The Invention of Writing in China

William G. Boltz (Seattle)

As far as anyone knows, writing was invented ex nihilo four times, and only four times, in human history: in Egypt, in Mesopotamia, in Mesoamerica, and in China.¹

The earliest writing known that can be recognized unambiguously as Chinese dates from the time of the late Shang state (what is often referred to as the Shang “dynasty”). This is the period from about 1200 B.C. to about 1050 B.C. and is fully two millennia later than the first appearance of writing in Mesopotamia and nearly as long after the emergence of writing in Egypt. This late appearance of writing in China relative to that in Mesopotamia and Egypt sometimes gives rise to suspicions or conjectures that writing in China owes its origin to some remote and indiscernible influence from the ancient Near East.

As one of the most recent examples of this kind of speculation, Professor E.G. Pulleyblank, now emeritus of the University of British Columbia, formerly the Professor of Chinese at Cambridge University, once thought that the Chinese writing system arose ultimately from the twenty-two letters of the ancient Semitic syllabary, which found their way to China where they appeared as the twenty-two celestial and terrestrial chronograms, that is, what the Chinese call the twenty-two 天干地支 signs.² He has now given up this idea as untenable,

¹ This is a slightly revised version of a public lecture delivered on 20 January 2000 at the University of Hamburg, under the auspices of the Fachbereich Orientalistik and the Seminar für Sprache und Kultur Chinas.
² “The Chinese Cyclical Signs as Phonograms,” Journal of the American Oriental Society, vol. 99.1 (1979), pp. 24–38. More recently Pulleyblank has said apropos of the first appearance of writing in China that “...the normal [emphasis added, W.G.B.] media for writing in ancient China were perishable materials, wooden and bamboo slips and silk cloth, which would not have survived in the ground so that it is unsafe to to assume that writing was unknown before it was used to make records on bone and shell... If we try to fix an earlier date for this key invention, ... we necessarily enter the realm of conjecture and speculation.” (“Early contacts between Indo-Europeans and Chinese,” International Review of Chinese Linguistics, vol. 1, no. 1, (1996), p. 4.) Nothing concrete is known one way or the other about the extent of writing or the materials that might have been used beyond the evidence of the “oracle bone inscriptions” in the late second millennium B.C. in China. To say that the normal media were those perishable materials that Pulleyblank lists is to pretend that what is known directly from archaeological evidence of many centuries later, from areas far to the south of Anyang, applies to the Shang state in 1200 B.C. This is not a legitimate basis on which to claim anything about writing of the Shang period and locale. If it is unsafe to assume that writing was unknown apart from these inscription texts, it is even more unsafe to imply or suggest that writing was widely used beyond the inscription materials we know when there is not a shred of archaeological evidence to support that premise. There are, to be sure, some tantalizing linguistic indications (as opposed to material archaeological evidence) suggesting that writing may have been used contemporaneously with the Shang inscriptions for other kinds of texts and on other materials, but we have no direct knowledge about either of these possibilities. In the absence of any hard evidence at all, the only proper course is to suspend judgment, and the corollary to that is, in a matter such as this is to have to acknowledge that we know of no Chinese writing earlier than the Shang inscription texts, nor of any uses of writing in the late Shang apart from the bone, plastron and bronze inscription texts.

Pulleyblank goes on to speculate that “for what its worth” (his phrase) his opinion is that writing, “along with the calendar, must have been an essential element in the complex of innovations that inaugurated an imperialistic state system... at the beginning of the second millennium.” (ibid.) As much as we may wish to esteem Pulleyblank’s historical insight, intuition and acumen, this claim is, as things now stand, substantially wanting.
but it still sometimes re-appears in other people’s work. There is no substantial basis for the
hypothesis; it fails to withstand scrutiny on both the Semitic side and the Chinese side. And it
is safe to say that in general there is no credible evidence of any kind to suggest that Chinese
writing owes its origin to any influences or stimuli from outside China proper. Chinese
writing is, as far as present evidence shows, *sui generis* and entirely an invention indigenous to
China and unrelated to the invention of writing anywhere else.

