4392). As we have already seen, this is tantamount to saying that 冊 itself was read like 刪 , i.e., **san* ~ **sran*. Furthermore, the *Shuo wen* entry for 刪 *shan* is 剟也从刀冊冊書也 "'to incise', derived from 'knife' and 冊 [*ts'e*]; [*ts'e*] means 'document'" (*SWKL* 1841). This entry looks very much like another case of a deleted *sheng* 聲, where the 冊 element was originally designated as the phonophoric by the wording 冊聲, intending to specify the reading **san* ~ **sran*. Because that reading was already lost by Sung times, the word *sheng* was excised from the analysis.

Our conclusion must be that the graph 冊 was a polyphone, and stood for two words, semantically congruous but phonetically unrelated: (i) *ts'e* < **tshrik* 'bamboo or wood slips' as the items themselves, and (ii) *pien* < **pjanx* (< **ps-* ?) 'bamboo or wood slips written on and gathered into a "book", or portion of a book'. By semantic extension, perhaps, we get the word *shan* < **sran* (< **bs-* ?) 'to edit or excise from the bamboo or wood slips that make up the text', written 刪.

Set 14

(*a*)	守	*shou*	<	**hrjəgwx, -s*	'to guard, hold fast'
(*b*)	肘	*chou*	<	**trjəgwx*	'wrist'
(*c*)	疥	*chou*	<	**trjəgwx*	'intestinal pain'
(*d*)	酎	*chou*	<	**drjəgws*	'kind of fermented spirits'
(*e*)	討	*t'ao*	<	**thəgwx*	'to punish, blame'
(*f*)	紂	*chou*	<	**drjəgwx*	'crupper of a saddle'

The graph 寸 is now read only as *ts'un*, meaning 'inch', but the evidence of set 14 suggests that it must have been polyphonic, and read also **hrjəgwx* < *shou*, probably as an allograph of 手 **hrjəgwx* < *shou* 'hand'.

The *Shuo wen* entries for (*c*) 疥 and (*f*) 紂 both say 肘省聲 "*chou* < **trjəgwx* in an abbreviated form is phonophoric," which we now recognize as the equivalent of saying 寸 is the phonophoric with a reading akin to the pronunciation of 肘 (*SWKL* 3323, 5893). For (*b*) 肘 itself, as well as for (*e*) 討,

[23] The cluster **bs-* ~ **ps-* in these words is supported further by the appearance in Han texts of riming binomes such as 便姍 *pien-shan* < **bjans-san* (the 姍 is said by Kuo P'u 郭璞 [276–324] to be read *-hsien* < **sian*) 'to move from side to side, swagger' ("Shang lin fu," *Wen hsüan* 8/13a), and 蹁躚 *p'ien-hsien* < **bian-sian*, same meaning ("Nan tu fu," *Wen hsüan* 4/8a). The assumption is that binomes such as these reflect a bisyllabified, or *dimidiated*, form of the original monosyllable with a **bs-* initial cluster. This kind of dimidiation was characteristic of a large number of words in late Warring States and early Han times. See Boodberg 1937: 353–60. For graphic variants of each of these binomes see Chu [1934] 1965: 577, 666.

the *Shuo wen ku lin* says 从 . . . 从寸, "derived from . . . and from 寸;" but Hsü K'ai's *Shuo wen hsi chuan* omits the second 从 *ts'ung*, leaving just 从肉寸 for 肘 and 从言寸 for 訏 (*SWKL* 1761, 1088). The implication of an analysis phrased as 从 X Y is, as we have already seen, that the word 聲 *sheng* 'phonophoric' has been lost after Y, and that Y is actually what we may call a "suppressed phonophoric." So we have some basis for concluding that 寸 was regarded as a phonophoric in (*b*), (*c*), (*e*), and (*f*).

The *Shuo wen* entry for (*d*) 酎 includes the analysis 从酉从時省 "derived from *yu* and from *shih* 'season' abbreviated" (*SWKL* 6661). While strictly speaking it is true that the 寸 of 酎 could be considered an abbreviation of 時 *shih* 'season', since it occurs as the bottom right element of that character, there is little apparent logic to such a claim. In the "Yüeh ling" 月令 of both the *Lü shih ch'un ch'iu* 呂氏春秋 and of the *Li chi* 禮記, the word 酎 *chou* is identified as the kind of wine that is drunk in the first month of summer by the Son of Heaven (孟夏 . . . 天子飲酎, *Lü Shih ch'un ch'iu* 4/2b, *Li chi chi* 15/21b). The *Shuo wen* entry, for unknown reasons, says this wine is drunk in the first month of autumn (孟秋), but in either case there is an important pre-Han ritual association between 酎 *chou* and the seasonal cycle described in the "Yüeh ling." It may be this association that underlies the phrase 从時省 "derived from *shih* abbreviated." All the same, it may be that the original *Shuo wen* text did not have *shih* 'season' at all, but said 从肘省 "derived from *chou* abbreviated," or even 肘省聲 "肘 in an abbreviated form is phonophoric," just as we saw in the analyses of (*c*) 疛 and (*f*) 紂. Phonetically, of course, it makes just as much sense to say 肘 *chou* < **trjəgwx* is phonophoric in 酎 *chou* < **drjəgws* as it does to identify it as phonophoric in 疛 *chou* < **trjəgwx* and 紂 *chou* < **drjəgwx*. In all cases it is tantamount to identifying 寸 as the phonophoric with a reading like 手 *shou* < **hrjəgwx*. The Sung scholar and lexicographer Tai T'ung 戴侗 (fl. 1241) in fact cites an edition of the *Shuo wen* in his *Liu shu ku* that says 酎从肘省聲 "*chou* is derived from an abbreviated form of 肘 as phonophoric," and that goes on to say that 肘 *chou* is sometimes erroneously taken as 時 *shih* (28/35a).

Thus the last five of the characters in set 14 can in all likelihood be shown to have already been suspected of having 寸 as a phonophoric. That (*a*) 守 *shou* 'guard, hold fast' has not, to my knowledge, been analyzed as having 肘 *chou* as an abbreviated phonophoric is probably due to the obvious *semantic* role of *shou* 寸 ~ 手 'hand' ~ 'hold' in its structure, something less apparent in the other derivatives. Because of the emphasis on the semantic aspects of the 寸 element, the analysis 从宀从寸 "derived from 'roof' and from 'hand'" seemed to have been regarded as preferable to identifying 寸 as having a phonetic role. Clearly the word 肘 *chou* 'wrist' also has something to do with 'hand' semantically, and this may account for the fact that it is this character, not one of the others, that is taken as "primary" in the sense that it is identified as the abbreviated phonophoric in 疛, 紂, and 酎. (See also Boodberg 1937: 343.)

Set 15

(*a*)	焦	*chiao*	<	**tsjagw*	'to roast, scorch'
(*b*)	爎	*liao*	<	**ljagws*	'burnt offering' (= 燎)
(*c*)	熛	*piao*	<	**pjagw*	'flames' (= 燏)
(*d*)	羔	*kao*	<	**kagw*	'lamb'
(*e*)	麃	*piao*	<	**pjagw*	'to change color (of an animal
	and	*p'iao*	<	**bragw*	or bird)'[24]

All of the words in this set belong to the 宵 *hsiao* < *-(*j*)*agw Shih ching* rime group, and are written with characters containing the 火 *huo* 'fire' constituent. Moreover, the first three are clearly semantically related to some aspect of 'fire'. In these three characters the 火 'fire' element is functioning both as a phonophoric and a semantic component; i.e., what we have called an "etymonic." In (*d*) and (*e*), representing words that do not have any apparent semantic link to 'fire', the 火 is limited to a phonophoric role. In all cases, as a phonophoric, it must have had a reading in the 宵 *hsiao* rime group, different from and unrelated to its standard known reading as *huo* < **hwərx* (微 *wei* < *-(*j*)*əd* rime group).

This speculation is confirmed, as in preceding cases, by the *Shuo wen* analysis of some of these characters. In particular the graph 麃 is said to be 从鹿覍省聲 "derived from *lu* 'deer', 覍 *p'iao* < **phjagw* in an abbreviated form is phonophoric" (*SWKL* 4364). And the character 羔 is analyzed as 从羊照省聲 "derived from *yang* 'sheep', 照 *chao* < **tjagws* in an abbreviated form is phonophoric" (*SWKL* 1560). Both of these cases of abbreviated phonophorics imply that the graph 灬 (火) itself had a reading **phjagw* ~ **tjagw*(*s*), and functioned as a phonophoric with that reading in the characters listed above.

The explanation for the apparent disparity of initials in the set may lie in tracing the dentals and palatals back to clusters with velars or bilabials. For example 照 *chao* < **tjagws*, said to be phonophoric in 羔 *kao* < **kagw*, may be a reduction of a form like **ksjagws*, cf. 灱 *hsiao* < MC χ*au* (Shen [1945] 1969: 259) in the 刀 *tao* < **tagw hsieh sheng* series. The word 灱 *hsiao* has no viable attested textual usage, and is known only lexicographically, glossed in the *Kuang yün* (2/12a), for example, as 乾也熱也 'dry, hot' (< 'burnt'?). Nevertheless it may well be cognate with the words of set 15, and read **hragw*, with 火 etymonic and 刀 as a phonetic determinative. Similarly, the common character 燒 standing for the word *shao* < **sngjagw* 'burn', while conventionally understood as no more than a so-called "phonetic compound" of the classifier 火 and the phonophoric 堯 *yao* < **zngjagw*, may actually be based on this *hsiao* rime group reading of 火, with 堯 *yao* < **zngjagw* functioning

[24] Cf. 愀 *ch'iao* < **tshjagwx* 'to change color (of one's face)'.

as a phonetic determinative to specify the reading **sngjagw* as opposed to *huo* < **hwərx*.

Set 16

(*a*)	孫	*sun*	<	**swən*	'grandchild, descendant'
(*b*)	胤	*yin*	<	**grjəns*	'descendant, posterity'
(*c*)	鯀	*kun*	<	**kwən*	'name of a legendary fish'

The 糸 component in (*a*) 孫 is in origin actually 幺 'silk, thread'. The oracle bone inscription form of 孫 is  ; the bronze form of 糸 is  , which is in turn paleographically identical with both 幺 and 玄. (See Li 1965: 3867, *CWKL* 1648, and Kao 1980: 50, 250.) Thus the three elements 糸, 糸, and 玄 are in origin no more than variants of the same graph, basically 幺, that seems to have stood zodiographically for at least the following three words:

(*i*) *ssu* < **sjəg* 'silk' (doubled already in the OBI form:  [Kao 1980: 239], modern 絲)

(*ii*) *hsien* < **sjans* 'thread' (綫, 線)

(*iii*) *hsien* < **gin* 'string' (of an instrument, e.g., bow, musical instrument) (絃, 弦)

and by extension for (*a*) and (*b*) set 16 here.

Given the occurrence of the common graphic element 幺 ~ 糸 in the three characters of set 16, and the fact that the words all belong to the 文 *wen* < **-(j)ən* rime group, we have no reason not to consider the 幺 ~ 糸 component a phonophoric with a reading in **-(j)ən*. The two words 孫 *sun* < **swən* and 鯀 *kun* < **kwən* point to an initial consonant cluster such as **gs-* ~ **ks-* in the word for 'descendant, lineage'. Thus we might reconstruct 孫 *sun* as **gswən*. This velar plus *-s-* combination is confirmed by the occurrence of a synonym, undoubtedly cognate, that preserves the velar element of the cluster, viz., 昆 *k'un* < **khwən* 'posterity, descendants', which we would then reconstruct as **khswən*. Notice also that 鯀 has an allographic form written 鯤 with 昆 *k'un* < **khswən* as a phonophoric, suggesting **kswən* for 鯤 ~ 鯀, and which lends still more weight to the proposal of a **gs-* ~ **ks-* type initial cluster in this set.

The analysis given in the *Shuo wen* for 鯀 *kun* shows that even in A.D. 100 the 糸 (系) element was regarded as a phonophoric, though it certainly raised a lot of questions among later commentators. Hsü Shen enters 鯀 as 从魚系聲 "derived from *yü* 'fish', 系 is the phonophoric" (*SWKL* 5218). It is clear that if 糸 is taken at face value to stand for the word *hsi* < **gigs* 'bind', it cannot be phonophoric in 鯀 *kun* < **kswən*. The majority of commentators consequently invoke the allographic form of the character, 鮫, in which they identify 玄 *hsüan* < **gwin* as the phonophoric. Sometimes they explain

the 玄 of 鉉 as 弦省聲 "*hsien* < **gin* in an abbreviated form is phonophoric." In either case the proposal is only a good approximation, because both 玄 *hsüan* and 弦 *hsien* belong to the 真 *chen* < **-in* rime group, distinct from the 文 *wen* < **-(j)ən* group to which 緄 *kun* belongs. In spite of this discrepancy in rime group, it may be that the words 弦 *hsien* < **gin* 'string', 孫 *sun* < **gswən* 'descendants', and 胤 *yin* < **grjəns* 'descendants' are ultimately cognate, since there are many apparent cases of *hsieh sheng* series or word-family contact between the 真 *chen* and 文 *wen* rime groups.

The use of the zodiograph 幺, meaning either 'silk' or 'thread, string, line', to write the word *sun* for 'descendants, posterity, lineage' can easily be seen to be appropriate from a semantic perspective. Given that 'posterity, hereditary line' is something not directly depictable, the graph for 'line, thread' seems a reasonable recourse, eventually augmented by the element 子 for 'offspring', giving 孫. In 緄 the 糸 must be strictly a phonophoric, with no semantic implications.

In our discussion of the foregoing examples when we proposed that certain zodiographs were polyphonic, we tacitly relied on the fact that we could find several, at least three, but usually four, five, or more, characters in which the alleged polyphonic element functioned as a phonophoric in its "second" reading. This makes the proposal more convincing than it might otherwise be. If we want to argue that a certain graph X is polyphonic, with a second reading discernible only through recognizing X as phonophoric in a set of derivative characters Y, the more Ys we can find the more persuasive our argument will be. But clearly the number of characters we can find with X as phonophoric in a second reading is to a certain extent fortuitous, and bears no measurable or causal correlation to the validity of the proposal that X is polyphonic. It is perfectly possible, in other words, for the evidence for the proposal that a certain X is polyphonic to be limited to just one or two characters.

In view of this, we might reconsider the case of 孫 *sun* < **gswən* that we just analyzed. While the suggestion that 糸 was read **gswən*, and meant 'line > lineage' seems reasonable enough, and the evidence seems persuasive, notice the following two characters:

Set 17

(*a*)	孫	*sun*	<	**gswən*	'grandchild, descendant'
(*b*)	存	*ts'un*	<	**dzwən*	'to endure, be perpetuated'

Both characters have the 子 component, and are in the same Old Chinese rime group, viz., 文 *wen* < **-(j)ən*. So the same process of reasoning on which we relied in the previous cases would lead to the conclusion that the graph 子 was phonophoric in both, with a reading in the 文 *wen* < **-(j)ən* rime group; perhaps 孫 **gswən* and 存 **gzwən*, becoming **swən* and **dzwən* respectively. Moreover, we might speculate that the origin of 孫 *sun* was not

necessarily from 糸, read **gswən* meaning 'lineage', with 子 added as a semantic determinative; but instead took 子 read **gswən* meaning 'descendants' as its primary form, and the 糸, also read **gswən* or **grjəns* (as in 胤 *yin*) was added as a *phonetic* determinative, with (coincidentally) appropriate semantic overtones as well. It would make just as much, if not more, sense to use the graph for 'offspring' to write the word **gswən* 'descendants' as it would to use the graph for 'line, thread' since, after all, descendants are offspring and offspring are descendants.

By the same token, it may be that the word *ts'un* < **dzwən*, with its fundamental sense of 'endure, be perpetuated', was seen as semantically akin to 孫 *sun* < **gswən* 'descendants, posterity' and to 胤 *yin* < **grjəns*, and was thus written 存 with 子 (read **gswən*) as etymonic. S. E. Yakhontov has pointed out that *ts'un* < **dzwən* rimes exclusively with words having unrounded vowels in Old Chinese, implying a final **-ən* rather than **-wən*. This would be consistent with a possible relation to 胤 *yin* < **grjəns*, also with an unrounded final (Yakhontov 1970: 57). He also suggests that the phonophoric in 存 *ts'un* < **dzwən* is 才 *ts'ai* < **dzəg* (his reconstruction for 才 is **dzhə*). While it is true that graphically 才 appears along with 子 in 存, it surely cannot be phonophoric in the normal way, given the disparity of rime groups; 才 **dzəg* is in the 之 *chih* < **-(j)əg* group, unrelated to the 文 *wen* < **-(j)ən* group in which 存 **dzwən* falls. Rather, it seems at least possible in this case that 才 **dzəg* was a phonetic determinative in 存, relying only on identity of initial consonant to specify the pronunciation **dzwən* (possibly from an earlier **gzwən*) as the intended reading for the simple graph 子, as opposed to any of its other possible readings. Phonetic determinatives based only on identity of a single consonant are admittedly otherwise unknown in Chinese, and that makes this an anomalous case, but that was exactly the way they were used in Sumerian (vide supra p. 88).

The fact that we have evidence for two different, and seemingly mutually exclusive, explanations for the character 孫, one taking 糸 read **gzwən* 'line, lineage' as primary with 子 as a secondary semantic determinative, the other taking 子 read **gzwən* 'descendants' as primary with 糸 as an added phonetic determinative, does not mean that we have gone astray, or that neither one is tenable. Rather, it reveals the seldom recognized fact that the intended reading of a polyphonic graph such as 子 may be specified by the use of another polyphonic graph (糸) which is also in some sense semantically suggestive or appropriate, and perhaps even remotely cognate. It is this "important fact," as Boodberg called it when he first adumbrated precisely this point (1937: 335), that will in all likelihood eventually provide the basis for a satisfactory explanation of many still inexplicable characters.

Unlike its Sumerian and Egyptian counterparts, the Chinese script when it reached this multivalent and determinative stage of its development evolved no further in any grammatonomically significant way, at least not in Chinese hands or on Chinese soil. The Chinese script used today differs

from the script of the Shang and Western Chou periods of about three millennia ago only in external, formally superficial, ways, e.g., in matters of aethestics, calligraphic style, inventory of graphs, and in the matter of what has come to be called "character simplification" in the years since the 1950s. None of these developments involves new or changed grammatonomic principles.

In the medieval period, in Japan, the Chinese script did, of course, undergo fundamental restructuring as it was used to write Japanese, a language wholly different from and unrelated to Chinese. In that setting the script became a genuine syllabary. But that did not have any effect on its use to write Chinese in China, where it remained, and still does, essentially a logographic writing system.[25]

The cuneiform script, originally invented by the Sumerians to write their language, an agglutinative-type language with no known linguistic affinities, was aggressively adopted by the conquering Akkadians (= Assyro-Babylonians) in the middle of the third millennium B.C. Because of the great quantity of extant cuneiform documents written in Akkadian, many of them of the highest literary and historical importance, the script is sometimes called Sumero-Akkadian cuneiform rather than simply Sumerian cuneiform (see Paper 1982: 111). Apart from the Akkadian use of cuneiform, the script was also borrowed by several other Mesopotamian and Anatolian peoples, including the Persians and Hittites. In the end, cuneiform writing was abandoned as a viable orthographic medium, and has left no descendants among the world's modern scripts.

Egyptian, while not borrowed directly or comprehensively by any foreign users, seems to have had, by contrast with cuneiform, a very far-reaching impact on the later development of the world's writing systems. It is now widely recognized that the origin of the Old Canaanite (= proto-Canaanite, sometimes also called proto-Sinaitic or proto-Semitic) alphabet in the middle of the second millennium B.C. in the Levant and on the Sinai peninsula arose in intimate contact with Egyptian, and seems likely to have developed as a direct result of the influence of the Egyptian writing system. Inasmuch as it is from this Old Canaanite alphabet that virtually all writing systems of the modern world, save those of East Asia, devolve, it is fair to say that ultimately we all owe our orthographic heritage to the Egyptian hieroglyphs. The classic article, still unsurpassed, presenting and illustrating this proposal is Gardiner 1916, with a supplementary note some forty-six years later in Gardiner 1962. For very good recent discussions see Millard 1986 and Cross 1989.

[25] For a brief discussion of the problem of whether it is accurate to describe the Chinese writing system as *logographic* or not, see Boltz 1989.