The long delay between the appearance of writing in the ancient Near East just prior to
3000 B.C. and in China no earlier than about 1200 or 1300 B.C. sometimes leads to a differ-
ent kind of speculation, namely that writing in fact had its roots in China much earlier than
1300 B.C., but that this early origin is only sporadically and imperfectly reflected in the ar-
chaeological record. Proponents of this view argue that a wide variety of simple two- and
three-stroke marks found on pottery pieces from the late neolithic period, as early as 4800
B.C., are the earliest traces of Chinese writing and prove that writing was invented in China
earlier than anywhere else in the world by a margin of more than a thousand years.

The neolithic period marks for which this kind of claim is made generally consist of
primitive designs of a few strokes that resemble little more than combinations of angular or
curved shapes and configurations of the most rudimentary kind, which have been painted
on or scratched into the surface of pottery objects. Figure 1 shows examples of these kinds
of marks. The first set is perhaps the best-known, coming from the fifth millennium B.C.
site of Bann Po tsuen 半坡村, near the modern city of Shi’an in the west. The second and
third sets come from the far northwest: set two from Bann shan 半山 and Maa chaang 马
廠, both in Gansu province, and set three from Liou uan 榴灣 in Chinghae province. The
fourth set comes from the Liang juu 良渚 culture of the Eastern coastal area. We can see
from this sampling that the marks are found widely distributed all across the area of what
we know today as China. We can also see how primitive and simply constructed these marks
are, irrespective of where they have been found.

These marks occur on pottery sherds typically only one at a time. There is no evidence
to suggest that they could be combined into meaningful groups, either as graphs standing
for sounds or for whole words, or as numbers; much less is there any discernible pattern in
their usages that would suggest a writing *system*. Nor is there anything to suggest that they
represent a single system or common set in use from one locale to another. Nevertheless,
some archaeologists and palaeographers would like to see such marks as the earliest traces
of Chinese characters, thus making Chinese writing as much as a millennium and a half ear-
lier than writing in the ancient Near East. In their enthusiasm for such a hypothesis advo-
cates of this view point to similarities in graphic shape between some of these marks and
genuine Chinese characters from the earliest attested period, which was, as mentioned ear-
lier, around 1200 or 1300 B.C. Figure 2 gives examples of genuine Chinese characters from
the Shang inscriptions that are often matched with these neolithic marks.

In spite of the superficial similarity of a few of these Shang characters to the neolithic
marks, there are two fundamental reasons to reject the claim that the neolithic pottery
marks are linked in any way to Chinese writing. First, we have no way to know whether the
neolithic graphs are writing *or not*, and if they are, what language or what words they write.
Without such knowledge any comparison with graphs or characters in a known script, such
as the Shang period Chinese script, is no more than matching geometric shapes, in this case
shapes of a very simple and nearly universal kind. Such a comparison has no capacity to
demonstrate any kind of relation except that of a fortuitous correspondence of shapes and is entirely impressionistic and capricious.

Second, the sheer extent of time between the dates of these neolithic marks and the fully formed Chinese script of the Shang period rules out any real possibility that there could be a developmental relation between the two. It is quite impossible that any writing system would take centuries or millennia to develop. Until a writing system is fully formed, it is as writing next to useless. And there is no reason why a people would maintain a nearly useless rudimentary partial script for any length of time, certainly not for centuries, much less for millennia, without taking the necessary steps to make it into a fully workable writing system. In principle, and I would argue also in fact, once writing first appears (as opposed to graphic recording systems), it either proceeds to evolve into a fully usable system promptly, or it disappears altogether. For these reasons I do not think we can give any credibility to the claim that Chinese writing was invented in the late neolithic, long before it was invented in the ancient Near East, and that it took centuries or millennia to assume eventually the full form we first find in the Shang script of about 1200 B.C. This is simply not a reasonable or logical premise.

The writing of the Shang inscriptions, unlike the neolithic signs that we have just mentioned, is clearly Chinese; that is, it represents the Chinese language and it stands at the start of an unbroken evolutionary line down to the modern Chinese script. It occurs in a very specific and localized locale, in a very specific and limited physical form, and in a very specific and limited institutional context. The locale is Anyang, the capital city of the late Shang state in north central China, the form is epigraphic, specifically the writing is incised on turtle plastrons and on ox scapulas. The plastron is the flat stomach shell of the turtle. Writing may be found on both recto and verso of the plastrons and is typically laid out in an orthographically symmetrical way that seems to be encouraged by the shape of the plastron itself (see figures 3, a and b). Ox scapulas, that is, shoulder blades, do not individually lend themselves to such symmetry, but they do occur anatomically in pairs with a natural symmetry, and that fact alone may have been significant in some way. They are all the same nearly as numerous as materials for written texts as the plastrons (figure 4).

The context of this writing is that of institutionalized royal divination practices. The earliest Chinese writing is in other words found used almost exclusively to record the substance of divinatory practices of the Royal Court at Anyang, where through those practices the Shang king attempted to communicate with his dead ancestors. The writing itself is not


By his own suggested definitions, distinguishing recording systems from writing systems (op. cit., p. 43), he seems here to be mixing up the two. The pre-writing use of graphs in a recording system may well have had a prolonged period of very limited use, indeed, this would apparently be the case for the proto-cuneiform tablets of the Uruk IV and III periods. But once graphs have become phoneticized and the rebus principle has been discovered, I think the claim for a rapid development is still valid.
the medium of communication; that is something that the king presumably accomplished through pyromantic techniques with the ox bones and turtle shells themselves. The bones and shells were made to produce cracks through the application of heat to gouged pits in the surface of one side of the bone or shell, and it was apparently the configurations of the cracks that were then thought to reflect communication from the ancestors. The writing is an after-the-fact record of the divination ceremony that registers the subject of the divination and often seems to attest to the success of the king's efforts to communicate with his departed forebears. In this connection these inscriptions may have served as tangible evidence to confirm the king's legitimacy and authority.

The same script is also found used in contemporaneous bronze inscriptions, but the number of such bronze inscriptions for the Shang period and the extent of their content is considerably less than that of the divinatory inscriptions on bones and shells. The use of the script in Shang period bronze inscriptions we may call 'monumental', and allow that it is in comparison with the script of the bones and shells a fairly specialized form of writing. It is the bone and shell inscriptions, typically called "oracle bone inscriptions" because of their nearly exclusive use in the divinatory context just sketched, that constitute the corpus of texts in which we find the first use of the Chinese script. And while it can be seen in some secondary respects still to be at a kind of formative stage, the script of the Shang inscriptions is already a fully developed writing system; there is nothing rudimentary or primitive about it. In its structural principles it is not appreciably different from modern Chinese. It looks very different from modern Chinese, to be sure, because the outward appearance of the characters has changed substantially, but those changes are entirely secondary, in a sense cosmetic, and have not affected the characters' internal structure.