PART TWO
THE CH'IN-HAN REFORMATION

4. EARLY LEGEND AND CLASSICAL TRADITION

Early Legend

The origin of writing, like the origin of language itself, has captured the attention of lettered and learned men from the days of antiquity down to the present word-processor world. In early traditions writing is often looked upon as an invention of the gods, or of some fabled legendary culture hero.[1] Nabu (sometimes transcribed Nebo) was the ancient Babylonian god of the tablets, the ostensible originator of writing. In particular he was in charge of the "Tablets of Fate" that were written each new year, and so is directly associated with the elaborate celebrations of the Babylonian New Year's rites.[2] His persona seems to consist of an amalgam of scribe and prophet, a combination readily evident in his function as originator and keeper of the New Year's "Tablets of Fate." It is a persona that reveals the potential for prophecy with which writing seems to have been invested and the awe with which it was regarded. Writing was not, after all, a mere mechanical convenience, but an arcane and potent entry into Fate.

In some ways the Babylonian figure of Nabu approximates that of his Egyptian counterpart, Thoth of Hermopolis. Thoth was recognized by the ancient Egyptians as the creator of hieroglyphic writing, and at the same time, as the moon-god who established the divisions of time and the cyclical order of the cosmos. He was a kind of exalted and powerful scribe charged with setting down in writing the hierarchies, categories, and qualities of all things, and with the essential "formulae binding on men and on gods" (Maspero [1915] 1967: 31). Because he was the principal record keeper he became the overseer of the "Library," the compendium of records and rules for cosmic and social order and behavior. Thus it happened that one who possessed and knew the contents of all the books in Thoth's Library became Lord of the Universe. As with Nabu of the Babylonians, being able to write, by being in fact the creator or inventor of writing, gives one control over what is written, particularly over writings that have the power to guide the

[1] The striking exception to this pattern is ancient Greece, where in spite of a nearly unsurpassed richness of myth and legend, writing was never looked upon as anything other than the mundane, functional device it was, and its origin or invention was apparently never associated with a mythic or legendary figure.

[2] The Temple of Nabu, which was located a short distance southwest of Babylon at Barsippa, was ritually purified at New Year's time, for example, with the carcass of a sheep in anticipation of Nabu's arrival. The name Nabu itself means 'herald' or 'prophet', and thus shows again an unmistakable relation to the New Year's "Tablets of Fate."

workings of cosmos and society, or, in the Babylonian event, writings linked to Fate and the Future.

Just as one of the central purposes of writing in the Egyptian tradition was to keep an orderly account of all things and creatures, so in India tradition holds that Brahma, the god of all creation, invented writing (Devanagari, literally "script of the gods") to keep the affairs of the world in proper order, and "to remove doubts regarding legal transactions" (Bühler 1963: 25). Iconographic representations of Brahma frequently reflect his association with the invention of writing by portraying him with palm-leaf texts in his right hand (ibid.).

In China there seem to have been originally two separate traditions associated with the invention of writing, neither one very old, and neither one surviving in any detail except as mixed up with the other. The older of the two centers on the figure of Ts'ang Chieh, written 倉頡 or 蒼頡, who is reputed to have been the royal scribe at the court of the legendary emperor Huang ti. The other tradition involves the figure of Fu Hsi 伏羲 (also written 伏戲, 虙戲, 宓犧, and also called Pao Hsi 包犧 or P'ao Hsi 庖犧), who was one of the legendary "Three August Ones" (*san huang* 三皇), and who is responsible primarily for creating the scheme of the Eight Trigrams (*pa kua* 八卦) which figures prominently in the divinatory aspects of the *I ching*. Fu Hsi's association with the invention of writing is only implicit until the post-Han age when he then is explicitly said to have been its creator.

Neither the Ts'ang Chieh nor the Fu Hsi tradition is attested, as far as I know, earlier than the late Warring States period, ca. 300 B.C., and in fact the bulk of the documentation for them comes from Han texts. Of the two, that surrounding Ts'ang Chieh seems to be the earlier, appearing as a brief comment in the *Hsün tzu* text (third century B.C.) in the company of the names of three other legendary creator-figures of antiquity:

故好書者眾矣而倉頡獨傳者壹也
好稼者眾矣而后稷獨傳者壹也
好樂者眾矣而夔　獨傳者壹也
好義者眾矣而舜　獨傳者壹也

> Affirmedly, those who have had a fondness for writing have been legion, but the fact that the name of Ts'ang Chieh alone has been handed down is because he was single-minded about it. Those who have had a fondness for agriculture have been legion, but the fact that the name of Hou Chi alone has been handed down is because he was single-minded about it. Those who have had a fondness for music have been legion, but the fact that the name of K'uei alone has been handed down is because he was single-minded about it. Those who have had a fondness for appropriety have been legion, but the fact that the name of Shun alone has been handed down is because he was single-minded about it. (*Hsün tzu* 15/7a–b)

This context clearly places Ts'ang Chieh in the realm of the legendary and the mythic, and associates him with writing in the same way that each of

the other names in this passage is associated with what are unequivocally regarded as important primary cultural features of ancient China: agriculture, music, and appropriety, i.e., a "sense of duty to one's group."[3] The passage does not actually claim that Ts'ang Chieh invented writing, only that his name is associated with it, and is the only one that has been transmitted to later ages as an afficionado or partisan of writing, because he was "single-minded" about it.

The *Lü shih ch'un ch'iu* and the *Huai nan tzu*, in contrast to this *Hsün tzu* passage, explicitly name Ts'ang Chieh as the creator of writing. The *Lü shih ch'un ch'iu* was compiled around 239 B.C. by Lü Pu-wei, Chancellor of the state of Ch'in just before the unification of the empire under Ch'in Shih Huang ti, or at least by scholars under his direction. It places Ts'ang Chieh squarely in the ranks of other legendary figures responsible for the invention of various cultural features of ancient Chinese civilization.

奚中作車蒼頡作書后稷作稼皋陶作刑昆吾作陶夏鯀作城
此六人者所作當矣

Hsi Chung invented the carriage; Ts'ang Chieh invented writing; Hou Chi invented agriculture; Kao Yao invented punishments; Kun Wu invented pottery; and Hsia Kun invented walled cities. What each of these six persons invented was precisely what was called for. (*Lü shih ch'un ch'iu* 17/5b–6a)

The *Huai nan tzu*, a Han text compiled in the latter part of the second century B.C., about one hundred fifty years after the *Hsün tzu*, records:

蒼頡作書而天雨粟鬼夜哭伯益作井而龍登玄雲神棲昆侖
能愈多而德愈薄矣

When Ts'ang Chieh created writing Heaven rained millet, and ghosts wailed in the night. When Po Yi devised water wells, dragons ascended to somber clouds and spirits took roost in the K'un Lun [mountains]. While [the people's] extrinsic capabilities became all the more numerous, [their] intrinsic power became all the more attenuated. (*Huai nan tzu* 8/4b)

These peculiar and somewhat unexpected consequences of the invention of writing are explained by Kao Yu 高誘 (fl. 205–213), the earliest commentator to the *Huai nan tzu*, as follows:[4]

[3] Hou Chi was the mythic inventor of agricultural technology, and founder of the Chou people; K'uei was the legendary music master at the court of Shun, the second of the mythic triumvirate, Yao, Shun, and Yü.

[4] It is not quite accurate to say that Kao Yu's commentary is the earliest known. According to the "Ching chi chih" of the *Sui shu*, Hsü Shen, the author of the *Shuo wen chieh tzu*, is also said to have written a commentary to the *Huai nan tzu*. That would have been about a century earlier than Kao Yu's. Sometime before the eleventh century the commentaries of

蒼頡始視鳥迹之文造書契則詐僞萌生
詐僞萌生則去本趨末棄耕作之業而務
錐刀之利天知其將餓故爲雨粟鬼恐爲
書文所劾故夜哭也

Ts'ang Chieh, upon observing the patterns of the tracks of birds, invented written documents, whereupon deceit and artifice sprouted forth. Once deceit and artifice had sprouted forth, people ignored the basics and busied themselves with the peripheral. They gave up the occupation of farming and turned their attention instead to the gains from awl and blade. Heaven knew of their impending hunger, and so made it "rain millet" for them. Ghosts feared they would be impeached by written records, so they "wailed in the night." (*Huai nan tzu* 8/4b)

There is something not quite convincing about Kao Yu's explanations. The passage clearly portrays the inventions of writing, and of wells, as less than desirable advances in social practices to the extent that these contrivances caused people to turn away from agriculture, focusing their energies instead on mechanical undertakings. The commentary seems to reflect the sentiments of Hsü Hsing and the "agriculturists" (see *Mencius* 3A.4), but is not very satisfactory as a genuine explanation. We are left wondering what mythic aspects of Ts'ang Chieh's invention of writing there could have been to account for "Heaven raining millet" and "ghosts wailing in the night" that have become lost to us, indeed that were lost to Kao Yu already by A.D. 200.[5]

One possibility, recently touched upon by Anna Seidel (1983), is that Kao Yu's explanation of the ghosts fearing impeachment via written decrees is related to a belief that by naming or depicting images of demons and supernatural creatures one could exercise control over them, preventing the

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Kao Yu and Hsü Shen were merged and appended to the *Huai nan tzu* text. This single commentary has come to be referred to arbitrarily either as the Hsü or the Kao commentary. It is now probably impossible to know what parts were originally the work of Hsü Shen and what parts the work of Kao Yu, though Hattori Unokichi 服部宇之吉 has made some effort to separate the one from the other. See Miller 1953: 72–73.

[5] Wang Ch'ung 王充 (27–ca. 97) in his *Lun heng* 論衡 argues that the invention of writing was not the sort of thing that should lead to bizarre or unnatural phenomena, and that "Heaven raining millet" and "ghosts wailing in the night" must have occurred for their own reasons, apart from and not because of Ts'ang Chieh's invention of writing (*Lun heng* 5/12b–13a). Still, he cannot give any explanation for the passage as it occurs in the *Huai nan tzu*. These two unusual phenomena were still taken by Liu Hsieh 劉勰 (ca. 465–ca. 522) as direct consequences of Ts'ang Chieh's invention of writing (*Wen hsin tiao lung* 8/9b–10a). Vincent Shih in his English translation and study of this text suggests they were omens "of the power of the characters" (Shih 1959: 208).

The Kao Yu commentary includes a passage that notes a textual variant in which the character 鬼 *kuei* 'ghosts' is written instead as 兔 *t'u* 'rabbits'. The note goes on to explain that rabbits wailed in the night upon the invention of writing, because they feared their soft fur would be used for the making of writing brushes, and they were thus distressed with the potential for corporal injury to themselves.

occurrence of untoward events, and blocking the malevolent effects of their demonic influences. As Seidel points out, the *locus classicus* for this kind of apotropaic use of the depiction of demons is the *Tso chuan*, Hsüan 3 (Seidel 1983: 320):

昔夏之方有德也遠方圖物貢金九牧鑄鼎象物
百物而爲之備使民知神姦故民入川澤山林不
逢不若魑魅罔兩莫能逢之用能協於上下以承
天休

In the past just when the Hsia had attained a peak of Co-responsive Power (*Te*), [people of] the remote regions made pictures of the [various strange] creatures [of their areas], and sent metal as tribute to the Nine Presbyters who cast tripod vessels in the images of those creatures. For the hundred various creatures they took these preventive measures, enabling the populace to recognize spirits and threatening forces. The people then could enter the rivers and marshlands, mountains and forests, without encountering any infelicities. Of chimeras and spectres, none was able to confront them. In this way were [the Nine Presbyters] able to bring about accord between high and low, and [the people] thereby enjoyed celestial respite.[6] (*Tso chuan* 21/15b–16a)

A natural extension of the belief that drawing a picture of a demon is a preventive measure to ward off its malevolent effects would be that writing

[6] This passage occurs with much the same wording in the "Ch'u shih chia" 楚世家 chapter of the *Shih chi* (40/7a). There are several textual problems here, but none of them seems to affect the basic meaning as it pertains to the matter of depicting the image of a demon or spirit as an apotropaic device. The only point necessary to mention is that in the line 遠方圖物貢金九牧鑄鼎, the four-character phrase 貢金九牧 cannot be translated as "the Nine Presbyters gave metal as tribute [to Yü]," taking *chiu mu* 九牧 'Nine Presbyters' as the grammatical subject of *kung* 貢 'to give tribute.' Tu Yü's 杜預 (222–281) commentary says 使九州之牧貢金 "... caused the presbyters of the nine provinces to contribute metal," but this cannot be a correct understanding of the grammar of the *Tso chuan* line. The *chiu mu* must be either the *recipients* of the *chin* 金 'metal' being offered as tribute, or the subject of *chu* 鑄 'cast,' or both. In either case the correct reading of the passage would assign what I think is a considerably more important role to the *chiu mu* than mere contributors. They seem to have been in fact the metal-workers, the smiths, who cast the vessels. And one can suspect, given that these vessels were credited with apotropaic—that is, essentially magical and religious—properties, that the smiths who cast them were, like their traditional Western counterparts, thought to be possessed of magical and supernatural powers of their own, and were perhaps able to impart such powers to their material products. This possibility is missed, if the sentence is misread along the lines Tu Yü suggests. See also the discussion in Chang 1983, pp. 61–65.

A slightly different version of the passage appears in the *Shuo wen* entry for *ting* 鼎 'cast tripod vessel' (*SWKL* 3051), as follows:

昔禹收九牧之金鑄鼎荆山之下入山林川澤
魑魅魍魎莫能逢之協承天休

Anciently Yü received the metal of the Nine Presbyters, and cast tripods at the foot of Ching mountain. When [the people then] entered the mountains and forests, streams

the demon's name could serve the same prophylactic purpose. This would explain why the "ghosts wailed in the night" when Ts'ang Chieh invented writing; there was now available to the mortal realm a device that could keep their spectral powers in check.

Fu Hsi, in contrast to Ts'ang Chieh, is never actually said in Han or pre-Han texts to have invented writing. Rather, he is portrayed as the legendary figure famous for creating the Eight Trigrams, and devising a tally- or record-keeping system of "knotted cords" (*chieh sheng* 結繩). The first and fullest account of this is found in the *Hsi tz'u* 繫辭, one of the appendices to the *I ching*, which T'ang Lan dates to the late Warring States period, thus about the third century B.C. (T'ang [1949] 1975: 49). In this text Fu Hsi is called Pao Hsi 包犧.

古者包犧氏之王天下也仰則觀象於天俯則觀法於地
觀鳥獸之文與地之宜近取諸身遠取諸物於是始作八
卦以通神明之德以類萬物之情作結繩而爲罔罟以佃
以漁蓋取諸離包犧氏沒神農氏作斲木爲耜揉木爲耒

In the days of antiquity when Pao Hsi ruled as king over the subcelestial realm, gazing up he observed the phenomena of the heavens, looking down he observed the patterns on the earth. He observed how the markings of birds and beasts were appropriate to the earth [around them]. Close at hand he took them [= his impressions] from his own person. Further removed he took them from other creatures. Thereupon he undertook to create the Eight Trigrams, as a means to communicate with the Co-responsive Power of the Spirits and Auras and to categorize the veritable qualities of the myriad creatures. Having created knotted cords, he then made nets and seines for hunting and for fishing. In all likelihood he took this [idea? model?] from the *Li* hexagram.

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and marshes, of chimeras and spectres none was able to confront them. Thus he brought about accord, and [the people] enjoyed celestial respite.

The same account, matching in part the *Tso chuan* version, and in part the *Shuo wen* version, appears once more in a memorial issued by Emperor Ming of the Han (reg. 58–75) on May 23, A.D. 63, recorded in the *Hou Han shu* (2/9a):

昔禹收九牧之金鑄鼎以象物使人知神姦不逢惡氣

Anciently Yü received the metal of the Nine Presbyters, and cast tripods in order to make images of the [various] creatures, so that people would recognize spirits and threatening forces, and would not encounter any odious powers.

In both of these versions the text says Yü received the metal from the *chiu mu*, and cast the tripods himself. This is consistent with the tradition prevailing from the Han on, and the one that Tu Yü's commentary reflects, but the *Tso chuan* passage itself says no such thing, and in fact it is only a retrospective inference that it refers specifically to Yü at all. Tu Yü's forced (mis-)reading of the *Tso* text is probably an effort to make it conform to a tradition that was already established as doctrine by the first century A.D., and that *a priori* shaped his understanding of its sense in spite of the *prima facie* meaning of the passage itself.

When Pao Hsi passed away Shen Nung arose. He hewed wood to make ploughshares, and bent sticks to make plough handles . . . (*Chou i* 8/4b–5a)

From this point on the text recites several more of the most important civilizing inventions and accomplishments typically attributed to the legendary rulers and sages of antiquity, but nowhere does it come closer to mentioning writing than in these references to Pao Hsi, i.e., Fu Hsi.[7]

Hsü Shen includes an account in his postface to the *Shuo wen* that is clearly related to the *Hsi tz'u* passage, yet that differs from it in several interesting ways.

古者庖犧氏之王天下也仰則觀象於天俯則觀法於地
視鳥獸之文與地之宜近取諸身遠取諸物於是始作易
八卦以垂憲象及神農氏結繩爲治而統其事庶業其繁
飾僞萌生黃帝之史倉頡見鳥獸蹏迒之迹知分理之可
相別異也初造書契百工以乂萬品以察蓋取諸夬

In the days of antiquity when *P'ao* Hsi ruled as king over the subcelestial realm, gazing up he observed the phenomena of the heavens, looking down he observed the patterns on the earth. He *noticed* how the markings of birds and beasts were appropriate to the earth [around them]. Close at hand he took them [= his impressions] from his own person. Further removed he took them from other creatures. Thereupon he undertook to create the Eight Trigrams *of the I*, as a means *to transmit these patterns and phenomena.*

Later Shen Nung knotted cords to bring about order, thus giving regularity to affairs. When the various occupations multiplied and proliferated, ornament and artifice arose and thrived.

Huang ti's scribe Ts'ang Chieh saw the traces of the footprints of birds and beasts. He recognized that these partiform structures could be distinguished and differentiated one from another. Thus he first created writing. The hundred craftsmen were thereby regulated, and the myriad groups were thereby scrutinized. In all likelihood he took it [this idea] from the *Kuai* hexagram. (*SWKL* 6709)

Paragraph one of the *Shuo wen* account matches the *Hsi tz'u* account very closely, except in a few details. Those places where it differs are printed in *italics.* Paragraphs two and three do not appear as such in the *Hsi tz'u* text, and in fact contain some curious differences from it. In particular it is Shen Nung according to the *Shuo wen* text who invented the device of knotted cords, while according to the *Hsi tz'u* that was a second accomplishment

[7] The *Po hu t'ung* includes a version of this passage that is slightly different from the one here. For the *Hsi tz'u*'s *lei wan wu chih ch'ing* 類萬物之情 ("... to categorize the veritable qualities of the myriad creatures") the *Po hu t'ung* version says instead *hsiang wan wu chih ch'ing* 象萬物之情 "... to give visual representation to ..." (*Po hu t'ung shu cheng* 9/28a). This version seems to suggest a pictographic function for the *pa kua*, a function more in keeping with their ostensible role in the development of the script than is the categorizational function suggested in the *Hsi tz'u* version.

of Fu Hsi, and Shen Nung was involved instead with the invention of ploughs.[8]

More important, I think, is the mention of Ts'ang Chieh in the *Shuo wen* passage, and the clear way in which the description of how Fu Hsi got his inspiration for creating the Eight Trigrams prefigures the way Ts'ang Chieh is said to have invented writing. This above all else links the legends of Ts'ang Chieh and Fu Hsi together from Han times on. Prior to the *Shuo wen* postface, written by Hsü Shen in A.D. 100, descriptions of Ts'ang Chieh's invention of writing are never couched in language so reminiscent of Fu Hsi's creation of the Eight Trigrams. But from the first century on, the one always carries with it the shadow if not the substance of the other. The Fu Hsi story, we may speculate, was vulnerable to such contamination because the two primary features of it as recounted in the *Hsi tz'u* are both in a general way suggestive of writing or record-keeping. The Eight Trigrams are, after all, graphic symbols, often invested with strong communicative powers. They were a means to "communicate with" (*t'ung* 通) the Co-responsive Power of the Spirits and Auras (*shen ming chih te* 神明之德). And the knotted cords are clearly suggestive of methods of tally- and record-keeping by means of knotting strings and ropes, known from many early societies.

After the Han dynasty Fu Hsi's name came to be directly associated with the invention of writing, and he is often explicitly designated as its creator. This represents the end point of the merging of these two originally distinct legends. Ts'ang Chieh is much less frequently encountered in post-Han texts than Fu Hsi, who has become a kind of general creator figure for many such early culture traits (T'ang [1949] 1975: 54). The Eastern Chin author of the *Shang shu hsü* 尚書序 "Preface" to the *Shang shu*, attributed to K'ung An-kuo 孔安國 of the Western Han, writes, for examples, as his opening lines:[9]

古者伏犧氏之王天下也始畫八卦造書契以代
結繩之政由是文籍生焉

In antiquity when Fu Hsi ruled as king over the subcelestial realm he designed the Eight Trigrams and made written documents for the first time, which then replaced [the old] administrative use of knotted cords. It was from this that written documents arose. (*Shang shu* 1/1b)

Even this exalted status that Fu Hsi enjoys in the post-Han world takes a subordinate position to traditional Taoist reverence for T'ai shang lao chün

[8] For notes on the traction plough in China, see Bodde 1975: 225–28, and Boltz 1979: 434, n. 6.

[9] For details on the Eastern Chin compilation of the *Shang shu hsü*, and its traditional attribution to K'ung An-kuo, see Chang Hsin-ch'eng [1939] 1975: 208–9.

太上老君 (= the apotheosized Lao tzu) as the inventor par excellence of all such cultural and technological achievements. The *Yu lung chuan* 猶龍傳 (HY 773) of Chia Shan-hsiang 賈善翔 (fl. 1086), for example, in its hagiographic paeon to T'ai shang lao chün, says

伏犧氏時人已澆漓而未有法度老君號鬱華子下
爲師說元陽經教以畫八卦造書契以通神明之德
以類萬物之情仰則觀象於天俯則觀法於地爲文
教之始也

At the time of Fu Hsi people were entirely degenerate and disgraced, and still had no laws or rules. Lao chün, calling himself Yü hua tzu, descended and became a teacher. He explained the *Yüan yang ching*,[10] he taught how to draw the Eight Trigrams, he created writing as a means to communicate with the Co-responsive Power of the Spirits and Auras, and to categorize the veritable qualities of the myriad creatures. Gazing up he observed the phenomena of the heavens, looking down he observed the patterns on the earth. Such constituted the beginning of written doctrines. (*Yu lung chuan* 2/4a)

Certain lines of this passage should by now ring a familiar note. Chia Shan-hsiang has assimilated the original Han-period account to later doctrines reflecting a supreme reverence for Lord Lao, and Fu Hsi has become

[10] The earliest mention of a text called *Yüan yang ching* appears to be in a version of the no longer extant *Hua hu ching* 化胡經 cited in the *San tung chu nang* 三洞珠囊 (HY 1131) of Wang Hsüan-ho 王懸河 (fl. 683), which states that Lao tzu composed this text in his capacity as instructor to Fu Hsi. The *Yüan yang ching* is also among the texts singled out for criticism by Buddhist polemicists of the fourth to seventh centuries as a reworking of certain Mahayana sutras. The specific text to which they objected may have been an edition known as the *T'ai shang ling pao yüan yang miao ching* 太上靈寶元陽妙經 still extant in the Taoist Canon (HY 334).

Many such Buddho-Taoist scriptures were generated in support of the *hua hu* theory, i.e., endorsing Lao tzu's pre-eminence over the Buddha. By associating them with legendary emperors such as Fu Hsi, the compilers of these works sought to establish the antiquity of Lao tzu's teachings vis-à-vis those of the Buddha.

The link between the *Yüan yang ching* and Fu Hsi is further perpetuated in an inventory of Taoist literature compiled by Tu Kuang-t'ing 杜光庭 (850–933) in 891, recorded in his *T'ai shang huang lu chai i* 太上黃籙齋儀 (HY 507, 52/13a–17a). Among the texts he cites as those received by sages and divine transcendents throughout the ages is the *Lao chün shou Fu Hsi yüan yang ching* 老君授伏羲元陽經 (ibid. 52/14b). A variant redaction of Tu's inventory is found in the *Wu shang huang lu ta chai li ch'eng i* 無上黃籙大齋立成儀 (HY 508, 21/13b–17b), a composite collection of writings dating from Lu Hsiu-ching 陸修靜 (406–477) to Chiang Shu-yü 蔣叔輿 (1156–1217). There the *Yüan yang ching* is cited in a list of scriptures bestowed by Lord Lao. Fu Hsi's name is entered in small print after the title as the recipient (ibid. 21/15a).

I am grateful to Judith Magee Boltz for pointing out the *Yu lung chuan* passage of Chia Shan-hsiang, and for the substance and details of the foregoing note on the textual history of the *Yüan yang ching*.

merely a passive instrument in the hands of T'ai shang lao chün, the true creator of writing.

Wen 文 AND *Tzu* 字

Apart from the legends of Fu Hsi and Ts'ang Chieh, and the very late attribution of the creation of writing to Lord Lao, the cornerstone of the traditional Chinese approach to the nature and structure of the script is the exact distinction between two kinds of characters, *wen* 文 and *tzu* 字. This distinction is first established with the unprecedented attention and analysis accorded the writing system at the time of the Ch'in-Han unification in the closing years of the third century B.C., and is directly reflected in its fully developed form in the title of the pre-eminent lexicographical work of the Eastern Han, the *Shuo wen chieh tzu* 說文解字 compiled by Hsü Shen 許愼 (ca. 55–ca. 149, fl. 100–121).[11]

Prior to the Ch'in-Han political and cultural unification, the terms in common use for referring to words and characters of the language were *ming* 名 'name' and *wen* 文 'sign, mark, graph'. The former was widely used in texts from about 500 B.C. on in discussions attempting to grapple with the formidable question of the relation between "words" and "things," between "names" and "reality," and associated imponderables. The term *ming* 名 is used meaning 'word' of either the spoken or written language with equal force. In the latter case it comes to refer *de facto* to 'character' as a unit of writing. Later, of course, it is *tzu* 字 that means 'character'. We can see signs of the terminological transition from the use of *ming* to that of *tzu* to refer to a 'character of the written language' in Cheng Hsüan's 鄭玄 (127–200) commentary to the "Ch'un kuan" 春官 chapter of the *Chou li* 周禮. The text has:

外史...掌達書名于四方.

The Outer Scribe ... is in charge of disseminating the characters of the written documents throughout the four quarters. (*Chou li* 26/26a)

To this Cheng Hsüan notes:

古曰名今曰字.

In the past we said *ming* [for characters], now we say *tzu*. (ibid.)

[11] Miller 1953: 69. The "Ju lin lieh chuan" 儒林列傳 of the *Hou Han shu* (69B) contains a very brief, and altogether unrevealing biographical note on Hsü Shen.

In contrast *wen* 文, in origin meaning just 'marking' of any kind, came early to designate 'pattern, ordered marking', hence 'pattern or order of a visual or depictive and aesthetically pleasing kind', and ultimately 'refinement, culture' in some "cosmic" as well as "cosmetic" sense (cf. later Chinese *wen hua* 文化 'civilization', as an acquired trait). In regard to writing, the word *wen* was at first the logical, really the only, choice to refer to the graphic elements of the written language, and so it was used often and unexceptionally to mean 'sign, graph' > 'character' as a unit of the script. Witness, for example, these passages from the *Tso chuan*.

Yin 1: 仲子生而有文在其手.

When Chung tzu was born she had a *mark* located on her hand. (*Tso chuan* 2/3b)

Chung tzu was the second legitimate wife of Commonlord Hui of Lu (Lu Hui kung 魯惠公). When she became his wife he already had a son by a consort after the death of his first wife; this was the son who was to become Commonlord Yin (Yin kung 隱公). After her marriage to Hui kung, Chung tzu gave birth to a son named Yün 允 (sometimes called Kuei 軌) who became Commonlord Huan (Huan kung 桓公), the second of the Ch'un ch'iu Commonlords of Lu. By virtue of the fact that his mother was a legitimate wife of Hui kung, not a consort, Huan's status was higher than that of his older half-brother Yin. For this reason it is traditionally acknowledged, starting with the *Tso chuan* text itself, that Yin's tenure as Commonlord of Lu was merely a regency until Huan became old enough to assume the position. Thus, Huan is recognized as the first proper commonlord of Lu of the Ch'un ch'iu period.

The mark that was said to have been on his mother's hand when she was born is taken as an omen foretelling her eventual commanding status, realized as the mother of Huan kung. Such an association between marks seen on a person's body at birth and that person's eventual greatness is not limited to this single example. Although the *Tso chuan* does not specify the mark as a character of the writing system, compare the next two passages:

Min 2: 及生有文在其手曰友遂以名之.

When [Ch'eng Chi 成季] was born he had a *mark* located on his hand that said *yu* 'friend'. Accordingly he was given this as his name. (*Tso chuan* 11/8b)

This passage follows a few lines after an account stating that Commonlord Huan had earlier ordered a diviner to find out what he could about Ch'eng Chi prior to his birth. The diviner is recorded as having said that it would be a male child whose name would be *yu* 友 'friend' and who would

become a "right-hand man" to the Commonlord. He also said that when Ch'eng Chi's clan perished, so too would the state of Lu cease to flourish.[12] This prognostication about becoming a right-hand man is based on a pun on Ch'eng Chi's name *yu* < **gwjəgx*, which is homophonous and partially homographic with 右 *yu* < **gwjəgx,-s* 'right-hand'. As in the preceding account about Chung tzu (Yin 1), the appearance of a mark on the hand foretells the power that the person in question will come to enjoy. Unlike the preceding account, this one, which is repeated with essentially the same wording in Chao 32 of the *Tso chuan*, makes it clear that the mark is in fact a meaningful written character standing for a word.[13] Compare the Min 2 account with the next:

Chao 1: 當武王邑姜方震大叔夢帝謂己余命而子曰
虞將與之唐. . . 及生有文在其手曰虞遂以命之.

When Yi Chiang, the wife of King Wu, was quick with the child Ta Shu she dreamt that the Deity addressed her, saying, "By investiture I proclaim your child to be called Yü and I shall give him [the territory] T'ang . . . " When he

[12] 成季之將生也桓公使卜楚丘之父卜之曰男也
其名曰友在公之右間於兩社爲公室輔季氏亡
則魯不昌.

When Ch'eng Chi was about to be born, Commonlord Huan sent the diviner Ch'u-ch'iu's father to divine it. He said, "It will be a male. His name shall be called *yu*. He shall stand to the right of the Commonlord, located between the two altars [of state]. He shall be a support to the Commonlord's house. When the Chi clan perishes the state of Lu shall cease to flourish." (*Tso chuan* 11/8a–b)

[13] The Yin 1 line cited above is followed directly by the line 曰爲魯夫人 ". . . said 'She will become a Grand Lady of the state of Lu'." This looks like the comment of someone making a prognostication upon seeing whatever mark was on her hand at birth, but it is possible that it means the marks on her hand were those four characters themselves, i.e., that the marks themselves said "she will become a Grand Lady of the state of Lu."

In the *Ch'un ch'iu shih yü* 春秋事語 manuscript from Ma wang tui, dating from ca. 200 B.C., Ch'eng Chi is mentioned by his name Yu, but that Yu is written 侑, Old Chinese **gwjəgx*, homophonous with both 友 and 右, but graphically distinct (MWT 1983: 7, line 88). Clearly, if the prognostication account, which is not included in this manuscript, were to have its intended effect, it would also have had to use the character 侑 as the mark that was said to have appeared on his hand at birth. This makes the link with 友 *yu* 'right-hand man' > 'assistant' (佑 *yu* < **gwjəgs*) even tighter, because 侑 itself stands for *yu* < **gwjəgx* meaning precisely 'assist'.

The punning in this passage may even extend further. The root of 右, 友, 佑, and 侑, all read *yu* < **gwjəgx,-s*, is, of course, 又 *yu* < **gwjəgs* 'hand'; and this may be related to the word 手 *shou* < **hrjəgwx* used in the *Tso chuan* passage to designate the place where the "mark" 文 was said to occur. The *yu* words are in the 之 *chih* < **-jəg* rime group, and *shou* is in the 幽 *yu* < **-jəgw* group, making a cognate relation a little more speculative than otherwise might be the case; nevertheless, these are two adjacent rime groups that frequently show contacts with each other.

was born he had a mark on his hand that said Yü. Accordingly he was given that name. (*Tso chuan* 41/21a)

In this case we can again see that the appearance of a character on the hand is associated with a special status, here involving divine intervention in the individual's prospects.

A second, and somewhat less providential use of the term *wen* 文 for 'character' of the script can be found in explicit graphic analyses of the following kind, again all from the *Tso chuan*:

Chao 1: 於文皿蟲爲蠱.

In regard to the *written form*, the [graph] 皿 and the [graph] 蟲 form the character 蠱. (*Tso chuan* 41/28b)

Hsüan 12: 夫文止戈爲武.

However you regard its *written form*, the [elements] 止 and 戈 make the character 武.[14] (*Tso chuan* 23/20a)

Hsüan 15: 故文反正爲乏.

To be sure, as to its *written form*, if you reverse the [graph] 正 *cheng* 'orthodox' it becomes [the graph] 乏 *fa* 'penury'. (*Tso chuan* 24/10b)

In all three of these cases the analysis of written characters is invoked as a kind of graphic confirmation of a point being argued on other grounds. What is important from our historical and grammatonomic perspective is that characters, even multi-component characters like these, are referred to by the general term *wen* 文. It was not until the Ch'in-Han period that the term *tzu* 字 was used to designate a certain kind of character, to wit, multi-component characters specifically, precisely the kinds of characters that are called by the term *wen* in these *Tso chuan* passages. Two of the three cases of graphic analysis cited above, those involving *ku* 蠱 and *wu* 武, would be classified as *tzu* according to Ch'in-Han grammatonomic practice, because they are manifestly constituted of more than one element. By the same token, each of the separate elements 皿, 戈, 止, and a single 虫 of the deltoid 蟲 would be a *wen*. In other words, the distinction between *wen* and *tzu* is precise and straightforward. The *wen* are single, unanalyzable graphic elements that may function as whole graphs standing for words in their own right, or that may enter into combination with other *wen* to yield complex, multi-component characters, called *tzu*, with the *wen* as their identifiable constituent parts. In Boodberg's terminology, which simply translates that of the Ch'ing philologists, in particular that of Tuan Yü-ts'ai 段玉裁 (1735–

[14] Graphically this is a correct analysis, in spite of the appearance of the modern form. See *SWKL* 5693.

1815), the *wen* are called *monosomatic*, i.e., "single-bodied" (*tu-t'i* 獨體) and the *tzu* are called *tomosomatic*, i.e., "separable-bodied," "dissectable," or *syssomatic*, i.e., "joint-bodied" (*ho-t'i* 合體) (Boodberg 1957: 116–17).

The logic of this terminology is not far to see. Prior to its grammatonomic usage meaning 'compound character, derivative of the *wen*', the word *tzu* meant 'to rear, raise offspring; to breed, procreate, proliferate', and by extension, 'to love and cherish (as a parent for a child)'. The word 字 *tzu* < **dzjəgs* is clearly akin both phonetically and graphically to 子 *tzu* < **tsjəgx* 'child, offspring'. This earlier meaning of *tzu* 字, which pre-dates the technical grammatonomic usage of the Han, can be readily attested to in the Classics. Notice, for example, the following lines from the *Tso chuan*:

Ch'eng 11: 又不能字人之孤而殺之.

Moreover, you are not capable of *rearing and caring for* the orphan of another person; rather you would kill him. (*Tso chuan* 27/2b)

Chao 11: 其僚無子使字敬叔.

Her companion had no children, but she was sent *to rear and care for* Ching-shu. (*Tso chuan* 45/19a)

Ch'eng 4: 楚雖大非吾族也其肯字我乎.

Although Ch'u is great, they are not of our clan. Will they really be willing *to care for and cherish* us? (*Tso chuan* 26/7a)

This meaning of 'care for and cherish', expressed in the glosses of the commentators usually as *ai* 愛 'to treat well, take good care of' is an extension of the more neutral 'rear', for which the commentators say *yang* 養 'to raise, rear, nurture'. In its turn the word *tzu* 字 'rear' devolves simply from the etymonic sense of 'to breed, proliferate'. Cf. also 慈 *tz'u* < **dzjəg* 'loving' vs. 孳 *tzu* < **dzjəgs* 'to breed', both akin to 茲 *tzu* < **tsjəg* 'to increase in number, proliferate' (Boodberg 1954).

The purport of the term *tzu* 字, then, must be that the compound characters were seen as derived from combinations of *wen*, and so were called *tzu* because they appeared to be the "proliferation," or "offspring," so to speak, of the *wen*. Again using Boodberg's terminology we could call the *wen* "mother graphs" or *matrograms*, and the *tzu* "offspring graphs," *teknograms* or *tokograms*, abbreviating M and T respectively, which can stand at the same time for the earlier terms *monosomatic* and *tomosomatic* as well (Boodberg 1957: 116–17).

This basic distinction between *wen* and *tzu* becomes unequivocally established in the title of the *Shuo wen chieh tzu*, literally "talking about the *wen* 'matrograms', and analyzing (or dissecting) the *tzu* 'teknograms'." The *wen*, because they are monosomatic and not combinations of two or more

graphic elements, cannot be "analyzed" (*chieh* 解 'to cut apart, undo, analyze'), they can only be "talked about" (*shuo* 說 'to discuss, talk about').

The *Liu shu* 六書 and the *Shuo wen chieh tzu* 說文解字

At the same time that Hsü Shen established the clear-cut formal distinction between *wen* and *tzu*, he also laid out descriptions of what are traditionally known as the *liu shu* 六書, the "six [forms of] script." The term *liu shu* was already known at Hsü Shen's time from at least two earlier sources, the *Chou li* together with Cheng Ssu-nung's 鄭司農 (= Cheng Chung 鄭眾, i.e., the "earlier" Cheng, 5 B.C.–A.D. 83) commentary to it, and Pan Ku's 班固 (32–92) "I wen chih" in the *Han shu*.

In the *Chou li* the *liu shu* are said to be one of the subjects in which the official Tutor (*Pao shih* 保氏) was charged with instructing royal and aristocratic offspring (*kuo tzu* 國子) (*Chou li* 14/6b). Exactly what the "six scripts" are in this context the *Chou li* itself does not say, but Cheng Ssu-nung enumerates them in his commentary to this passage as *hsiang hsing* 象形, *hui i* 會意, *chuan chu* 轉注, *ch'u shih* 處事, *chia chieh* 假借, and *hsieh sheng* 諧聲.

Pan Ku identifies the *liu shu* in the *Han shu* "I wen chih" as *hsiang hsing*, *hsiang shih* 象事, *hsiang i* 象意, *hsiang sheng* 象聲, *chuan chu*, and *chia chieh*. He goes on to say that "they are the basis for constructing characters" (造字之本也).

We know that Pan Ku's "I wen chih," unless it states otherwise, follows very closely Liu Hsin's 劉歆 (d. A.D. 23) *Ch'i lüeh* 七略, which in its turn was compiled sometime between 26–6 B.C., and was based on the *Pieh lu* 別錄 of Liu Hsin's father, Liu Hsiang 劉向 (79–8 B.C.) (Teng and Biggerstaff 1950: 12). We can therefore reasonably suppose that this enumeration of the *liu shu* dates from the last decades of the first century B.C. This is about a hundred years earlier than Hsü Shen's *Shuo wen* postface. Cheng Ssu-nung's enumeration is probably later than that reflected in the "I wen chih," but earlier than that of the *Shuo wen* postface.

If Hsü Shen was not the originator of the names of the categories of the "six scripts," he was instead the first, as far as we know, to codify, explain, and illustrate each of them with concrete examples. In this role he was bringing more than two centuries of concern with the structure and systematization of the script to its logical conclusion, just as the catalogues of the two Liu's, *père* and *fils*, did for a similar concern with the codification and systematization of books and records, a concern that dated back as far as the famous (or notorious) book-burning of the Ch'in in 213 B.C.

Hsü Shen's listing gives names to the *liu shu* that differ slightly from the names given in the *Chou li* commentary and in the "I wen chih." More importantly, he adds explanatory and analytical descriptions, and illustrates each type with examples, something neither of this predecessors attempted.

Regrettably, the precision and clarity with which he drew the distinction between *wen* and *tzu* as the two fundamental categories of characters is noticeably wanting in some of his explanations of the *liu shu*. For some of the six, Hsü Shen's statements are understandable enough, if not perfectly clear. But for others, even when we understand what the nature of the category in question is, they are stubbornly cryptic, and can only be translated by assuming a number of quasi-technical meanings for the words he employs.[15] The "six scripts" according to Hsü Shen (*SWKL* 6709) are as follows:

(1) 指事. . . 視而可識察而見意. 二二是也.

chih shih "indicating the matter" . . . when you observe [the character] then [the meaning] can be recognized; when you examine it, then you see the meaning;[16] 二 and 二 (modern 上 and 下) are [examples of] this.