Chinese writing arose, like writing everywhere seems to have arisen, ultimately from the drawing of realistic depictions of things. There is a widespread popular fiction that suggests that unlike other writing systems, Chinese writing somehow has remained permanently pictographic, what is often called "ideographic", and goes about expressing its meanings in quaint little pictures quite independently of language. This view of the Chinese script is sometimes made to sound formal and learned by labelling Chinese writing as a "concept script", as opposed, presumably, to other scripts that are language based. The claim is that Chinese characters stand for concepts directly, not words, and have no relation to language. This is, not to put too fine a point on it, simply nonsense. If it were true, that is, if Chinese writing were "concept based" and not language based, it would mean that anyone could read Chinese writing without knowing anything of the Chinese language. This is an easily testable hypothesis. Here in figure 5a is a list of a few characters that are often said to be pictographic or ideographic, as they appear in the earliest inscriptions. What will be immediately apparent, I suspect, is that hardly a single character on this list can be regarded as genuinely pictographic, if by "pictographic" we mean a graph that depicts a thing realistically enough for us to identify it confidently without knowing in advance what word the graph stands for. If these characters actually were pictographic or ideographic, standing for concepts directly and conveying their meaning through an appeal to their realistic depictive quality, without recourse to language, then everyone ought to be able to read them, whether they know Chinese or not. In formal terms this would mean a process of going from graph to thing to word, a two-step process in which the word is introduced only after the thing has been identified and conveyed as meaning by the depictive realism of the graph. Graphs that are processed in such a way are not writing.
I would venture to guess that, unless a person has studied this form of Chinese, or otherwise been told what the words written by these characters are, very few of them are going to be readable in this way. Anyone not familiar already with the Shang script can test my claim simply by asking himself what are the intended words and gauging the degree of confidence he has in the answers. Figure 5b gives the modern Chinese forms of the characters in question and the words they stand for. We would be hard-pressed, I think, to argue that the depictive quality of most of these is sufficiently realistic to permit direct conveyance of meaning on that basis alone. I doubt that very many of us would recognize graph number 12, for example, as representative of a ‘boat’ without knowing first that the graph stands for the Chinese word jou ‘boat’. Similarly, number 13 is the graph for the Chinese word wang meaning ‘king’, but the graph conveys that meaning only by virtue of standing for that word. There is nothing remotely suggestive of a ‘king’ in the graphic shape itself that would convey that meaning if we did not already know that the character stands for the word wang meaning ‘king’.

When I made this claim about this graph for wang ‘king’ in some published notes recently, a reviewer objected that the statement was “absolutist” and insisted that, given that we know ancient societies typically indicated high status by placing human figures on thrones or elevated platforms of some kind, the graph here is iconic in that it represents a “king”, or “big man”, standing on a platform, in the way anthropologists, and open-minded linguists, apparently, recognize kings to be represented. But this argument confuses what may have been (and I stress may have been) the actual iconic, or what I have been calling pictographic, origin of the character with its everyday functioning as a logograph, that is, as a straightforward written representation of the word wang ‘king’. Once we know what the word in question is, we can often see a suggestive or latent depictive quality in the graph; this testifies only to the fact that in origin these were in all likelihood pictographs. It does not, as I hope the experiment with the list here has shown, support anything like a pictographic or ideographic claim for the function of these graphs in the Chinese writing system. The graph for wang ‘king’ may in fact have originated as a depiction of a “big man” standing on a platform with his legs spread in a posture of grandeur and dominance, but this is all an after-the-fact inference. It does not play any role in the everyday way that the graph conveys the word wang and the associated meaning ‘king’ to a reader. That function is entirely conventional and non-iconic for this graph, as it is for all of the graphs on the list, and for Chinese characters in general. It is a two-step process that goes from graph to word to thing, that is, meaning. This process is what is meant, literally, by ‘reading’, and any graph that is read this way is by definition writing. For my part I remain committed to my “absolutist” statement.

All the same, even Confucius was apparently not immune to the temptation to jump to such false conclusions and misunderstandings. The Shuo wen jieetzyh, the first real dictionary we have of Chinese characters, which dates from about A.D. 100, quotes Confucius, who lived some six hundred years earlier, as having said that when you look at the character for the word cheuan meaning ‘dog’ it looks like the drawing of a puppy. The forms of the character that Confucius would have known, and was presumably talking about, are given in figure 6 (i). If

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5 孔子曰視犬之字如畫狗也。 See Shuo wen jieetzyh (Duann) juh 説文解字段注, 10A.26b.
by looking at these characters anyone who did not already know what word they stood for could read either of them as the word for ‘dog’ or ‘puppy’ I would be surprised. Confucius, if he really did say such a thing, knew ahead of time, of course, that the graph stood for the word for ‘dog’, and therefore his comment is another case of confusing speculation about an alleged iconic origin of a graph with a claim about how the graph functioned in his writing system. Even the earliest form of the character attested in the Shang writing system, shown in figure 6 (ii), does not look any more like a ‘dog’ or ‘puppy’ than these later forms, and to suggest or imply that it was actually iconic by calling it a “pictograph” is completely misleading.