(2) 象形. . . 畫成其物隨體詰詘. 日月是也.

hsiang hsing "representing the form" . . . by drawing you bring the thing [in question] to the fore; [the depiction] twists and bends conforming to the shape [of the object]; 日 and 月 are [examples of] this.

(3) 形聲. . . 以事爲名取譬相成. 江河是也.

hsing sheng "formulating the sound" . . . you take the [general] subject as a naming [of the semantic class], and select a [phonetic] approximation to put with it to complete [the character]; 江 and 河 are [examples of] this.

(4) 會意. . . 比類合誼以見指撝. 武信是也.

hui i "conjoining the sense" . . . you set the categories [of meaning] side by side and combine what is appropriate [from each]; thereby [the meaning] is indicated and evoked; 武 and 信 are [examples of] this.

(5) 轉注. . . 建類一首同意相受. 考老是也.

chuan chu "revolved and re-directed [graphs]" . . . "one sets up [various graphs of similar semantic] categories under one head, which by their identi-

[15] Hsü Shen's explanations of the *liu shu* have been translated into English several times already. L. C. Hopkins in the prefatory note to his translation of Tai T'ung's *Liu shu ku* gives a number of different early renderings and explanations. See Yetts 1954: 3–16. More recently K. L. Thern has published a translation of the entire postface as a pamphlet in the Wisconsin China series (Thern 1966).

[16] Current editions of the *Shuo wen* often have *ch'a erh k'o chien* 察而可見 for the last sentence of this line. Tuan Yü-ts'ai has emended the text to read as we have written it here, on the basis of Yen Shih-ku's 顏師古 (581–645) commentary to the pertinent line of the *Han shu* "I wen chih," which has *ch'a erh chien i* 察而見意 (*Han shu* 30/11b). Tuan also points out that all five of the other two-sentence explanations consist of riming couplets, and if we take *chien i* 見意 as original, then this one rimes as well: 意 *i* < **?jəgs* and 視 *shih* < **hrjək*, both belonging to the 之 *chih* < **-əg* / *-ək* rime group of the *Shih ching*. If the text has *k'o chien* 可見, then there is no rime. See *SWKL* 6728.

cal etymology are mutually related" (Serruys 1957: 149);[17] 考 and 老 are [examples of] this.

(6) 假借. . . 本無其字依聲託事. 令長是也.

chia chieh "loaned and borrowed [graphs]" . . . when in origin there is no character [for the word in question] you assign an item [i.e., a graph] relying on its sound; 令 and 長 are [examples of] this.[18]

As we said above, the precision and clarity with which Hsü Shen so admirably drew the distinction between *wen* and *tzu* in both form and function seems noticeably, sometimes painfully, absent in these analyses of the *liu shu*. There are many unsolved problems and unexamined implications in the meaning and nature of the *liu shu*, both as Hsü Shen defines them and as a set in and of themselves. P. L-M. Serruys (1957) in his substantial study of the *chuan chu* has not only shown the extent of the problems that can surround one of the six scripts, but has also pointed out *en passant* numerous questions and puzzles that attend the other five. For our part we shall confine our comments to a few basic and general points.

It is important above all to recognize that the *liu shu* are not, and as far as the primary sources explicitly indicate, were never intended to be, an explanation of the evolutionary processes that generated the Chinese script *ex nihilo*. They are rather an attempt to analyze and categorize the various kinds of characters that were discernible to the Han literati. In this sense they are part and parcel of the same urge to achieve a systematic scheme and a "no-loose-ends" categorization of all perceptible phenomena, societal and natural alike, that endured and prevailed from the far-reaching standardizations of the Ch'in some two hundred or more years earlier, and that can be seen to have affected so many diverse facets of the Han world-view. It is even possible,

[17] The *chuan chu* category is without a doubt the most difficult to understand of the *liu shu*. Serruys in a formidable and detailed article surveyed all of the important traditional opinions and studies, and then made his own analysis, replete with examples (Serruys 1957). For a full examination of the problems associated with the *chuan chu* category, and an exhaustive survey of the pertinent scholarship, this article is indispensable.

[18] Ting Fu-pao, crediting the idea to Wu Chih-hui 吳稚暉, suggests that the *ch'ang/chang* 長, given in all standard editions of the *Shuo wen* as the second example of a *chia chieh* character, is a mistake for *liang* 良. The mistake arose, he proposes, as a result of the change in the Later Han of the character 良 to 長, because the former was a part of the name of the uncle of Han Kuang wu ti, and was thus changed to the latter because of the custom of avoiding characters in the names of emperors. In this case, because Kuang wu ti was orphaned at the age of nine, and raised by his uncle, the uncle's name is accorded the same avoidance respect that would have been given to his father. See Ting Fu-pao 1940: 3.

This proposal allows us to make sense of the *Shuo wen* examples. In the received version with 令 and 長 it is not really clear how these are examples of *chia chieh* usage. But when the text is emended according to the proposal of Wu Chih-hui and Ting Fu-pao it becomes clear that Hsü Shen intends us to take the *ling* 令 as a *chia chieh* character for *liang* 良, a loan usage well attested in early transmitted texts and in bronze inscriptions.

speaking a bit speculatively, that the *liu shu* were, especially in their formulation as given by Hsü Shen, as much *prescriptive* of how the standardization of the script should proceed as they were *descriptive* of the structure of the writing system up to the Han.[19]

The six forms of the script fall into two clearly distinguishable groups: (1) through (4), *chih shih, hsiang hsing, hsing sheng,* and *hui i,* on the one hand, and (5) and (6), *chuan chu* and *chia chieh,* on the other. The categories of the first group are all descriptive of the internal structure of a single character, and each category name seems to be a phrase consisting of a verb used transitively followed by an object, e.g., *chih shih* "indicating the matter," *hsiang hsing* "representing the form," etc. Notice that in Pan Ku's listing of the category names the first word in each of these four is *hsiang* 象 "representing. . . . " The second group, consisting of *chuan chu* and *chia chieh,* do not have to do with the internal graphic structure of a character, but describe different *uses,* or *applications,* of a given character, irrespective of its constituent structure. These latter two are, in other words, references to variant usages of the characters relative to the words they write rather than descriptions of how the characters are constructed to represent the words they are intended to write.

Since the first four of the *liu shu* have to do with internal graphic structure, and the last two have to do with usage, there is no compelling reason to see these two groups as mutually exclusive. In fact, their relation ought to be just the opposite; the characters that can be, or even those that are exclusively, used as *chuan chu* or *chia chieh* graphs must have originated as something else, and must have structures identifiable, at least in theory, among the first four types. This is one of many points on which Hsü Shen and the *Shuo wen* are for the most part silent, and we do not know whether or not Hsü Shen recognized the possibility of a character functioning as one type (*chuan chu* or *chia chieh*), yet being in origin structurally another type (*chih shih, hsiang hsing,* etc.). There is no hint that he did, but to say he did not is to judge from an *argumentum ex silencio.*

Of the first four types, those specifically describing graphic structure, the *chih shih* category is sometimes considered to be a sub-category of the *hsiang hsing.* Clearly, characters of the *hsiang hsing* category can be identified as what are conventionally called "pictographs," what we have more accurately termed *zodiographs.* If the *chih shih* are considered as a sub-category of zodiograph, then the difference between them and the principal *hsiang hsing* zodiographs is that they portray abstract but depictable relations like 'above' (二/上) and 'below' (二/下) rather than concrete things like 'sun'

[19] This suggestion emerged from an informal discussion with Roy Andrew Miller, who, while fully recognizing its speculative nature, still remained attracted to the possibility that on further investigation it may prove in some significant sense to be valid.

(日) and 'moon' (月). Boodberg has translated the term *chih shih* as *hypodigmatic*, by which he means "the so-called indicative graphs which are not pictorial zodiograms, but suggestive, inferential, directive signs or symbols (such as 'up' and 'down', numbers, etc.)" (Boodberg 1957: 116).

The *hsing sheng* category is often called *hsieh sheng* 諧聲 "sharing the sound," and is the basis of what we referred to in chapter 3 as *hsieh sheng* series, the individual characters being conventionally called "phonetic compounds." This is the category with by far the greatest number of characters in it, both in the *Shuo wen* itself and in the Chinese writing system after the oracle-bone inscription stage. Like *hsiang hsing*, it is one of the categories with the most easily understandable structure: *hsing sheng* (or *hsieh sheng*) characters consist of a phonophoric constituent (conventionally called a "phonetic") plus a semantic determinative, i.e., a semantic classifier (conventionally called a "radical"). Even though the structure of such characters is well understood, the explanation of it given by Hsü Shen in his postface, cited and translated above, is far from clear. In particular what he means by *ming* 名 and *p'i* 譬 can only be inferred from the context of the line taken together with our prior understanding of the structure of a *hsieh sheng* character. The translation we have given above is meant to reflect such a judgment, but a different interpretation is not impossible. More importantly, if we are relying on our preconceptions about what a *hsieh sheng* character is in order to understand Hsü Shen's definition, are we missing some feature of the category at which he intended to hint, or that moved him to couch his analysis in such apparently vague language? This question should be borne in mind in any further investigation of the nature of *hsieh sheng* characters.

The two examples Hsü Shen gives, *chiang* 江 and *ho* 河, are readily explicable according to the conventional understanding of *hsieh sheng* structure. Both mean 'river', specifically the Yangtze and Yellow respectively, and therefore have cl. 085 水 for things aquatic. In 江 *chiang* < **krung*, the phonophoric is 工 *kung* < **kung*, and in 河 *ho* < **gar*, the phonophoric is 可 *k'o* < **kharx*.

The most problematical and controversial of the first four structural types of the "six scripts" is the *hui i* 會意 category. The meaning of the term *hui i* looks superficially obvious, "combining or conjoining meanings," what Jerry Norman has (privately) called *syssemantic*. It is thus usually said to refer to characters whose meaning is indicated by the combined meanings of their constituent parts. Hsü Shen's example of the character 信 standing for the word *hsin* < **sjins* is a good, and frequently cited, case. "It means 'true, honest, trustworthy'," so the dogma goes, "because it is a 'man' standing next to his 'word'." In this explanation the assumption with which we are expected to agree is that the meaning of the word *hsin* comes from the graphic juxtaposition of the two elements 人 'man' and 言 'word, speech', which is supposed to be sufficient, quite apart from any direct phonetic representation,

to suggest unambiguously the meaning 'true, honest', as in "a man standing by his word."

Apart from the fairly obvious fact that the simple juxtaposition of 'man' and 'speech' is suggestive of all kinds of meanings besides 'true, honest', e.g., 'orate', 'cavil', 'harangue', 'lecture', 'monologue', even 'linguist', to name only a few, three things should raise doubts about this interpretation. First, in Pan Ku's formulation of the *liu shu* he called this category *hsiang i* 象意 "*representing* the meaning," not *hui i*. If it is the *combination* of the meanings of the constituent parts that lies at the heart of a *hui i* character, then how could Pan Ku have used a name for this category that does away with the key term *hui* 'combining'? Second, we have already pointed out that in the process of the origin and development of the writing system there is no provision for characters to be formed as combinations of two or more constituent elements none of which has a phonetic role. The combining of two or more graphic elements in a writing system to make a new character based on the meanings of the parts is not in general a viable process for generating characters, unless there is a definite representation of the pronunciation of the word in question as well. Third, if, irrespective of their origin, this class of characters really operated within the script in the way that is alleged, it would be a true anomaly in that nowhere else in the Chinese writing system, or in any other natural writing system that I know of, is there a type of graph that stands for a word on the basis of the *combination* of elements used for their iconographically suggestive value alone rather than for a specific phonetic value.

If it is the *actual* history of the character 信 and how it represents the word *hsin* < **sjins* that we are interested in, then we must examine its graphic structure *in connection with the Old Chinese pronunciation of the word.* When we do that we discover right away that the graphic constituent 言 had two related readings. Besides its standard reading *yen* < **ngjan* in the 元 *yüan* rime group, it had a second reading **ngjən* in the 文 *wen* rime group, attested in the *Chi yün* (2/24b). If this reading had survived in modern Chinese, it would have given a pronunciation *yin*. Additionally we find that 言 has *hsieh sheng* derivatives in the 真 *chen* < **-in* rime group, precisely the rime group of 信 *hsin* < **sjins*; cf. 閺, 狺, 圄, 齦 all read **ngjin* (*Chi yün* 2/27b). Given this variety of finals for 言 and its *hsieh sheng* derivatives, coupled with the fact that we have no *a priori* basis to preclude any particular correspondence between initials within a *hsieh sheng* series, there is nothing extraordinary about taking 信 *hsin* < **sjins* as a *hsieh sheng* derivative of 言. The implication of such a proposal is that the initial of 信 was something like **sng-* in Old Chinese, and by further implication that of 言 itself might have been **zng-*. Beyond these phonetic surmises, what this means in regard to Hsü Shen's claim that 信 is a *hui i* character is that the categories *hui i* and *hsieh sheng* are not mutually exclusive. The character 信 is by demonstrable

historical fact a *hsieh sheng* character, but by the *Shuo wen*'s own explicit identification it is a *hui i* character.[20]

This observation shows that the *liu shu* categories do not necessarily reflect the actual historical development of the writing system, and any extent to which they recapitulate the real graphic history of a given character is likely to be fortuitous. We do not know how clearly Hsü Shen understood that a *hui i* character could also be, and in fact *must* in some sense also be, a *hsieh sheng* character. Because the evolution of the Chinese writing system does not, in our view, allow for compound characters that do not have a phonophoric element within their graphic structure, even *hui i* characters must have such a component somewhere. We may not be able to identify it, but that is a limitation of our own knowledge of Old Chinese and its relation to the script, not a sign that our phonetic principle is invalid.

The real question is, what makes one *hsieh sheng* character also a *hui i* character, while others are not. Or, to phrase the same question differently, why did Hsü Shen analyze 信 as 从人从言會意 "derived from 'man', derived from 'word, speech'; *hui i*" (*SWKL* 0986), and not 从人言聲 "derived from 'man', 言 **zngjən* (~ **zngjan*) is phonophoric," as he might well have if we are right about 言 being phonophoric? Unfortunately the answer to this question is not now known, and may surface only after a comprehensive study of all so-called *hui i* characters in comparison with the preponderance of *hsieh sheng* characters in the *Shuo wen*.

Hsü Shen's *Shuo wen chieh tzu* is the first comprehensive dictionary of Chinese characters ever compiled. Earlier lexicographical works are known to have existed. Some are already mentioned in the postface to the *Shuo wen* itself, but these are extant only secondarily and in fragments, and in any case none was in any real sense comprehensive.[21] Hsü Shen finished his work in A.D. 100, but it was not presented to the throne until September 19, 121, when it was offered up by his son, Hsü Ch'ung 沖, accompanied by a suitable memorial, to Emperor An (reg. 107–125). The reasons why the

[20] Qiu Xigui says that the majority of modern scholars regard the character *hsin* 信 as having 人 *jen* < **znjin* as the phonophoric, but that T'ang Lan takes it as having 言 *yen* as phonetic (Qui 1988: 99). If 人 *jen* is phonophoric, then the initial of 信 *hsin* would be reconstructed as **sn-* rather than as the **sng-* that we proposed on the basis of taking 言 *yen* as the phonophoric. In either case the character is analyzable as a *hsieh sheng* graph, with a phonophoric element.

There is a legitimate sense in which *both* elements might be phonophoric; one as the original phonetic component and the other as a phonetic determinative. In other words, allowing for the phonetic role of the 人 *jen* element does not preclude the possibility of a phonetic role for the 言 *yen* as well.

[21] See Thern 1966: 11ff. The *Erh ya* is likely older than the *Shuo wen*, but it is much more a thesaurus of textual glosses than an analytic or descriptive dictionary. It probably arose as an aggregate of scattered lexical notes to the Classics and to other pre-Han texts. See Coblin 1972: 8–11.

Shuo wen was held back for more than two decades after its completion and was presented to the throne only in 121 are bound up with Hsü Shen's purpose in compiling the work in the first place, and with the political and intellectual circumstances of the Han court during the last years of the first century A.D. and the early years of the second.

In the last year of the Yüan-ho reign, A.D. 86, Emperor Chang (reg. 76–88), who less than a decade earlier had sponsored the White Tiger Hall Council, now showed a distinctly less accommodating attitude toward the world of letters. He dismissed the suggestion of further scholastic deliberations and codifications with the curt observation that scholars seem forever to debate, never to conclude, and that if a "single K'uei was enough for Yao," why should he [Emperor Chang] need a throng of tedious intellectuals and contending academics?[22] This disdainful attitude toward the learned bookmen of the day persisted unchanged for the next several decades, through successive periods of rule by regent empresses and powerful eunuchs, to wit, the Tou 竇 clan during the early part of the reign of Liu Chao 劉肇, later known as Emperor Ho (reg. 89–106), and the Teng 鄧 clan from 102 until the death of the Empress née Teng on March 18, 121 (Miller 1953: 16). When real political power finally came into his hands in 121, Emperor An, on the recommendation of his Grand Secretary Ch'en Chung 陳忠, ordered the full reinstatement of scholars and erudites to the service of the court. With this restoration the long disfavor that the intellectual class had suffered came to an end, and academics returned to a respected status and received a genuine welcome from the government.[23] The scene was now set for a favorable court reception for the first time since the *Shuo wen* had been completed, and thus it was presented to the throne on September 19, 121.

Compounding the general disfavor with which academics and scholars had been viewed by the Han court prior to 121 was, for Hsü Shen, the fact that he gave every appearance of being a partisan of the so-called "Old Text School" of Han scholarship, putting him in the popular ranks rather than the officially sanctioned and administratively entrenched "New Text" camp. This lent to his work even less promise for favorable court acceptance than might otherwise have been the case.

The usual claim that Hsü Shen was an "Old Text" adherent stems most directly from his own statements in the postface where he purports to follow the *ku wen* texts of, for example, K'ung An-kuo's *Shu ching*, and the *Tso* commentary to the *Ch'un ch'iu*. It is also apparent from the fact that the

[22] Miller 1953: 7ff., and *Tzu chih t'ung chien* 39.1508. The reference is to the officer appointed by Shun to codify court ceremony and music (*tien yüeh* 典樂) of this legendary period. See the "Shun tien" 舜典 section of the *Shu ching*.

[23] These circumstances are given in full detail, with translations of the crucial passages from the primary historical texts, in Miller 1953: 3–26, which is the source for the present summary.

great majority of citations from the classics within the *Shuo wen* itself are of the *ku wen* versions (Chou 1966: 717). Miller has shown that it is in fact correct to identify Hsü Shen as an "Old Text" partisan, an identification that earlier scholars had assumed, but never really demonstrated, but at the same time he has shown that Hsü was very idiosyncratic in his "Old Text" proclivities, "holding remarkably independent views within this group" (Miller 1977–78: 4, 20).

Finally, it is important to recognize that Hsü Shen's compilation of the *Shuo wen* cannot in any sense be held to have arisen from a purely linguistic or lexicological drive, notwithstanding the apparent obviousness of such a surmise. Miller has shown that Hsü Shen was guided by his belief in the need to render the interpretation of the classics doubt-free, thereby putting the full force of their cumulative and sanctified wisdom at the service of the Han government in its very immediate objective of enforcing order in all areas of human activity through a dominant central authority (Miller 1953: 27ff.).

Hsü Shen stresses in his postface that the written language constitutes the foundation of all texts and learning, and that these are the starting point for proper government. It is, moreover, the vehicle whereby the past has been transmitted to the present, and whereby men of the present can know the past (*SWKL* 6711). Recognizing this, we can see that a proper understanding of the written language was for Hsü Shen a prerequisite for successful government, and for this reason, if for no other, codification and standardization was necessary.

Beyond this simple, yet very central, concern was the added fact that Hsü Shen, as an "Old Text" adherent, and thus something of a "rationalist," seems, as we have said, to have been influenced by the same spirit of systematization and standardization that touched nearly every facet of Han society in some way, starting with the Ch'in efforts in such diverse areas as weights and measures, axle lengths, legal codes, and script. Much of the scientific systematization of the middle Han years on the part of *wu hsing* 五行 and *yin yang* 陰陽 theorists can likely be traced to the same prevailing *Vereinheitlichungsgeist* of the Ch'in and early Han period. Hsü Shen's *Shuo wen* is but another manifestation of this pervasive spirit, albeit one of considerable scope, and of major linguistic and lexicological significance.