The difference can be stated simply: when Chinese graphs were first invented many, perhaps most, were realistically depictive and conveyed meaning through that fact alone. This was also the case, as far as we know, in Egypt, in Mesopotamia, and in Mesoamerica. Such graphs are pictographs, not writing, and are semantically marked [+S] because they represent things, and therefore have meaning, but at the same time they are phonetically unmarked, that is, [-P] because they do not stand for words. When a graph comes to stand conventionally for the name of the thing in question, rather than iconically for the thing itself, then it represents directly and primarily not a thing but a spoken word. Such a graph is now phonetically marked, that is, [+P], and in that function the graph is legitimately and properly called writing. Every Chinese character matches a word, and words by definition have both a pronunciation and a meaning, and are therefore marked as [+P] and [+S]. And this in turn means that we should properly call Chinese characters logographs. To call them ideographs or pictographs or iconographs, or anything else that suggests that they convey meaning depictively and independently of any reference to language is a distortion of the function of the script and an indefensible analytic position.

The shift from standing for a thing through depictive realism to standing for a word that is the name of the thing in question is called phoneticization, and this is the major conceptual breakthrough that marks the moment of the invention of writing; it is the crucial step that distinguishes writing from non-writing. In feature terms it is the shift from [-P] to [+P]. The exact circumstances in which this breakthrough occurred in ancient China are not at all clear; (neither are they completely clear anywhere else in the ancient world where writing was invented.) How this conceptual breakthrough actually came about in the second half of the second millennium B.C. in China remains one of the most important unanswered questions about the origin of the Chinese script.

That writing everywhere began with pictures, but became writing only when those pictures came to stand for words rather than things, i.e., with phoneticization, is well known from the evidence of the origin of writing in all parts of the ancient world, not just China. What sometimes goes unnoticed is the corollary to phoneticization, that once a graph conveys its meaning by standing for a word rather than by actually looking like the thing in question, it no longer needs to be depictively realistic. And this is a great step forward in developing a full-fledged writing system, because now the actual physical execution of the characters is far less demanding on the scribe than it was when characters had really to look like the thing they meant. Graphs can now be structurally conventionalized, and this goes hand in hand with the conventionalization of the association of graph with word.

Chinese writing, of the Shang “oracle bone inscriptions” and of modern books and magazines alike, consists of two kinds of characters: what are called “unit” characters, that is characters that consist of a single graphic element, and “compound” characters, charac-
ters consisting of two or more constituent parts. (By ‘constituent parts’ I am not talking about individual strokes, but about identifiable graphic components in the characters.) The characters given in figure 5 (a) and (b), and the kind in general that we have so far been talking about, are all unit characters. They consist of just a single component each. These are the characters that by and large had pictographic origins. Chinese writing, like writing elsewhere, could not get along with just characters originating in pictographs, and soon resorted to both rebus and polyphonic uses of characters. This step was in principle exactly the same in the case of Chinese writing as it was for writing as it arose and developed in Mesopotamia, in Egypt, and among the Maya, and just as natural.

The rebus usage of a character takes advantage of the fact that words with different and often unrelated meanings may sound the same, and thus can be written with the same graph. Polyphony takes advantage of the fact that two or more words may be semantically akin, sharing a common semantic denominator, as it were, even if differently pronounced, and can therefore be written with the same character on the basis of their semantic congruency. The rebus and polyphonic uses of pre-existing characters are just two sides of the same coin. In effect both of them allow the user to get the most mileage, so to speak, out of graphs already established as a part of the writing system by extending the applicability of an existing graph to write words other than the one for which it was originally invented. Together these two uses of characters constitute what we may call graphic multivalency. In feature terms the two types of multivalency would be expressed as: \( G : \{ P, S' \} \) (rebus usage: same \( P \), different \( S \)) and \( G : \{ P', S \} \) (polyphonic usage: different \( P \), same basic \( S \)).