The *Shuo wen* is arranged according to 540 graphic classifiers. As we have already mentioned earlier these are commonly, but somewhat incorrectly, called "radicals." This is the first work known ever to have classified Chinese characters by shared graphic components. Even if Hsü Shen had gone no further than this first step, it would have been, by virtue of the analytic presumptions on which it was based, a major conceptual innovation in the understanding of the Chinese writing system. He did, of course, go further, analyzing the characters according to the basic bipartite distinction between *wen* and *tzu* and implicitly categorizing them according to the *liu shu.*

In the actual *Shuo wen* entries Hsü Shen does not expressly label a character as a *wen* or a *tzu*. On the whole the *wen* will themselves be classifiers, although the converse is not necessarily true. Rather, it is the *liu shu* that form the implicit basis for his classification scheme.

The *chih shih* and *hsiang hsing* categories are used expressly to label individual characters in the *Shuo wen*. For the *chih shih* entries the formula is generally A B也. 指事也 "A means B; it is a *chih shih* 'indicative-of-the-matter' [type of character]," where A is the character being defined and B is the definition, which may be one or more words in length. The two examples most frequently cited to illustrate *chih shih* characters in the *Shuo wen* are *shang* 上 and *hsia* 下, the entries for which are as follows:

(*i*) 上高也...指事也

shang means "high"; ... it is a *chih shih* "indicative-of-the-matter" [type of character]. (*SWKL* 0017)

(*ii*) 下底也指事

hsia means "below"; it is *chih shih* "indicative-of-the-matter." (*SWKL* 0025)

Hsiang hsing characters, which are almost exclusively zodiographs, may be entered as A B 也...象形(也) "A means B; it is *hsiang hsing* 'resembling the form'," with A and B as above; but more frequently such entries have a structure like 象 Z 之形 "it resembles the shape of Z," where Z is a simple description of the object depicted by the zodiograph. Examples would be:

(*iii*) 月闕也太陰之精象形

yüeh means "defective" [in reference to the moon's going through phases]; ... it is the essence of the Grand Immergence; it is *hsiang hsing* "resembling the form." (*SWKL* 2993)

(*iv*) 屮艸木初生也象丨出形有枝莖也

ts'ao is the first growth of grass or plants; it resembles the form of a stalk coming out; it has both branches and shank. (*SWKL* 0226)

Both *chih shih* and *hsiang hsing* characters tend to be monosomatic (*wen*), and are thus likely to be *Shuo wen* classifiers. They are among those merely discussed (*shuo* 說), but not subject to analysis (*chieh* 解) in the dictionary. The third category, *hsing sheng*, is never used as a label for individual entries, but is by a large measure the most numerous type in the entire dictionary. It is always unambiguously identifiable from the formulaic analysis of the entry. The pattern is A B 也从 X Y 聲 "A means B; it is derived from X, Y is the phonophoric." The crucial part of this formula is the word *sheng* 聲,

the presence of which means Hsü Shen is claiming that the graphic element Y is serving to specify the pronunciation of A. This is what makes it a *hsing sheng* "giving form to the sound" (or *hsieh sheng* "sharing the sound") character. Examples are:

(*v*) 蘭香艸从艸闌聲

lan < **glan* means "fragrant plant"; it is derived from 'grass', 闌 *lan* < **glan* is phonophoric. (*SWKL* 0262)

(*vi*) 璐玉也从玉路聲

lu < **glags* is a kind of jade; it is derived from 'jade', 路 *lu* < **glags* is phonophoric. (*SWKL* 0126)

This pattern occasionally occurs with the variation . . . Y 省聲 ". . . Y in an abbreviated form is phonophoric"; and, as we saw in chapter 3, can often be taken as an indication of polyphony. (See pp. 114–18 above.) There are cases where polyphony is not at issue, and the phonophoric seems to occur in a genuinely abbreviated form, for example:

(*vii*) 齋戒潔也从示齊省聲

chai < **tsrid* means a "prophylactic purification"; it is derived from 'numinous'; 齊 *ch'i* < **dzid* in an abbreviated form is phonophoric. (*SWKL* 0043)

(*viii*) 產生也从生彥省聲

ch'an < **sngranx* means "produce"; it is derived from cl. 100 'produce'; 彥 *yen* < **zngjans* in an abbreviated form is phonophoric. (*SWKL* 2692)

The fourth category, *hui i*, is only sporadically used as a label, but is often regarded as implied by the formulaic analysis A . . . 从 X 从 Y, "character A . . . is derived from X and from Y," where neither X nor Y is explicitly invested with a phonetic role, but either, or sometimes both, may actually have had one. Both of the following examples are identified by Chu Chün-sheng 朱駿聲 (1788–1858) in his *Shuo wen t'ung hsün ting sheng* 說文通訓定聲 as *hui i* characters.

(*ix*) 雥(=集)群鳥在木上也从雥从木

chi means "a flock of birds in a tree"; it is derived from 'three birds' and from 'tree'. (*SWKL* 1583)

(*x*) 孫子之子也曰孫从子从系系續也

As for *sun*, we call the offspring of offspring *sun*; it is derived from 'child' and from 'thread'; 'thread' means "continuation [of a lineage]." (*SWKL* 5786)

In the second of these two cases there is in fact no apparent phonophoric in the character, and so the 从 X 从 Y analysis seems to be the best one could expect (though see *infra* pp. 123–25 for further discussion of the structure of 孫). In the first case, by contrast, the deltoid element 雥 itself, of which the single 隹 in 集 is a reduction, had a MC reading *dzəp* (*Kuang yün* 5/45a), which would imply an identical OC pronunciation, i.e., **dzəp*. This would be a perfectly acceptable phonophoric in 集 *chi* < **dzjəp*. Thus, if 集 *chi* is categorized as a *hui i* character because of its graphic constituency, it must at the same time be recognized as a normal *hsieh sheng* compound because of its obvious phonophoric component.

Neither the fifth nor the sixth categories, *chuan chu* and *chia chieh*, are used as labels for individual characters, nor are they identifiable from the wording of the *Shuo wen* entries. They are included in the *liu shu* discussion in Hsü Shen's postface because they are important principles of graphic usage, but the structural analyses that Hsü Shen gives for *chuan chu* and *chia chieh* characters in the body of the dictionary may follow the same formulaic wording as the other categories.

We find a few variations on the *Shuo wen* formulas as outlined above. The most important is the form A . . . 从 X Y. It is often the case that this is a foreshortened variant of the *hsing sheng* formula 从 X Y 聲, where the word *sheng* 'phonophoric' has been excised, probably in most cases by the Sung editor Hsü Hsüan 徐鉉 (916–991). The deletion of this *sheng* is likely due to the fact that, after more than eight centuries of linguistic change since the compilation of the *Shuo wen*, the editors and scholars of the tenth century could not understand how the graphic element Y could be phonetically related to the character A in question. Since it did not look to them as if the Y could be a phonophoric element, this *sheng* was regarded as some kind of aberrant phonetic claim of (to their minds) untenable status and inexplicable origin, and it was excised (Miller 1953: 207–9). We have already seen an example of this above (p. 119).

A second variation from the usual patterns, encountered not infrequently, is the form A . . . 从 X 从 Y, Y 亦聲 "A . . . is derived from X and from Y; Y is also the phonophoric." In cases like these Hsü Shen seems to be attributing a dual role to Y, suggesting a simultaneous phonetic and semantic function, in a way that he refrains from doing in the many cases of straightforward *hsing sheng* analyses. Examples of this pattern are:

(*xi*) 吏治人者也从一从史史亦聲

li < **zljəgs* means "one who orders others"; it is derived from 'one', and from 'scribe'; 史 *shih* < **srjəgx* 'scribe' is also the phonophoric. (*SWKL* 0016)

(*xii*) 禮履也所以事神致福也从示从豊豊亦聲

> *li* < **lidx* means "conduct"; it is what is used to serve the spirits and to bring forth blessings; it is derived from 'numinous', and from 'vessel'; 豊 *li* < **lidx* 'vessel' is also the phonophoric. (*SWKL* 0030)

Individual entries also occasionally contain dialect information, citations from pre-Han texts, and such appended phonetic information as, for example, the *tu-jo* 讀若 "read like" specification. In this last case the pronunciation of A, the character in question, is indicated by saying A . . . 讀若 Z, "A . . . is read like Z," presumably meaning that in Hsü Shen's language A and Z were homophones.[24]

Hsü Shen's lexicographical aims were twofold: the systematic analysis of the graphic structure of characters on the one hand, and the identification of alternate graphic forms of the same characters on the other. The work takes the *hsiao chuan* 小篆 "small seal" script of the Ch'in standardization as basic, and gives graphic alternates, when they are known to Hsü, in *ta chuan* 大篆 "large seal" script (also known as *chou wen* 籀文), in *ku wen* script, and occasionally in other recognized variants, e.g., forms that he labels *ch'i tzu* 奇字 "eccentric characters," which seem to be considered as a kind of offshoot of the *ku wen* forms.

In his postface Hsü says there are a total of 9,353 characters defined and analyzed, with an additional 1,163 alternate forms given (*ku wen, chou wen,* etc.). Because of the vicissitudes of textual transmission over the centuries, extant editions of the *Shou wen* currently do not have exactly these numbers. In particular the Sung scholar Hsü Hsüan in his recension of the *Shuo wen* added entries for characters he found missing in the original text. His added characters came at the end of the appropriate classifier section, and are labelled *hsin fu tzu* 新附字 "newly added characters." A number total is given at the end of each classifier section both for primary entries, called *wen* 文, and for the graphic variants, called *ch'ung* 重, in that section. These numbers are entered by the editors of the particular edition or recension of the *Shuo wen* in question, and as a consequence they differ from edition to edition. Moreover, they are sometimes slightly inaccurate, suggesting the loss or addition of a character or two in the course of transmission of a particular edition. There is an overall increase in the number of characters in current editions of the *Shuo wen* over the original total of 9,353 given by Hsü Shen in his postface.

[24] The *tu jo* glosses of the *Shuo wen* have been the subject of a number of modern linguistic studies, the most thorough and recent being Coblin 1978, which includes discussions and evaluations of earlier studies.

5. THE IMPACT OF THE CHINESE WORLD-VIEW

Orthographic Standardization

The *Shuo wen chieh tzu* is the end product of the process of orthographic reformation that began with the well-known efforts by Li Ssu 李斯 (ca. 280–208 B.C.) to standardize the script just after the political unification of the empire in 221 B.C. under Ch'in Shih huang ti. It reflects the culmination of more than three hundred years of development of the writing system, spanning a period that had in some respects a more profound impact on the shape and substance of the succeeding Chinese written legacy than any other.

We are accustomed to thinking of China's rich intellectual, philosophical, and literary heritage as having its deepest roots in the Western and Eastern Chou, eras very different from each other, but equally invested with the distinction of constituting a formative part of the Chinese tradition.[1] In many ways, of course, this is an entirely valid perspective. But we must keep in mind that virtually all of the transmitted textual evidence whereby we know about the cultural practices, religious beliefs, intellectual musings, literary accomplishments, and political and social institutions of the formative pre-Han period has in its transmission down to the present passed through the hands of the scholars and scribes of the Han dynasty. These texts may as a consequence have suffered alterations, revisions, and reformulations to accommodate prevailing Han attitudes different in apparent emphasis if not in actual substance from the original pre-Han reality. The only exceptions are the tangible archaeological artifacts that preserve in their physical cast direct testimony to the pre-Han form of a text, as do, for example, the bone and bronze inscriptions of the Shang and Chou, and, of more recent discovery and later provenance, the growing numbers of pre-Han manuscripts written on wood, bamboo, or silk that are now coming to light.

To understand the nature of the Ch'in-Han orthographic reforms, these late Warring States and early Han manuscripts are particularly valuable. Besides being free of the influences, conscious or otherwise, of the Han intellectual tradition, they are also largely untouched by Han orthographic

[1] Keightley (1984) suggests that a number of the most characteristic features of what we think of as Chou culture, e.g., the fact that metaphysics did not develop as a major category of thought, the "failure" of abstract thinking to arise as markedly as it did in the Mediterranean world, and the "failure" of science to develop, actually can be seen to have direct causal antecedents in the Shang. We shall return to this in a related connection later in this chapter.

practices, and therefore provide important evidence about the nature of the script just prior to the effects of the Ch'in-Han reforms. This in turn allows us to see the kind, extent, and consequences of the reforms.

Li Ssu is famous as the minister to Ch'in Shih huang ti responsible not only for efforts toward script reform, but also for the regularization and standardization of a wide variety of practical and material matters throughout the new empire. Among these we can cite laws and penalties, weights and measures, axle lengths of carts, and forms and values of currency, as some of the best-known and most important areas of reform (Bodde 1938: 122–23, 166–72). Li Ssu's attempts to achieve a standard form of the script, to abolish regional and archaic variations in the shape of characters, and to put a single, regularized orthography into universal use was one more aspect of the same all-encompassing concern for uniformity and standardization that underlay the other measures just mentioned above. Wang Kuo-wei 王國維 (1877–1927) has even gone so far as to suggest that the notorious decree of 213 B.C. that led to the "burning of the books," typically taken as a manifestation of the tyrannical and despotic character of Ch'in totalitarian rule, was directed primarily at works written in non-standard and archaic forms of script, mainly the so-called *ku wen* "ancient script" texts, and was thus as much if not more an effort to enforce script reform as to suppress intellectual written discourse on a wide scale (Bodde 1938: 153). Bodde rightly puts Wang's speculation on this point into a moderating perspective, pointing out that certain categories of books were exempted from prescription while others, especially the *Shu ching* and the *Shih ching*, were particularly condemned. He also shows that there was obviously more at stake in the attempt to suppress and eliminate some of these works than mere orthographic preference (Bodde 1938: 162–66). Nevertheless, it is possible to sense the same spirit of regularization and demand for uniformity, in this case of a doctrinal kind, at work in the burning of the books as in the other, less ruthless, efforts of the Ch'in regime.

When the available evidence for the nature of the pre-Ch'in script was limited principally to bone and bronze inscriptions, and a few rare and very idiosyncratic manuscripts, the most famous being the Ch'u silk manuscript, it was difficult to determine just how the Ch'in reforms affected the writing system.[2] Clearly the gap of nearly a millennium between the oracle-bone inscription form of characters and those of the Ch'in is too great to allow any useful comparisons. And while the extant corpus of Chou bronze inscriptions

[2] The classic article on this question is Karlgren 1936. His conclusion, based on a combination of empirical data and reasoned inference, is that Li Ssu and the reformers did not introduce any new *principles* into the writing system and did not effect a wholesale abolition of some unknown pre-Ch'in script only to replace it with the script we now recognize. Rather the reforms were largely of a mechanical nature, fixing a standard with respect to choice of graph, choice of semantic determinative, etc. for a given word. Noel Barnard (1978) reassesses the question, but does not come to any new conclusions.

is both substantial and continuous down to the third century B.C., there are thousands of characters known only from their Ch'in-Han forms for which we have no direct pre-Han testimony. Moreover, because of the special status of bronzes as ritual objects or commemorative rewards their inscriptions cannot automatically, even in their graphic aspects, be assumed to be typical of the general nature of language and writing in the Chou period. Thanks to the recent discoveries of a wealth of silk manuscripts, including copies of portions of several of the Classics and other primary Warring States period texts, as well as texts heretofore unknown on a variety of cosmological, medical, and historical subjects, all dating from the late third or early second century B.C., and all revealing a script noticeably divergent from the standardized ideal that was promulgated by Li Ssu, we are now able to discern the nature of the writing system as it must have been at the time of the Ch'in reforms, yet still largely unaffected by those efforts. We can infer from this evidence what the script must have been like just a few decades prior to the advent of the Ch'in standardization, and we can also gauge to what extent that standardization was or was not effective. Finally, against the orthographic background that the manuscripts provide, which we might call the *scriptum quotidianum populare* of ca. 200 B.C., we should be able to see the significance of Hsü Shen's codification of A.D. 100 more clearly than heretofore.

Graphic Variation

An exhaustive examination of the script seen in all of the recently discovered manuscripts would require a great many detailed studies of specific words and passages in these documents, as well as the categorization and analysis of several thousands of characters. Such a study might reveal that we should speak of third-century B.C. *scripts*, in the plural, instead of thinking of the writing system of this period as homogeneous and singular, even if non-standardized.

The notion of standardization is meaningful only relative to a prescribed scope. What was orthographically non-standard relative to the script of the northern and central areas of Warring States period China might have been perfectly standard in the south, e.g., in the ancient state of Ch'u 楚. What we see beginning with Li Ssu and ending with the compilation of the *Shuo wen chieh tzu* is an attempt to establish a national standard, encompassing the whole of literate China. The extent to which what we call non-standard forms of the script of the third and second centuries B.C. were actually localized standards is not at present determinable. What we shall offer here is a summary of the kinds of graphic variation seen in these newly discovered manuscripts, with examples to illustrate how these kinds of variation are important to a clear understanding of the nature of the writing system of the period just before and contemporary with the first efforts at standardization

around 200 B.C., but without any consideration of the role of those variants as standard or non-standard on a local level.

It is necessary at the outset to be clear about what we mean by *variation.* Variation logically implies that there are two or more different forms of the same "thing." In the study of ancient texts we typically talk about two general kinds of variation: *lexical variation* and *graphic variation.* Lexical variation can be defined as variation in *wording* at the same place in two or more versions of the same text. For example, the line in *Hamlet* (IV, 5, 84) that had once been conventionally printed as "In private to inter him" was replaced by Samuel Johnson with "In hugger mugger to inter him," a change that in fact restored what is now thought to have been Shakespeare's original text (Thorpe 1972: 6). This constitutes lexical variation, here of a kind where we know which variant is the original and which is altered. In many other cases, of course, it is impossible to know for certain which of two or more variants is the original and which the altered. Variations of the "private" / "hugger mugger" kind have nothing to do with the writing system and so do not fall within the scope of our purview here.

Graphic variation, sometimes called *orthographic variation,* is variation in the way the same word is written on different occurrences. Those different occurrences may appear within a single text, within a body of roughly contemporary texts, or in the same (= corresponding) place in different versions of the same text. Only in the last case is there a parallel between graphic variation and lexical variation. Whereas lexical variation requires the existence of at least two versions of a given text, graphic variation does not, and in alphabetic scripts is usually considered a less consequential matter than lexical variation. For example, the difference between writing ⟨and⟩ or ⟨&⟩, or between ⟨honor⟩ and ⟨honour⟩ probably makes little if any difference in the meaning or interpretation of the text.

Graphic variation may give rise to lexical variation where the graphic variant results in a misreading of the word or phrase such that a word different from the original is perceived. For example, the Old English letter ⟨þ⟩ [th] 'thorn' was retained in words like "the" and "that" long after it had become otherwise obsolete. This gave rise to the graphic variants ⟨the⟩ ~ ⟨þe⟩ for "the" and ⟨that⟩ ~ ⟨þat⟩ for "that." Because the ⟨þ⟩ was graphically similar to the letter ⟨y⟩, the variant ⟨þe⟩ for "the" was often misapprehended as *ye,* the second-person singular possessive pronoun (modern "your"), and phrases like *þe olde ale house* were understood as *ye olde . . .* , i.e., 'your old . . . ', when in origin they were in fact simply 'the old . . . ' (Brook [1958] 1964: 106).

From the foregoing discussion it should be clear that graphic variation in and of itself does not involve a difference in the wording of the text in question, whereas lexical variation by definition does. Graphic variation may lead to lexical variation as a result of graphic ambiguity. Given our automatic

familiarity with the domain of texts written in alphabetic scripts, we might think that the distinction between graphic and lexical variation is obvious and unambiguous. After all, the pair of variants "private" / "hugger mugger" in *Hamlet* has nothing to do with the orthography of the writing system, and conversely the pairs ⟨honor⟩ ~ ⟨honour⟩ and ⟨and⟩ ~ ⟨&⟩ in no way reflect different words. But when we look at the Chinese cases we shall see that, because of the nature of a logographic script, the distinction is not so clear-cut. In fact deciding when variation is graphic or when it is lexical becomes one of the most important decisions the text critic has to make.