Let me illustrate these two types of multivalent usage with just one example from the early Chinese script. Line O of figure 7 gives a graph that I am prepared to concede is a pictograph, representing a stalk of growing grain with its head bent over heavy in beard. As a pictograph it conveys its meaning iconographically, without any recourse to language, and is thus \([-P, +S]\). This is not writing. But in line I the same graph is given as standing for the Old Chinese word for growing grain. Here the graph represents the word \( \text{her} \), or its OC equivalent, and is a logograph, that is \([+P, +S]\). The shift from line O to line I is a shift from non-phonetic to phonetic, i.e., from non-writing to writing. This graph then gets used in two additional ways in the early Chinese script: in line II (i) it is shown standing for a word homophonous with \( \text{her} \) ‘growing grain’, but with an entirely unrelated meaning, namely ‘concord, harmony’. This is a rebus usage. Because the two words are pronounced exactly the same way, it makes good sense to use the graph already invented for one to write the other. This saves the early users of the script from having to come up with another, different graph for this second word. The same kind of thinking apparently suggested to the early users of the script, when the original iconic or pictographic identity of the character was still viable, that if you can use a graph this way in regard to its pronunciation, letting its meaning vary, you could also do the converse, and use it just as versatility in regard to its meaning, allowing its pronunciation to vary. This realization led to the graph being used to write the word \text{nian} ‘harvest’, a word that doesn’t sound anything like \text{her} ‘growing grain’, but that is clearly semantically akin to it and is iconically equally well-reflected in the original graph. This is the polyphonic use of the graph. Logically and intuitively both, the graph in question here is an effective way to write the word \text{nian} ‘harvest’, just as it was to write the word \text{her} ‘harmony’.

These two uses of the original graph are examples of graphic multivalency. Multivalent usage of graphs introduced a much-needed versatility into the developing Chinese writing.
system and it had the same salutory effect there that it did in Egypt, in Mesopotamia and in the Mayan script. At the same time it introduced a degree of ambiguity into the script. When one graph can be used to write more than one word, there is always the question in any particular instance of the appearance of that graph which word is intended. Context will often determine the intended word, but not always. The early Chinese script resorted to exactly the same expedient to overcome this unwelcome ambiguity that its Mesopotamian, Egyptian and Mayan counterparts did. Secondary graphs specifying the intended meaning or pronunciation were added to the primary graph to resolve either semantic or phonetic ambiguity, respectively. Such graphs are called in general determinatives, those that resolve semantic ambiguity are called semantic determinatives, and those that resolve phonetic ambiguity are phonetic determinatives.

Line III of figure 7 illustrates this stage in the development of the Chinese script for the ‘growing grain’ graph. To specify the meaning ‘concord, harmony’ as opposed to ‘growing grain’ the semantic determinant ＾ for ‘mouth’ was added. This determinant has no phonetic role at all; it serves only to distinguish one meaning from another. Conversely, to distinguish the word pronounced her for ‘growing grain’ from the semantically allied, but phonetically unrelated word nian ‘harvest’, a phonetic determinative was added for the latter use. In this case it was the graph 人 ren for person, which happened to be nearly homophonous with the word for ‘harvest’, so its role here is exclusively phonetic, its semantic value as ‘person’ is irrelevant to this usage. The use of determinatives in these two ways again seems to match exactly in principle the use of determinatives in every other case of the invention of a writing system from scratch, that is, in Egypt, in Mesopotamia, and in Mesoamerica.