The manuscripts upon which we shall base the following discussion are primarily those that have come to be known as the Ma wang tui (abbreviated MWT) manuscripts, discovered in December, 1973, at Ma wang tui near modern Changsha in Hunan province, an area in the southern part of the ancient state of Ch'u. To date the Peking editors of these manuscripts have published one volume of photographs together with definitive transcriptions, notes, and suggested emendations, for the two *Lao tzu* texts (known as *chia* 甲 and *i* 乙 or A and B respectively), and the other texts appearing on the *Lao tzu* scrolls, another volume for the *Ch'un ch'iu shih yü* 春秋事語 and *Chan kuo tsung heng chia shu* 戰國縱橫家書 manuscripts, texts that have in many places close counterparts in the *Tso chuan* 左傳 and the *Chan kuo ts'e* 戰國策 respectively, and a third volume containing a number of medical texts. When we refer to the Ma wang tui manuscripts in general, we shall be referring to the first two of these three volumes in particular.[3]

The tomb from which these manuscripts were taken, known from dated documents within it to have been closed in 168 B.C., was that of one of the sons of a certain Li Ts'ang 利蒼, the Marklord of Tai (Tai hou 軑侯). The dates of the manuscripts themselves can be determined with a fair degree of certainty from such features as calligraphic style and the use or avoidance of characters known to have been part of the early Han emperors' names. The *Lao tzu* A manuscript freely uses the character *pang* 邦, which after 195 B.C. would have been avoided (and was in fact replaced by *kuo* 國) because it was

[3] We shall refer to the Peking publications of these texts as MWT 1980 and MWT 1983 (the *Lao tzu* and the *Ch'un ch'iu / Chan kuo* mss. respectively). The third volume, published in 1985, is not available to me at the present time. Note that these three volumes are numbered by the publisher as 1, 3, and 4 respectively. Volume 2, presumably and by rumor thought to be that of the Ma wang tui *I ching* manuscripts, has apparently not yet been published. It is necessary to point out that we are perforce dependent on the Peking editors for the reliability and accuracy of the transcriptions. The photographs they have included are usually clear enough to discern the majority of the characters of the text, but are frequently too unclear to resolve just those places where some question might arise as to what is actually written. Every indication is that the Peking editors have been careful in their decisions about such problematical cases, and that they have regularly given the reasons for their choices, suggesting that we are on reasonably safe ground when we rely on their interpretations. Nevertheless, no study can be considered totally definitive unless it has been based on first-hand study of the manuscripts themselves.

the personal name of Liu Pang 劉邦, who became Kao tsu (reg. 206–195), the first emperor of the Han, in 202 B.C.[4] So we can conclude that the A manuscript must have been written prior to 195 B.C. when the writing of the character *pang* 邦 was not yet proscribed. By the same reasoning, *mutatis mutandis*, we know the *Lao tzu* B manuscript must have been written after 195 B.C., because it avoids the character *pang*, but before 187 B.C., because it does not avoid *ying* 盈, the personal name of Emperor Hui (reg. 194–187).

The *Ch'un ch'iu shih yü* manuscript, like the *Lao tzu* A, does not avoid the character *pang* 邦, while the *Chan kuo* manuscript, like the *Lao tzu* B, does. So their respective approximate dates coincide closely with the two *Lao tzu* manuscripts. In sum we can take these manuscripts as fairly representative of the script that was in conventional use within a decade or two of the Ch'in reforms, yet clearly untouched by those efforts when judged against the standards of the period after the *Shuo wen*'s compilation in A.D. 100. The fact that these particular manuscripts come from the state of Ch'u in the south further strengthens our supposition that they are not likely to reflect any of the Ch'in reforms, the immediate effects of which would probably not have been felt as far to the south as Ch'u at this early time (Li 1981: 101).

We shall abbreviate these four Ma wang tui manuscripts as follows:

Lao tzu A (*chia*) : LZ.A
Lao tzu B (*i*) : LZ.B
Ch'un-ch'iu shih yü : CC
Chan kuo tsung heng chia shu : CK

When it is necessary to refer to a particular line of the manuscripts, we shall use the numbers assigned by the Peking editors to the published photographs of the manuscripts in MWT 1980, 1983. Thus, for example, LZ.A.14 will refer to line fourteen of the *Lao tzu* A manuscript.

For those portions of the Ma wang tui manuscripts that exist in received, transmitted versions (abbreviated R) as well, we can talk about lexical variation, i.e., the variation in wording between the manuscript version and the received text. This includes virtually the whole of the *Lao tzu*, and many passages from the *Chan kuo* and *Ch'un ch'iu* texts. For much of the remaining part of the manuscripts we cannot speak about lexical variation in any strict sense, since there is no second version of the text in relation to which the Ma

[4] Kao tsu's reign is conventionally said to have begun in 206 B.C. with his appointment as King of Han, but the civil war with Hsiang Yü did not really end until 202. Mansvelt Beck (1987) has shown that, at least for the Ch'in and early Han, the names of Emperors became "taboo" only upon the Emperor's death, not upon their accession to the throne, as is sometimes supposed. Li Yü-min gives some suggestive evidence to the contrary, but Beck's conclusion is preferable. (See Li 1981.) Li also argues, convincingly as far as his limited data allow, that the *li shu* 隸書 script was not an outgrowth of the *hsiao chuan* 小篆 as is conventionally supposed, but co-existed along with the *hsiao chuan* script in the late Warring States period, before the Ch'in unification (Li 1981).

wang tui manuscript can vary. Rather we can speak only of graphic variation. But in the Chinese context, or we should say in a logographic context, graphic variation may be, as we shall illustrate below, much more than mere scriptural whimsy or caprice; it is no less than one of the fundamental considerations of textual criticism, the determination of not just *how* a word is written, but *what* word is written.

As we said above, we shall not be concerned here with cases of clear lexical variation where the variants are written with entirely unrelated and distinct characters. There are many such cases in the Ma wang tui manuscripts, all of them deserving of the most careful study, but this is a matter for the textual critic, and does not pertain directly to our investigation of the writing system. Of the cases that appear to be graphic variation, some can be seen to be in fact real lexical variation merely passing in the guise of graphic variation. Consider the following example from chapter 41 of the *Lao tzu*. The standard, received text has 上士聞道勤而行之, translated by D. C. Lau as "When the best student hears about the way, / He practices it *assiduously*" (Lau 1982: 61, emphasis added). The LZ.B version has 上[士聞]道堇能行之 (MWT 1980: 89). There are two cases of variation: (i) R 勤 for MWT 堇 and (ii) R 而 for MWT 能. (The conventional way for expressing such variants is R: 勤 :: MWT : 堇, R: 而 :: MWT: 能.) Since 勤 and 堇 vary only in the presence or absence of cl. 019, 力, and since we know that prior to the Ch'in-Han standardization such variation in the use of classifiers was widespread, we might reasonably conclude that this is a case of true graphic variation, that is, that the same word, viz., *ch'in* < **gjən* 'assiduously', is written in two different ways. Conversely, seeing the 而/能 opposition, and recognizing each as a common character standing for entirely unrelated words, we might take this to be a case of lexical variation independent of any vicissitudes in the writing system. But in fact the character 能 is well attested as a *graphic* variant of 而, standing for the word *erh* < **znjəg* (Karlgren 1968: no. 1127). The reading *neng* < **znəng* is not phonetically incompatible with **znjəg*, which reading the graph 能 must have had when it was used as a variant of the graph 而. According to conventional wisdom, then, both of these ought to be taken as graphic variants, and the *wording* as well as the *meaning* of the line is regarded as the same in the manuscript version as in the received version.

D. C. Lau in his recent translation and study based on the Ma wang tui manuscripts has questioned this conventional wisdom on both counts. He suggests that perhaps 能 should be read as *neng*, meaning "able," and that 堇 is a variant of a modern 僅 *chin* < **gjiəns*, meaning "barely." With these two readings, which are in Lau's interpretation now both cases of lexical variation vis-à-vis the received text, he translates the manuscript line as "When the best student is told about the way, it is *barely within his power* to practice it" (1982: 193, emphasis added, "barely within his power" = "barely able to").

What we wish to illustrate by citing this example is that cases of *apparent* graphic variation, such as 堇/勤 both standing for *ch'in* < **gjən* 'assidu-

ously', and 能/而 both standing for *erh* < **znjəg*, can be interpreted such that they are instead cases of lexical variation where the different graphs are intended to represent different words, e.g., MWT: 堇 for *chin* < **gjiəns* 'barely' distinct from R: 勤 *ch'in* < **gjən* 'assiduously', and MWT: 能 for *neng* < **nəng* 'able' matching R: 而 *erh* < **znjəg* 'then'. The use of the graph 堇 in the manuscript, and the fact that it may stand theoretically for any number of words pronounced approximately **gjən* or **gjiəns* (most of which will belong to the 堇 *hsieh sheng* series in the Han script) is what allows apparent graphic variation to constitute in fact real lexical variation. What appears at first to be no more than the presence or absence of a classifier may end up in and of itself correlated with a difference in what word is being written. And a difference in what word is being written is what defines lexical variation, irrespective of whether that difference is reflected in unrelated graphs or in related graphs as in this example. If we did not have a received text in this case, and had therefore no particular predisposition to think of the manuscript phrase 堇能行之 as 勤而行之, Lau's interpretation might have been the first to come to mind, in which case we would have recognized 堇 as a true graphic variant of 僅, standing for *chin* < **gjiəns* 'barely'. No question of lexical variation could have arisen, because there would have been no variant version of the text in the first place.

We can divide the types of graphic variation, including those that will turn out actually to be lexical variation, into two general categories based on the observable formal features of the script. Type I consists in variation of what appears to be the semantic classifier of the character in question while the phonophoric element remains the same, as in the case of 堇 ~ 勤 or ~ 僅 above. We shall refer to this simply as *classifier variation.* Type II consists in variation of the entire character, as in the case of 而 ~ 能, which we will call *character variation.*

Classifier variation allows for three basic subtypes: (a) a character may appear in the manuscripts without any semantic classifier but in the transmitted version of the text with one; (b) a character may appear in the manuscripts with a classifier different from the one with which it appears in the transmitted version; (c) a character may appear in the manuscripts with a classifier, but in the transmitted text without one. Within these three possibilities there are at least two further variations that are worthy of note: (*i*) under subtype (b) it is possible to find that it is not the specific classifiers proper that vary, but the *arrangement* of the same classifiers within the character in question; and (*ii*) under both subtypes (b) and (c) it is possible that the manuscript character is an otherwise unknown and unattested character. Further refinement of these subtypes could be suggested, but what we have described here, together with the following examples, is sufficient to give a satisfactory idea of the kinds of variation that occur as type I. In the charts that follow, the term "regularly" means that a particular variant is the regular and normal form found in the manuscripts.

I. Classifier Variation

Subtype (a): variation between the absence and presence of a classifier.[5]

1. MWT 胃 (*wei* < **gwjəds* 'stomach')	for R 謂 *wei* < **gwjəds* 'to refer to' (regularly)
2. MWT 冬 (*tung* < **təngw* 'winter')	for R 終 *chung* < **tjəngw* 'to end' (regularly)
3. MWT 立 (*li* < **gljəp* 'to stand')	for R 位 *wei* < **gwrjəbs* 'Royal See' (regularly)
4. MWT 知 (*chih* < **trig* 'to know')	for R 智 *chih* < **trigs* 'knowledge' (regularly)
5. MWT 五 (*wu* < **zngagx* 'five')	for R 吾 *wu* < **zngag* 'I, we' (LZ.A.15)
6. MWT 勿 (*wu* < **mjət* 'don't')	for R 物 *wu* < **mjət* 'creature' (LZ.A.14, pass.)
7. MWT 斤 (*chin* < **kjən* 'axe'	for R 近 *chin* < **gjənx,s* 'near' (LZ.A.73)
8. MWT 袁 (*yüan* < **gwjan* 'kind of robe')	for R 遠 *yüan* < **gwjanx* 'far' (LZ.A.265, pass.)
9. MWT 巠 (*ching* < **king* —)	for R 輕 *ch'ing* < **khjing* 'light (weight)' (LZ.A.83)
10. MWT 單 (*tan* < **tan* 'single')	for R 戰 *chan* < **trjans* 'battle' (LZ.B.32a, 35a, pass.)
11. MWT 吾 (*wu* < **zngag* 'I, we')	for R 悟 *wu* < **zngags* 'to realize' (LZ.B.45a)
12. MWT 禾 (*ho* < **gwar* 'grain')	for R 和 *ho* < **gwar* 'to blend' (CK.6)
13. MWT 工 (*kung* < **kung* 'effort')	for R 江 *chiang* < **krung* 'Yangtze R.' (CK.317)
14. MWT 合 (*ho* < **gəp* 'join')	for R 答 *ta* < **təp* 'respond' (CK.105)

Subtype (b): variation between two different classifiers.

15. MWT 刑 (*hsing* < **ging* 'to deform')	for R 形 *hsing* < **ging* 'form' (regularly)
16. MWT 功 (*kung* < **kung* 'effort')	for R 攻 *kung* < **kung* 'to attack' (regularly)
17. MWT 過 (*kuo* < **kwars* 'pass')	for R 禍 *huo* < **gwarx* 'calamity' (regularly)
18. MWT 苛 (*ho* < **gar* 'herbs')	for R 何 *ho* < **gar* 'what' (LZ.A.113)
19. MWT 株 (*chu* < **tjug* 'trunk')	for R 誅 *chu* < **tjug* 'to punish' (LZ.A.260)
20. MWT 路 (*lu* < **glags* 'road')	for R 賂 *lu* < **glags* 'reward' (CC.5, pass., cf. no. 23 below)
21. MWT 掌 (*chang* < **trjangx* 'palm')	for R 常 *ch'ang* < **drjang* 'regular' (CK.53)
22. MWT 堋 (*peng* < **pəngs* 'to inter a coffin')	for R 崩 *peng* < **pəng* 'to collapse' (CK.199)
23. MWT 洛 (*lo* < **glak* 'name of river')	for R 賂 *lu* < **glags* 'reward' (CK.257, cf. no. 20 above, no. 24 below)
24. MWT 洛 (*lo* < **glak* 'name of river')	for R 露 *lu* < **glags* 'dew' (CK.224, cf. nos. 20, 23 above)

[5] When received texts exist we list here the R variant, otherwise we list the form of the character as it commonly occurs in the post-Han standardized script.

Subtype (c): variation between presence and absence of classifier.

25. MWT 勒 (*le* < **lək* 'reins') for R 力 *li* < **ljək* 'strength' (CC.94, pass.)
26. MWT 掙 (*ch'eng* < **tshrəng* 'to prick') for R 爭 *cheng* < **tsrəng* 'to wrangle' (LZ.B.35a)
27. MWT 悤 *yüan* < **ʔwjan* 'aversion' for R 怨 id. (CC.12, pass.)
28. MWT 剴 (*kai* < **kər* 'to cut (grain)') for R 豈 *ch'i* < **khjərx* 'how' (LZ.A.440, pass.)

Variations of subtypes (b) and (c): rare or otherwise unattested graphic variants.

29. MWT 㤅 *chü* < **gwjags* 'to fear' for R 懼 id. (LZ.A.80, pass., 㤅 is an attested *ku wen* form of 懼)
30. MWT 恚 for R 悔 *hui* < **hməgs* 'to regret' (CC.91)
31. MWT 詟 for R 詐 *cha* < **tsrags* 'deceitful' (CC.91)
32. MWT 偞 for R 諜 *tieh* < **diap* 'to spy' (CC.33)
33. MWT 戎 for R 攻 *kung* < **kung* 'to attack' (CC.71)
34. MWT 脊 for R 悟 *wu* < **zngags* 'to realize' (LZ.B.23b)
35. MWT 膶 for R 體 *t'i* < **thidx* 'body' (LZ.A.26, pass.)

Type II variation, that of the entire character, allows for two possibilities: (a) variation where both (or all) variants are known as attested characters, and (b) variation where a manuscript form is an otherwise unattested character. If that unknown and unattested character occurs only once in the manuscripts it may be called a *hapax graphomenon*; if it occurs more than once, though still is unknown from any transmitted texts, then we call it simply an unattested character. The subtype (b) variants listed below are for the most part not *hapax graphomena*, which suggests that even though they are not known in transmitted texts reflecting the Han standardizations, they were not necessarily rare or anomalous in the pre-Han script.

II. Character Variation

Subtype (a): variation between known characters.

1. MWT 嘗 (*ch'ang* < **djang* 'to taste') for R 上 *shang* < **djangx* 'up' (LZ.A.277)
2. MWT 終 (*chung* < **tjəngw* 'to end') for R 充 *ch'ung* < **thjəngw* 'full' (LZ.A.308)
3. MWT 員 (*yüan* < **gwjan* 'official') for R 云 *yün* < **gwjən* 'to speak' (LZ.A.301)
4. MWT 李 (*li* < **ljəgx* 'plum') for R 理 *li* < **ljəgx* 'inner structure' (LZ.A.412, pass.)
5. MWT 聲 (*sheng* < **hrjing* 'sound') for R 聖 *sheng* < **hrjings* 'audient' (LZ.A. regularly)
6. MWT 夕 (*hsi* < **rjak* 'night') for R 亦 *i* < **rak* 'also' (LZ.A.15)
7. MWT 直 (*chih* < **drjək* 'straight') for R 特 *t'e* < **thək* 'singular' (LZ.B.63a)

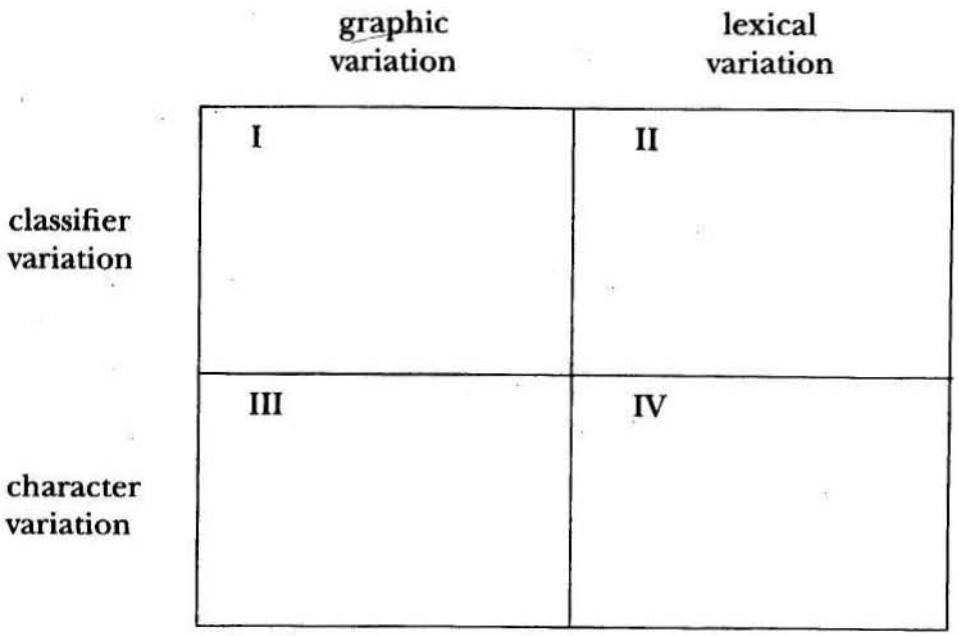
8. MWT 繩 (*sheng* < **gzjəng* 'cord') for R 孕 (*ying*) < **grjəngs* 'pregnant' (LZ.B.85a)
9. MWT 魚 (*yü* < **zngjag* 'fish') for R 吾 *wu* < **zngag* 'I, we' (CK.19, pass.)
10. MWT 勺 (*shao* < **djakw* 'ladle') for R 趙 *chao* < **drjagwx* proper name (CK. regularly)
11. MWT 守 (*shou* < **hrjəgwx,-s* 'to guard') for R 獸 *shou* < **hrjəgws* 'animal' (CK.148)
12. MWT 餘 (*yü* < **grjag* 'surplus') for R 與 *yü* < **grjagx* 'to join with' (CK.273)
13. MWT 伐 (*fa* < **bjat* 'to smite') for R 罰 *fa* < **bjat* 'to punish' (LZ.B.20b)
14. MWT 周 (*chou* < **tjəgw* proper name) for R 舟 *chou* < **tjəgw* 'boat' (LZ.A.64)
15. MWT 郭 (*kuo* < **kwak* 'outer city wall') for R 虢 *kuo* < **kwrak* proper name (CC.47)
16. MWT 壽 (*shou* < **hrjəgws* 'longevity') for R 讎 *ch'ou* < **ghrjəgw* 'to pay back' (CC.64, 65)
17. MWT 蜚 (*fei* < **bjərs*, **pjərx* 'locust') for R 飛 *fei* < **pjər* 'fly' (LZ.B.48b, pass.)