We can think of the development of writing in China up to this point as having proceeded in the three stages that I have sketched and that correspond to the Roman numerals I, II, and III in figure 7. Except at the earliest moments, all three stages were probably operative simultaneously, and they do not actually reflect a real-time chronological progression. With the introduction of determinatives at stage III the formation of the script is in effect complete. Subsequent developments are secondary and formally superficial. One of the most remarkable things about this picture of the development of the Chinese script is that, as I have tried to point out, it matches pari passu the development of writing in Mesopotamia, in Egypt, and in Mesoamerica among the Maya. There seems to be, in other words, a universal pattern to the principles that governed the origin and development of writing among all human civilisations where it arose ex nihilo. From this point on, in its secondary developments, writing in China followed a different path from the ones followed in Mesopotamia and Egypt. And it is the differences of these secondary developments that account for the great differences we perceive today between the Chinese and Western writing systems.

When determinatives were appended to primary graphs in Chinese they became inherent, permanent parts of the whole character. This produced graphs that were looked upon as single characters consisting of two component parts, the original, primary part and the added secondary determinative part. These are what I called a few moments ago ‘compound characters’. Because the resulting compound characters were treated as single graphic entities, they could again be used multivalently, chiefly in rebus usages, to write still more

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6 It is not clear what the semantic implications of the ‘mouth’ element might be for the meaning of her ‘concord, harmony’.
words, and thus they could again be augmented by the addition of another determinative, producing characters of three constituent parts. The process of multivalent usage followed by addition of a determinative was, in other words, recursive. Except at the very earliest stages of the development of the script, this recursiveness was limited to the paronomastic, that is, rebus use of characters. In theory it could go on forever; in practice it is rare to find characters with more than four or five components. In every case the semantic determinatives that get added become firmly and permanently welded to the character. This gives every character a kind of inalienable semantic value that serves to block any move toward desemanticization, which might have led in turn to the formation of a syllabary, or even eventually an alphabet. By the same token, no matter how many components may eventually accrue, there is always at the root of each character a component associated with a pronunciation, a sound; that is, with a particular word. The scheme that I have tried to describe to account for the creation and generation of Chinese characters does not include any provision for characters that are formed solely from elements based on meanings without reference to pronunciations. That particular aspect of Chinese characters does not in fact exist in the formative stages of the script. There are no characters that are invented on the basis of a combination of meanings of their constituents alone, without regard to pronunciation, in Chinese nor, I am tempted to suggest, are there such characters in any of the other writing systems of the ancient world either.

The script we find in the Shang oracle bone inscriptions shows all of the features that I have tried to describe, and is, as I said at the outset, in every way a fully developed, sophisticated and elegant writing system. And the script that we find in modern Chinese publications is structurally just the same as that Shang script of 3200 years ago. Chinese writing is the only writing in the world that is still used by the same people who invented it to write the same language for which it was invented. And in that setting it has resisted successfully all impulses that might have turned it into a syllabary, akin to that used in Japan, for example, or any other development that would have entailed widespread desemanticization of the graphs. All Chinese characters by and large are securely associated with both a pronunciation and a meaning, that is to say they are solidly [P, S] orthographic entities, as they have been for more than three millennia. It seems unlikely that that is going to change anytime soon.
Figure 1: Neolithic pottery marks.

(i) Marks found on pottery fragments from Bann Po tsuen 半坡村, Shaanshi province; Yaang Shau 仰韶 culture, fifth millennium B.C.

(ii) Marks found on pottery fragments from Bann shan 半山 and Maa chaang 馬廠, Gansuh province; Maa jia yau 馬家窯 culture, third millennium B.C.

(iii) Marks found on pottery fragments from Liou uan 榴灣, Chinghae province; Maa jia yau 馬家窯 culture, second half of the third millennium B.C.

(iv) Marks found on pottery fragments from Liang juu 良渚 Jehjiang province, Liang juu culture; third millennium B.C.
Figure 2: Shang inscription characters often matched with neolithic pottery marks.

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<td>入</td>
<td>'enter'</td>
</tr>
<tr>
<td>口</td>
<td>口</td>
<td>'mouth'</td>
</tr>
<tr>
<td>矢</td>
<td>矢</td>
<td>'grass'</td>
</tr>
</tbody>
</table>

Figure 3 a: Turtle plastron, *recto*, with eight pairs of inscriptions, some only partially preserved.