Subtype (b): variation involving unknown characters. (Pronunciation of apparent phonophoric given in parentheses.)

18. MWT 棒 for R 枯 *k'u* < **khag* 'withered' (LZ.A.84; 車 *chü* < **kjag*)[6]
19. MWT 爲 for R 化 *hua* < **hwrars* 'to transform' (LZ.A.168 [2x]; 爲 *wei* < **gwjar,-s*)
20. MWT 羚 for R 攐 *jang* < **znjang,-x* 'to purloin' (CC.81; 羊 *yang* < **grjang*)
21. MWT 馮 for R 圉 *yü* < **zngiagx* 'horse groom' (CC.89; 吾 *wu* < **zngag*)
22. MWT 祋 for R 災 *tsai* < **tsəg* 'catastrophe' (LZ.B.88a; 才 *ts'ai* < **dzəg*)
23. MWT 採 for R 抱 *pao* < **bəgwx* 'to cradle' (CK.235; 保 *pao* < **pəgwx*)
24. MWT 囧 for R 顧 *yüan* < **gwjans* 'to wish' (LZ.A.266; 顯 = *ku wen* for 顧)

Notice that the identification of a variant as type I or type II, that is, as classifier variation or character variation, has no bearing on whether the variation is graphic or lexical, and the latter cannot be deduced from the former. In other words, the distinction between classifier and character variation is independent of the distinction between graphic and lexical variation, and either one of the former can be reflected in either of the latter. We can draw up a chart to show the four possibilities and to make the relation between these two kinds of variation clear:

[6] The character 車 is registered in the *Chi yün* (1/28a) with an aspirated counterpart to **kjag*, viz., **khjag*. This reading accounts better for the variation cited here, and for the phonophoric role of 車 in 庫 *k'u* < **khags*, than the unaspirated reading does. It also seems a better match to the reading in **tsh-*, whence modern *ch'e*, than the unaspirated reading does.



The kinds of variation represented on the left by boxes I and III, that between classifiers or characters, is observable and mechanically distinguishable, and is not dependent on any judgment or interpretation on the part of the text critic. The distinction between graphic and lexical variation, boxes I and III on the one hand and II and IV on the other, is, by contrast, a matter dependent on the subjective but informed judgment and interpretation of the text critic, as apparent from the example of 堇能 ~ 勤而 from chapter 41 of the *Lao tzu*, discussed above (p. 162).

Of the four possibilities represented by the quadrants of the chart, quadrants I, II, and III are pertinent to a study of the writing system, whereas IV is not. Quadrant IV represents lexical variation reflected in distinct graphs, and therefore does not involve any considerations of script. It is important to note that just as apparent graphic variation may turn out to be lexical variation, so the converse is also possible, and what appears to be lexical variation because of the different characters used actually may be merely graphic variation. The lists of examples given above of classifier variation and character variation are all cases of graphic variation. Those we called type I, classifier variation, are quadrant I examples; and those we called type II, character variation, are quadrant III examples. Examples of quadrant II cases are fewer and harder to find because, unlike graphic variation, lexical variation exists only when we have two or more versions of the same text. Beyond that, the decision that a case of apparent classifier variation is actually lexical variation, as with D. C. Lau's suggestion for 堇 discussed above, requires both a careful analysis of the whole passage and a defensible interpretation of that passage different from the conventional understanding of the received version of the text.

Why the Chinese Script Did Not Evolve into an Alphabet

What we can see clearly from the above lists of examples is the extent to which the characters of the pre-Han script existed without the abundance of semantic classifiers that later came to be attached inseparably to nearly every graph. When those classifiers do appear in the Ma wang tui manuscripts it is often in a freer and more variable way than was allowed in the later standardized script. There seems to have been at this already rather late stage in the evolution of the writing system a latent, and very much embryonic, potential for the emergence, at least on a limited scale, of a phonetic and asemantic form of writing.

Consider the implications of the usage in the manuscripts of the graph 句, for example. It is commonly used to write the word *hou* < **gugx* 'after, behind' (conventionally 後) as well as the essentially homophonous word *hou* < **gugx,s* 'queen' (conventionally 后), and the nearly homophonous word *kou* < **kugx* 'if only' (conventionally 苟). All of this is in addition to its well attested usage in other pre-Han texts to stand for the word *kou* < **kug* 'hook' or 'hook-like'. What we have in this case is a single graph standing for at least three different words in the manuscripts, and a fourth if we consider the received versions of other pre-Han texts, all of which have similar or identical pronunciations. Since the words themselves are semantically distinct, their various meanings clearly can have no bearing on the use of the graph 句 to write them, and the sole criterion must be phonetic.

While this multiple usage of the graph 句 may look like a case of four-way paronomasia, it differs from the typical paronomastic usage of graphs that characterized the writing system in the late Shang period in that now there were well established alternative ways to write the words in question. A millennium or more earlier, paronomasia was an inevitable recourse in the face of the extremely limited capacity of a strictly zodiographic script to represent the entire scope of the language. In the third century B.C. that was not a consideration; the word *hou* 'queen', for example, could have been written 后, the word *hou* 'behind' could have been written 後. Because these graphic alternatives were available to the scribes at the same time that the character 句 was used for these same words, it is clear that the original motivation for paronomastic use could not have played any role in the use of 句 to write so many different, but phonetically similar, words. Instead, I think the explanation for the seemingly promiscuous use of 句 was a newly felt tendency towards desemanticization in the script. This tendency was minimal and very limited, to be sure, but I think it was there all the same. As the graph was used for several phonetically similar words, it tended to become desemanticized, and was seen as standing for the phonetically similar syllables **gugx,s*, **kugx*, and **kug*, irrespective of meaning. If this tendency had run its full course, allowing the graph 句 to be used consciously and explicitly for every occurrence of those syllables, no matter what the word,

then by definition 句 would no longer have been functioning as a logograph, but would have become a genuine syllabograph or phonogram.

Paronomasia continued to be an important feature of the evolving script down to the Warring States period. As we pointed out in chapter 2, characters that had already been augmented by a determinative at the third stage of the evolution of the script could still be used paronomastically, i.e., as stage-two characters, only to receive another determinative from the stage-three process when it was deemed necessary to avoid undue ambiguity. This recursion, or "recycling," of characters through stages two and three went on, we suppose, continuously down to the third century B.C. It was a workable process as long as a balance was maintained between the degree of ambiguity engendered by the paronomastic use of graphs and the addition of determinatives to those graphs to distinguish one usage from another. What seems to be reflected in the Ma wang tui manuscripts is a subtle trend away from that balance and toward paronomasia, that is to say, a trend away from the equilibrium that must have existed for a thousand years, and that was characterized by a definitive use of determinatives. If this trend had continued unchecked, we might have expected a true syllabary to emerge as the result. But that in fact did not happen.

The shift away from the systematic use of determinatives in favor of the paronomastic use of graphs suggests that representing sound alone takes priority over signalling meaning in the script. One of the most striking examples of character variation in the *Ch'un ch'iu* and *Chan kuo* manuscripts, showing this tendency toward paronomasia, is the regular and frequent use of 勺 to write the well-known clan and state name Chao < **drjagwx* (趙, II.10 above). Consider in addition that the word *shih* < **ghrjigx* 'clan, family', usually written 氏 in Han and later script, is often written in the *Ch'un ch'iu* and *Chan kuo* manuscripts with the graph 是 (otherwise used for the homophonous word *shih* < **ghrjigx* 'this'), and we can realize that the phrase 勺是 (at CK.68 for example), at first puzzling in the extreme, in fact stands for *Chao shih*, i.e., the Chao clan, or a person of the Chao clan, (conventionally written 趙氏). As if to drive the fact of graphic variability home once and for all, the *Chan kuo* manuscript uses the graph 氏 for *shih* < **ghrjigx* 'this' twice in line 154, and then uses 是 for *shih* < **ghrjigx* 'clan' twice just four lines later. We cannot conclude from this that there is a consistent reversal of the conventional usage, i.e., 氏 for 是 and 是 for 氏, because both the *Ch'un ch'iu* and the *Chan kuo* manuscripts have numerous cases of 是 for *shih* 'this', and of 氏 for *shih* 'clan'. In one instance, no more than three lines after writing 勺是 for *Chao shih* 'the Chao clan', the *Chan kuo* manuscript writes 勺氏 for the same phrase (lines 68 and 71). And the *Chan kuo* manuscript also shows numerous cases of Chao written 趙, as we would expect from our knowledge of the standardized script.

When we say, for example, that 冬 stands for *chung* 'to end' (終), or that 守 stands for *shou* 'animal' (獸), it is important to remember that this does

not preclude the possibility, in many cases attested as fact, that these characters also stand for the words we associate with them in the standard script. That is, 冬 also stands for *tung* 'winter', and 守 also stands for *shou* 'to guard', etc. So the examples given in the above lists all imply that the character in question, except for those otherwise unknown, may represent at a minimum *two* words, sometimes more. If a large number of characters had continued each to be used paronomastically for a number of different, but homophonous or nearly homophonous, words, an inventory of graphs standing just for syllables without any associated meaning might well have taken shape. The graph 冬, for example, might have come to stand not only for **təngw* (冬) 'winter' and **tjəngw* (終) 'to end', but also for **thjəngw* (充, cf. II.2 above) 'full'. It would have eventually been reduced to an asemantic phonogram representing the similarly pronounced syllables **təngw* ~ **tjəngw* ~ **thjəngw*, and it might then have been applied to write *any* syllable with such a pronunciation in any context. As it is we see that 冬 did stand for **təngw* (冬) and **tjəngw* (終), but not for **thjəngw* (充) which was written instead with 終. A true syllabary would use a single graph, e.g., 冬, for all of these syllables wherever they occurred. What we can see here is a kind of graphic instability and apparently free variation that it seems reasonable to suppose would have preceded the eventual crystallization of a genuine syllabary. In other words, the script of the Ma wang tui manuscripts seems to represent a stage of variability and nascent semantic inconsistency approaching, but not quite reaching, desemanticization on a significant scale. In the terms we introduced in chapter 1, we would say that while the script is still fundamentally [+P, +S], that is, most graphs stand for both a pronunciation and a meaning, i.e, a *word*, there are a few graphs that have very nearly become [+P, –S], e.g., 句, and many more for which the [+S] feature was apparently unstable and weak, as manifested through an inconsistent and unpredictable variation in the matching of graph to word.

The examples of classifier and character variation given in the above lists all represent cases of this kind of semantic instability. We might fairly conclude that the script of the Ma wang tui manuscripts was in many cases on the brink, so to speak, of a widespread desemanticization and true phonogrammatic regularity, that is, a regularity in association of a single graph with syllabic sound, irrespective of meaning. But in the end we know that such a development did not take place. The question we must now consider is "why?"

We have already in chapter 2 touched upon the reasons why the script in its formative period in the mid-second millennium B.C. failed to evolve from the third stage, that of the use of determinatives, to a desemanticized and mostly syllabographic fourth stage, as did both the cuneiform script of Mesopotamia and the hieroglyphs of Egypt. The primary reason was that the Chinese language at that time seems, from all of the earliest evidence known, to have been essentially a monosyllabic language, and thus had no syllables that did not carry a meaning. Since meaning was inherent in every

syllable, it was also naturally and automatically inherent in every graph, since each graph was used to write a syllable, and there was no motivation whatsoever to devise a way to write just the phonetic aspect of a syllable divorced from the semantic. If a language does not have syllables without meaning, why would its speakers include in their writing system a way to write such syllables? They wouldn't and it didn't.

The language of the third century B.C. was not as monolithically monosyllabic as it had been a millennium earlier. This has been convincingly demonstrated by, among others, George A. Kennedy in two classic articles on the monosyllabic nature of the language (Kennedy 1951, 1955). Kennedy has shown how the writing system, as represented by texts transmitted from the Han dynasty, and especially as registered in dictionaries, effectively camouflages the bisyllabic nature of innumerable words. It is now generally recognized that Chinese was never a strictly monosyllabic language from Eastern Chou time on, but had many words that can only be described as bisyllabic. The monosyllabic claim for Chinese is most likely valid only for the language's earliest documented period, perhaps 1200 to 800 B.C. The principal mechanism that was responsible for the evolution from a fundamentally monosyllabic stage to a language with many bisyllabic words was the dimidiation of single-syllable words with initial consonant clusters. This process, first explicitly identified and adumbrated by P. A. Boodberg (1937), need not concern us in any of its details here. It is important for our purposes only to explain how the language could have been monosyllabic at the time the script was first invented, and yet clearly allowed bisyllabic words by the Classical Age of the Eastern Chou and later.

We shall give just one example to illustrate the process of dimidiation. The word *chü-lü* (or *-lou*) 痀僂 occurs twice in chapter 19 of the *Chuang tzu* meaning 'hunch-backed'. This is a riming binome, the Old Chinese form being **kjug-ljugx* (or *-lug*). It never occurs except with the syllables in this order, nor does the character 痀 occur other than as the first half of this word. Boodberg's hypothesis of dimidiation proposes that this two-syllable riming binome arose from an original monosyllable that had an initial consonant cluster consisting of both the *k-* and the *l-* of the binome **kjug-ljugx*, viz., a form like ***kljugx*. The bisyllabification, or *dimidiation* (literally "halving") as he called it, is the result of vocalic epenthesis between the two consonants of the initial cluster, thus ***kl-* > ***kə̆l-* eventually yielding two syllables, the first of which became through assimilation a near or perfect rime of the second, **kjug-ljugx*. When the word was perceived as two syllables, it had perforce to be written with two characters, and so what might have at a very early time been writable as 僂 **kljugx* came to be written as 痀僂 **kjug-ljugx* as a result of the phonetic evolution of the language.

Given the phonetic evolution of this binome from an earlier monosyllable, it is clear that its first syllable could have had no existence independent of this vestigial reflection of the *k-* of the original cluster. Consequently,

whatever character is devised to write it is likewise an *ad hoc* and artificial means to represent the newly arisen excrescent syllable, and will have no historical basis in the script. In this case the character with which the first syllable is conventionally written, 痀, looks very much like the same 句 we saw earlier tending to become an asemantic phonogram, augmented now by classifier 104, 疒 'affliction'. In view of the extensive variability in the presence or absence of classifiers that we have seen in the Ma wang tui manuscripts, it is not unreasonable to suppose that when the binome was first reduced to writing, the protomic syllable *chü-* < **kjug-* was written just with the simple 句, and only later was the 'affliction' classifier added. If this was the case, and we cannot prove that it was until pre-Han manuscripts of *Chuang tzu* turn up showing how this binome was written, then the graph 句 was functioning here exactly as it was functioning in the Ma wang tui manuscripts, namely as a phonogram for a single syllable, here pronounced **kjug*, irrespective of meaning.

The history of this binome is representative of literally hundreds of such words, words that are bisyllabic in the language from about 500 B.C. through the Han, and that arose as a consequence of the dimidiation of monosyllables with initial consonant clusters. What is intriguing about these words from the perspective of the writing system is that the wealth of asemantic syllables that widespread dimidiation produced might have been the perfect stimulus for the recognition that a graph can be used to write a syllable based on sound alone, with no reference to meaning. That is to say, a graph could be used as [+P, −S] in just such circumstances as the first syllable *chü-* < **kjug-* of *chü-lü* 痀僂. The graph 句 can now be seen to be approaching a desemanticized, wholly phonogrammatic nature not only via the versatility it enjoys in the Ma wang tui manuscripts, but also as the character rendering the meaningless first syllable of a bisyllabic word like *chü-lü*. But even with this degree of apparent graphic desemanticization, the writing system never came to develop clear-cut syllabographs. Instead the character 句 for this *chü-* was distinguished from its other uses by the addition of classifier 104 疒 for 'affliction', presumably because the sense of 'hunch-backed' was associated with ailments and afflictions. This graphic device was a step precisely *away* from desemanticization, not towards it, and served to add a semantic identity to the graph 句, which was now written 痀, embellished with an *ad hoc* graphic innovation for which there was no historical justification, yet one that rendered the new graph 痀 strongly [+S]. Such artificial infusions of semantic plasma into the tissue of otherwise asemantic phonograms blocked the potential development of a full-fledged set of asemantic syllabographs, and blocked also, it is important to notice, the clear perception of Warring States period Chinese as polysyllabic. The device of attaching semantic determinatives to these originally meaningless syllables served to restore an artificial monosyllabicity to a language that was undeniably becoming polysyllabic. Here again, just as with the failure of any real syllabo-

graphs to arise from the variable usage of characters such as 句 in texts like the Ma wang tui manuscripts, we must ask "why?"

The answer to this question has been anticipated by Miller's observation that

> . . . every facet of the [Chinese] linguistic tradition grew out of, and has almost without major exception or interruption remained part and parcel with, the traditional Chinese world-view, particularly those aspects of that world-view that have to do with the Chinese ethical tradition, and with Chinese theories of a special relationship existing between human society (in particular, the political manifestations of human society) and cosmic order. (Miller 1975: 1215)

To that traditional world-view, Miller goes on to explain,

> . . . order was everything; man, the world in which he lived, the cosmos itself, were of interest not as objects for intellectual speculation, or in and for themselves, but rather only in as far as they reflected, or could be reduced to, proper, *ethically fitting*, and rigid order—order that found its most tangible expression in the monolithic despotism of the centralized Chinese state. (Miller 1975: 1216, emphasis added.)

The key phrase here is "ethically fitting." "Order" according to the Chinese world-view was not just "system," nor was it just "neatness" and the absence of disorder, but was the one proper order that satisfied the ethical expectations, indeed the ethical demands of society and the cosmos, an order in which everything fit and behaved as it "ought" to.

This was not a view entirely new to the third-century B.C. or to the Han. Keightley has identified precisely the same perceptions of order and ethics vis-à-vis reality as already characteristic of the Shang diviner's world-view.

> The study of reality without a study of its ethical significance would have had no meaning; it would have been like cracking an oracle-bone without caring about the result. (Keightley 1984: 22)

And further,

> The organic, synchronous worldview of the Chou and Han, with its emphasis on pattern and relation, on significant and moral juxtaposition, owed its inspiration to, and was congruent with, the divinatory logic of the Shang. (Keightley 1984: 24)

Finally, Keightley speculates that the preoccupation with order that prevails throughout the first millennium B.C. was attributable to the Shang.

> The love of order and hierarchy, so characteristic of Shang art, Shang divination forms, and Shang ancestral theology, continued to flourish in later times . . . the Chou thinkers were horrified by disorder. The major goal of

> Chinese religion of imperial times was to realize the way of heaven by preserving a universal order. The order, where social theory was concerned, could certainly be justified in secular terms. But the passionate attachment to orderly, hierarchical solutions may be partly explained in terms of a fundamental faith in order as a good, quite apart from its efficacy. (Keightley 1984: 25)

Referring specifically to the way that this natural expectation of ethical order, and the sense of "proper meaning" and "proper function" that it carried with it, touched upon the Chinese attitudes toward language, Miller (1975: 1216) cites the famous, and sometimes perplexing, line from the *Analects* (6.23) 觚不觚觚哉觚哉 "a drinking-horn not serving as a drinking-horn; a drinking-horn indeed! a drinking-horn indeed!"[7] Confucius' point here is that when a thing does not function according to its proper role, the role that inheres in it by no virtue greater than its identity as the thing in question, then order, that is, the ethically fitting order that is perceived to obtain between name, thing and function, has broken down, and this gives cause for a deep-felt dismay.

This linguistic and semantic aspect of the Chinese world-view that invests words with a non-arbitrary semantic dimension, or "fit," and function is succinctly summarized by Miller as follows:

> No name of anything, no word in the Chinese language, was thought to be of and in itself arbitrary, or in any way the result of an arbitrary agreement on the part of the society employing it. Everything in the cosmos and on earth was the way it was, and every word, or name, was the word or name it was, for a reason: and that reason was a reflection of cosmic order. Behind each item of language there lurked some element of the ethical order of the cosmos; and in the same way that it was the function of government in the Chinese tradition to identify, implement, and control that cosmic order through the forms it assumed on the level of social and political relationships, so also was it the function of linguistic science in the Chinese tradition to perform essentially analogous operations with language. The *Analects* passage cited prefigures, and at the same time neatly epitomizes, the total mosaic of an ethical-semantic approach to problems of human relationships that would dominate Chinese thought, and largely determine the Chinese world-view, for centuries .... (Miller 1975: 1217)

The Chinese word for both 'ethical' and 'fitting' is *i* < **zngiar,-s*, written 義 (and read in the departing tone [*ch'ü sheng* 去聲]) in moral and social and, as we shall see, grammatonomic contexts, and written 宜 (and read in the level tone [*p'ing sheng* 平聲]) in bureaucratic and administrative contexts. In the latter case *i* 宜 is what one *ought* to do, or *must* do, as defined

[7] Compare A. Waley: "A horn-gourd that is neither horn nor gourd! A pretty horn-gourd indeed, a pretty horn-gourd indeed" (Waley 1938: 120).

by one's role, position, office, or status. It is, in other words, one's responsibility, one's duty, literally, that which is befitting a person according to not just who that person is but also what role that person assumes. Indeed, it is not at all certain that the early Chinese distinguished sharply between an individual's identity ("being") and his or her role ("functioning").

In the moral sense we are accustomed by popular Western tradition to think of *i* 義 as having some vague and ill-defined sense of "righteousness." But in fact the word has exactly the same basic sense it has in more mundane contexts, but with different semantic and graphic nuances and overtones. Here it means precisely what is ethically proper, fitting, appropriate; as a noun, "propriety," or even "appropriety" (see Boodberg 1953: 331).

Just as the administrative duty (*i* 宜) to which a particular officer ought to adhere changes from office to office, so the ethical duty of a person, group, or other societal or political unit changes from person to person or group to group, etc., according to the identity of the person or group in question. In other words *i*, written 義 is no more a term of *absolute* morality than it is, in its other graphic guise as 宜, a term of absolute bureaucratic duty. In both cases *i* is no more, and no less, than the proper *function*, the *ethos*, of the thing with which it is associated, and in which it inheres, be that a mundane bureaucratic post or an abstract ethical relation.

Not surprisingly, when it comes to the Chinese perception of language, this *i*, written 義, means 'meaning' in the linguistic sense, i.e., what is the *proper inherent sense* of a given vocable, the semantic "fit" of a word. This understanding of *i* is clearly reflected in Hsü K'ai's supplementary note on this word in his *Hsi chuan t'ung lun* (*SWKL* 5705), where he says 義者事之宜也 "As for *i*, it is the appropriateness (or 'fitting aspect') of a thing"; hence our suggestion of semantic "fit." What Hsü K'ai is trying to convey by this remark, aside from the implication that *i* 義 and *i* 宜 are to be equated, is that everything has an inherent, proper meaning of its own, which is *i* 義. The same idea, expressed paronomastically, can be found already in the Later Han in Liu Hsi's *Shih ming*, where he enters 義 glossed as 宜 (*Shih ming* 4/1a) "what is appropriate, or 'fitting' (linguistically, i.e., meaning)." He enters 儀 glossed also as 宜 (*Shih ming* 6/4a) "what is appropriate, or 'fitting' (ritually, i.e., ceremony)." The first of these two entries is clearly the linguistic sense of *i* 義, the second, written 儀 and conventionally read *i* < **zngjar*, but surely in origin a close affine of 義 *i* < **zngiar,-s*, specifies the meaning of *i* in a social and ethical, ultimately a ceremonial, sense.[8] Notice that it is not necessary to insist on the ultimate validity of Liu Hsi's implied

[8] Pi Yüan 畢沅 (1730–1797) in his study of the *Shih ming* changed the *i* 宜 of the first entry to 誼, apparently viewing that character with classifier 149 言 for 'speech' as more appropriate to that section of the work, which deals with "Language" (*Yü yen* 語言). But this textual emendation has no real effect since 誼 is a well documented graphic alternate for 宜 from Han times on (Wang [1896] 1984: 4/1b).

etymology; the question of a real cognate relation between 義/儀 **zngiar(s)* and 宜 **zngiar,-s* is not at issue here. What is important in the present argument is how the Han scholars *perceived* the relation, and how this affected their understanding of *i* 義 in a linguistic sense.

The Chinese had no trouble distinguishing language from writing, as Miller points out (1975: 1218), and recognized three inherent features, or aspects, of a written word: the graphic (*hsing* 形), the phonetic (*sheng* 聲), and the semantic (*i* 義). Boodberg has called this sense of *i* 義 *idoneity*, that is, "appropriateness and propriety," or "congruence," as between sound, graph, and sense. He suggests a parallel with Greek *synētheia*, meaning 'habitual and proper usage', and allows that "'meaning' and 'semantics' seem to have connoted to the Chinese a SYNETHOLOGICAL . . . congruence or appropriateness (in the narrow sense, that of graph and sound; in the broad sense, that of their total ethos)" (Boodberg 1957: 118–19).

We can now see what the response of the learned community of scholars in the third century B.C. must have been to those trends, natural enough in a strictly evolutionary sense, toward pure phoneticization and desemanticization that they recognized in the script, trends in which they themselves were in all likelihood participants. When the inherited orthodox world-view with its emphasis on ethically fitting order came together with the not unrelated phenomenon of standardization and systematization that characterized the new empire under the Ch'in, the outcome could not be in doubt. The scribes and scholars of the time, guardians of the primacy of proper order that their received traditional world-view demanded, found themselves confronted with a script that allowed ever freer variation between graph and word, a flexibility that foreshadowed the possibility of still more desemanticization, with the potential to alter irrevocably the very nature of the balance between graph-sound-sense. Their first impulse was decidedly not one of embracing the efficient simplification that this development might bring to the writing system. Rather it must have been one of uneasiness and deep dissatisfaction with the threatened collapse of the natural order that was expected to obtain between words and characters. Just as words, the living tissue of the language, had proper meanings and functions beyond which their usage ought not stray, so graphs as visual, in a sense physical and tangible, representations of words also had their proper meanings and functions, and ought not be employed in a way devoid of or divorced from those inherent features.

The reaction was predictable. There was only one possible remedy: to reinforce the weakening bonds of the *hsing-sheng-i* "graphic-phonetic-semantic" trinity. This meant rescuing and restoring the semantic component of a graph to its original viable status wherever it appeared vulnerable to semantic erosion. This restoration was done in the classic way, by the simple expedient of adding and systematically using semantic classifiers on characters verging toward desemanticization. The effort was part and parcel

of the move to standardize the script, and to establish a firm *one graph* : *one word* isomorphism, reinforcing once and for all the integrity of the tripartite *hsing-sheng-i* structure.

When characters write *words* they write *meanings* as well as sounds, and the deliberate effort to make the script conform to the expectation that graphs should write words precluded any possibility that a set of graphs might arise representing sound alone. For the literati of traditional China, to see the [P] and the [S] features of a graph as independent and separable was simply an intellectual impossibility; such an eventuality would violate every canon of the proper order and relation between word and graph that their world-view imposed. The idea that one could write the [P] part without an attendant [S] feature was unfathomable. Such a writing system was neither natural nor proper; it was defective and deformed and could not be brooked. A graph that was [+P, −S] was no graph at all, graphs were [+P, +S] inevitably, by virtue of being graphs, and no alternative was conceptually feasible. In this fashion, then, desemanticization was arrested, the appearance of an increased number of asemantic phonograms was precluded, and the Chinese never developed a syllabary or an alphabet. Instead, a program of conscious and conscientious standardization and regularization of the script was launched, a program that would be shaped and transformed in a multitude of ways during the subsequent three centuries, especially by the sometimes fierce contentions of Old Text and New Text partisans, yet one that in the end did exactly what it was intended to do: it achieved a normative, systematized, firmly logographic writing system that reflected the proper order of language and script, world and universe, as it should. This is what we find codified in the *Shuo wen chieh tzu* of A.D. 100, preserving the script in its now unassailable logographic integument. We can almost hear the echo of Confucius himself, "a drinking-horn not serving as a drinking-horn . . . , a graph not serving to convey meaning . . . , what a graph, indeed!, what a graph, indeed!"

GLOSSARY OF TECHNICAL TERMS

Abbreviated phonophoric (*sheng sheng* 省聲): designation used in the *Shuo wen chieh tzu* when the phonophoric (q.v.) of a given character appears to be a graphic abbreviation of what Hsü Shen sees as the actual phonophoric.

Ancient Chinese: Karlgren's term for Middle Chinese, the language of the T'ang dynasty, as codified in the *Ch'ieh yün* 切韻 riming dictionary of A.D. 601, and later in the rime tables of the Sung dynasty.

Archaic Chinese: Karlgren's term for Old Chinese, the language of a latter part of the first millennium B.C.

Biconsonantal: descriptive of a word root or stem characterized by having two consonants, as many Egyptian and Semitic words are.

Biliteral: graphically characterized by having two letters, the orthographic counterpart to biconsonantal (q.v.).

Binome: a two-syllable word or a two-syllable phrase at least one syllable of which is bound exclusively to the other syllable of the binome.

Bulla: Latin "bubble," a hollow ceramic or clay ball used to encase tokens or counters.

Character: a written graph.

Character variation: variation in the way a given word is written in two or more instances; typically restricted to characters that are used as logographs (q.v.), but theoretically applicable to any kind of graphic variation (q.v.).

Classifier: that graphic component of the Chinese character under which the character is classified in a dictionary; a semantic determinative (q.v.), commonly, but misleadingly, called a "radical."

Departing tone (*ch'ü sheng* 去聲): the third tone of the Middle Chinese riming dictionaries and rime tables, corresponding to modern standard Chinese tone four.

Desemanticization: loss of the semantic aspect (q.v.) of a graph, such that the graph comes to stand only for a sound without any associated meaning.

Determinative: a secondary graphic element added to an ambiguous primary graph to specify which of two or more pronunciations or meanings is intended.

Determinative stage: the third major stage in the early development of writing systems, characterized by the use of semantic or phonetic determinatives (q.vv.) in the script.

Dimidiation: bisyllabification of a word originally having an initial consonant cluster C_1C_2- such that C_1- becomes the initial of the first syllable and C_2- the initial of the second.

Dromenograph: a graph that stands for a performance or an act rather than for a word or sound, hence not writing.

Early Archaic Chinese: the earliest form of the Chinese language attested in written documents, viz., the oracle-bone and bronze inscriptions of the Shang and Western Chou periods (ca. 1200–750 B.C.), also called pre-Classical Chinese.

Etymonic: a core graphic constituent of a character that has both a phonetic and a semantic relation to the word for which the character stands.

Forerunner: a graph or mark that is not in itself writing, but that seems in some way to have contributed to the advent of writing, either technically, materially, or conceptually, = precursor.

Grammatonomy: the identification and analysis of the rules or principles that govern the development, structure, and operation of writing systems.

Graph: any written character or mark.

Grapheme: the smallest meaningful or significant graphic element in a writing system, analogous to the phoneme in traditional phonology.

Graphic multivalence: the use of a single graph to stand for two or more words or sounds.

Graphic variation: variation in how the same word or sound is written in two or more different occurrences.

Hapax graphomemon: a graph with only a single known occurrence.

Homeosemous: semantically similar, congruence of semantic scope. See parasemantic; (noun: homeosemy).

Homographic: graphically identical (noun: homograph).

Homophonic: phonetically identical; = homophonous, homonymic, and homonymous (noun: homophone).

Homorganic: produced at the same point of articulation in the mouth (noun: homorganicity).

Hsieh sheng 諧聲: "shared phonophoric," a series or set of Chinese characters all of which have the same phonophoric element (q.v.), but differ in their other graphic components.

Hypodigmatic: graphically indicative or suggestive in a non-arbitrary way of a word with an intangible and therefore not concretely depictable meaning; the apparent intended meaning of the Han term *chih shih* 指事 as a category of character type.

Ideograph: in theory, a graph that is used to represent an idea or meaning directly without recourse to the medium of language; by definition not a possible feature or phenomenon in any writing system.

Late Archaic Chinese: the language of the Ch'in-Han, period, ca. 200 B.C.–A.D. 200.

Level tone (*p'ing sheng* 平聲): the first tone of the Middle Chinese riming dictionaries and rime tables, corresponding to modern standard Chinese tones one (*yin p'ing* 陰平, from Middle Chinese level-tone words with voiceless initials) and two (*yang p'ing* 陽平, from Middle Chinese level-tone words with voiced initials).

Lexical variation: variation in wording between two or more instances of the same line or passage in different versions of the same text.

Lexigraph: a logograph.

Logograph: a graph that stands for a word, a lexigraph.

Matrogram: Chinese *wen* 文, a Chinese character that is not divisible into constituent parts or graphemes, and that typically functions as a graphic constituent in other, complex, characters; a "single-bodied" (monosomatic, q.v.) character, a grapheme (q.v.) in the Chinese writing system. Abbreviated M; contrast teknogram. (Alternatively *matrograph.*)

Middle Chinese: alternate term for Ancient Chinese (q.v.).

Monosomatic: "single-bodied," what the Ch'ing philologists called *tu t'i tzu* 獨體字, a graph that cannot be divided into constituent graphic components on any level above that of the individual stroke; a *wen* 文, or matrogram (q.v.). Abbreviated M; contrast tomosomatic.

Morpheme: the smallest unit of speech that carries a meaning.

Multivalence: the capacity of a given graph to be used to stand either for more than one sound (= polyphony, q.v.), or for more than one meaning (= polysemy, q.v.); but not both simultaneously.

Multivalent stage: the second major stage in the early development of writing systems, characterized by the widespread multivalence (q.v.) of graphs.

Old Chinese: alternate term for Archaic Chinese (q.v.).

Orthographic variation: the same as graphic variation (q.v.).

Paronomastic: the use of any logograph with an established lexical association to write a second unrelated but homophonous, or nearly homophonous, word; also called *rebus* usage (noun: paronomasia).

Parasemantic: the use of a zodiograph (q.v.) with an established lexical association to write a second, unrelated and phonetically dissimilar word the meaning of which is congruent with the meaning of the original word by virtue of being suggested by the depictive quality of the original zodiograph. See homeosemous.

Phonetic aspect: the pronunciation of a word seen as a feature of that word. Abbreviated P; contrast semantic aspect.

Phonetic complement: a secondary graphic constituent of a character used to specify the intended or correct pronunciation of the character to which it is appended.

Phonetic determinative: a secondary graphic constituent of a character used to specify which of two or more possible pronunciations of a graph is the intended or correct one in a particular case.

Phonogram: a graph used to stand for a single sound, or a combination of sounds, e.g., a syllable, but with no associated meaning.

Phonophoric: that component of a Chinese character that "bears the sound," i.e., that indicates or suggests the pronunciation; commonly, but imprecisely, called a "phonetic."

Pictograph: a graph that is realistically depictive of a thing or action, and that carries meaning directly as a result of that depictive realism; a precursor or forerunner (q.vv.) of writing; contrast zodiograph.

Polyphony: a single graph standing, often ambiguously, for two or more different pronunciations, and thus for two or more different words.

Polysemy: a single graph standing, often ambiguously, for two or more different meanings, i.e., two or more different words.

Precursor: = forerunner (q.v.).

Protom(ic): the first syllable in a dimidiated binome. See dimidiation.

Radical: popular and conventional, but imprecise, term for semantic determinative (q.v.).

Rebus: = paronomastic (q.v.).

Riming binome: a two-syllable word, often originating through dimidiation (q.v.), the two syllables of which rime.

Semantic aspect: the meaning of a word seen as a feature of that word. Abbreviated S; contrast phonetic aspect.

Semantic classifier: = semantic determinative (q.v.).

Semantic common denominator: the common semantic root that underlies a set of cognate words.

Semantic determinative: a secondary graphic constituent of a character used to specify which of two or more possible meanings is intended by a particular use of that character.

Semasiography: the graphic indication of meaning directly without the intermediary of language, as for example the skull-and-crossbones graph on a container of a poisonous substance.

Shang Chinese: the language of the Shang period, attested in oracle-bone and early bronze inscriptions, ca. 1200–1050 B.C., the earliest attested form of Chinese.

Suppressed phonophoric: a graphic component of a character that is suspected of having been originally identified by Hsü Shen in the *Shuo wen* as a phonophoric (q.v.), but that came not to be recognized as a possible phonophoric in the Middle Chinese period because of the phonetic evolution of the language down to that time, with the consequent deletion of the word *sheng* 聲 'phonophoric' from the *Shuo wen* entry.

Syllabograph: a graph that stands for a syllable.

Syssemantic: "joined meanings," i.e., the apparent intended meaning of the Han term *hui i* 會意 as a category of character type.

Syssomatic: "joined bodies," i.e., what the Ch'ing philologists called *ho t'i tzu* 合體字; characters with two or more graphic constituents, = teknogram (q.v.). Contrast monosomatic.

Teknogram: Chinese *tzu* 字, a character with two or more graphic constituents, a character derived from the combination of two or more matrograms, hence a kind of "offspring" character. Abbreviated T; contrast matrogram.

Tokogram: = teknogram.

Tomosomatic: "analyzable form," i.e., a graphic structure that is internally separable and thus reducible to two or more graphic constituent elements; contrast monosomatic.

Triconsonantal: descriptive of a word root or stem characterized by having three consonants, as many Egyptian and Semitic words are.

Triliteral: graphically characterized by having three letters, the orthographic counterpart to triconsonantal (q.v.).

Uniconsonantal: descriptive of a word root or stem characterized by having a single consonant.

Uniliteral: graphically characterized by having a single letter, the orthographic counterpart of uniconsonantal (q.v.).

Word family: set of etymologically related words.

Zodiograph: a monosomatic (q.v.) character that is clearly, or presumably, in origin a depiction of a concrete thing or act, but that has come to stand for the *word* for that thing or act rather than for the thing or act itself, the apparent intended meaning of the Han term *hsiang hsing* 象形 as a category of character type; contrast pictograph.

Zodiographic stage: the first major stage of the early development of writing systems, characterized by the zodiographic use of what were presumably, but not inevitably, pre-writing pictographs.

ABBREVIATIONS

BIHP	*Bulletin of the Institute of History and Philology*, Academia Sinica (Taipei).
BMFEA	*Bulletin of the Museum of Far Eastern Antiquities*, Stockholm.
BSOAS	*Bulletin of the School of Oriental and African Studies*, University of London.
CC	*Ch'un ch'iu shih yü* 春秋事語; see *Ma wang tui Han mu po shu* 1983.
CK	*Chan kuo tsung heng chia shu* 戰國縱橫家書; see *Ma wang tui Han mu po shu* 1983.
cl.	classifier.
CWKL	*Chin wen ku lin* 金文詁林; see Chou 1975.
dt.	determinative.
G	graph.
GSR	*Grammata Serica Recensa*; see Karlgren 1957.
HJAS	*Harvard Journal of Asiatic Studies.*
HY	Harvard-Yenching Institute Sinological Index Series, no. 25. *Tao tsang tzu mu yin te* 道藏子目引得.
JA	*Journal Asiatique.*
JAOS	*Journal of the American Oriental Society.*
JCL	*Journal of Chinese Linguistics.*
LZ:A	*Lao tzu chia pen* 老子甲本; see *Ma wang tui Han mu po shu* 1980.
LZ:B	*Lao tzu i pen* 老子乙本; see *Ma wang tui Han mu po shu* 1980.
M	matrogram, monosomatic.
MC	Middle Chinese.
MS	*Monumenta Serica.*
MWT	Ma wang tui; in bibliographic citations, *Ma wang tui Han mu po shu* 馬王堆漢墓帛書.
OBI	oracle-bone inscription.
OC	Old Chinese.
P	phonetic (aspect), pronunciation.
R	received text.
S	semantic (aspect).
SPPY	*Ssu pu pei yao* 四部備要.
SSCCS	*Shih san ching chu shu (fu chiao k'an chi)* 十三經注疏附校勘記.
SW	*Shuo wen chieh tzu* 說文解字.
SWKL	*Shuo wen chieh tzu ku lin* 說文解字詁林; see Ting 1928.
T	teknogram, tokogram, tomosomatic.
TP	*T'oung Pao.*

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INDEX OF CHINESE CHARACTERS

This index includes all Chinese characters that have been discussed either as *words* or as *graphs* in the text or in footnotes. When a character has been discussed or mentioned as a graphic variant of another, the variant is given in parentheses after the character in question, and is also separately indexed. Bone and bronze forms have been indexed under their standard *k'ai shu* 楷書 form. Phrases of two or more characters that are discussed as units are entered only under the first character of the phrase. Characters standing for personal names, place names, book titles, or other kinds of names, e.g., the names of the *liu shu* 六書, are excluded; most of these can be found in the general index.

The arrangement of this index follows that of the *K'ang hsi tzu tien* 康熙字典. The number of the K'ang hsi classifier is given in italics at the left; characters are listed under a given classifier by increasing number of residual strokes.

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