(From Chang Ping-ch’üan 張秉權, *Hsiao t’un 小屯*, vol. 2, fasc. 3, pt. 2.i. Taipei: Academia Sinica, Institute of History and Philology, 1965.)
Figure 3b: Turtle plastron, *verso* of figure 3a, with a single, non-divinatory, inscription that says “Chiueh delivered five hundred turtle (shells).”
Figure 4: Ox scapula with multiple inscriptions.

(From Ch'ü Wan-li 屈萬里, Hsiao t'un 小屯, vol. 2, fasc. 1, pt. 1.i. Taipei: Academia Sinica, Institute of History and Philology, 1961.)
Figure 5a: Shang inscription characters with ostensibly pictographic origins, often said to function “ideographically” by virtue of their depictive realism.
Figure 5b: Characters of figure 5a identified with their modern counterparts and the words represented.

<table>
<thead>
<tr>
<th></th>
<th>Character</th>
<th>Modern Counterpart</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>'person'</td>
<td>(人, ren)</td>
</tr>
<tr>
<td>2.</td>
<td>'large'</td>
<td>(大, dab)</td>
</tr>
<tr>
<td>3.</td>
<td>'eye'</td>
<td>(目, mub)</td>
</tr>
<tr>
<td>4.</td>
<td>'sun, day'</td>
<td>(日, ryb)</td>
</tr>
<tr>
<td>5.</td>
<td>'mouth, orifice'</td>
<td>(口, koou)</td>
</tr>
<tr>
<td>6.</td>
<td>'ear'</td>
<td>(耳, eel)</td>
</tr>
<tr>
<td>7.</td>
<td>'hand'</td>
<td>(又, yow)</td>
</tr>
<tr>
<td>8.</td>
<td>'moon'</td>
<td>(月, yueb)</td>
</tr>
<tr>
<td>9.</td>
<td>'rain'</td>
<td>(雨, yeu)</td>
</tr>
<tr>
<td>10.</td>
<td>'water'</td>
<td>(水, shoei)</td>
</tr>
<tr>
<td>11.</td>
<td>'ox'</td>
<td>(牛, niou)</td>
</tr>
<tr>
<td>12.</td>
<td>'boat'</td>
<td>(舟, jou)</td>
</tr>
<tr>
<td>13.</td>
<td>'king'</td>
<td>(王, wang)</td>
</tr>
<tr>
<td>14.</td>
<td>'woman'</td>
<td>(女, neu)</td>
</tr>
<tr>
<td>15.</td>
<td>'cowry shell'</td>
<td>(貝, bey)</td>
</tr>
<tr>
<td>16.</td>
<td>'top of the head'</td>
<td>(丁, ding)</td>
</tr>
<tr>
<td>17.</td>
<td>'growing grain'</td>
<td>(禾, ber)</td>
</tr>
</tbody>
</table>
The Invention of Writing in China

Figure 6: Forms of the character for *chuean* ‘dog, whelp’.

(i) forms that Confucius would presumably have known (6th cent. B.C.):

(ii) Shang inscription form:

(iii) modern form:

Figure 7: The graph 禾 and its derivatives.

O. 禾 'growing grain'  
   G₀ : {P, +S}

I. 禾 (禾) *gái (her) 'growing grain'
   G₀ : {P, +S}

II. (i) 禾 (禾) *znién (nian) 'concord, harmony'
    G₀ : {P, +S}

   (ii) 禾 (禾) *znién (nian) 'harvest > year'
    G₀ : {P, +S}

III. (i) 禾 (禾) *gái (her) 'concord, harmony'
    G(sd) : {P, +S}

   (口) 'mouth' [*khaŋ (koou)]

   (ii) 禾 (禾) *znién (nian) 'harvest > year'
    G(pd) : {P, +S}

   (人) *zné̄n (ren) 'person'