



CUNEIFORM SCRIPT

CUNEIFORM SCRIPT, the conventional name for a system of writing ultimately derived from the pictographic script developed by the Sumerians in southern Mesopotamia (Uruk) around 3000 B.C.E. Cuneiform was written with a reed stylus, which left wedge-shaped impressions on soft clay tablets; the tablets were then dried in the sun or baked in a kiln. The term “cuneiform” was introduced by Thomas Hyde (1700), although he disputed the claim that the wedge-shaped symbols had functioned as a writing system; Engelbert Kaempfer also used the term, in 1712.

Historical background. In the 3rd millennium B.C.E. cuneiform script had already spread far beyond the region of its origin and was widely used in the Near East. Rather early the signs lost their original pictographic character and became abstract; vertical, horizontal, and oblique lines continued to be used, but there were no more curves. Cuneiform had been invented as a system of word signs (logograms), but in the course of time a phonic system was developed, in which syllabic signs denoted vowels (*a, e, i, u*) and vowel-consonant combinations of various kinds (CV [consonant-vowel]: *ba, bi*, etc.; VC: *ab, ib*, etc.; CVC: *tam, tim*, etc.); these signs were sometimes combined with logograms that had remained unchanged and also with a number of so-called “determinatives,” which functioned mainly as markers for noun classes. The signs were written from left to right, usually without separation between words. This writing system was adopted by the Akkadians, that is, the Babylonians and later the Assyrians, and transmitted to a great many neighboring peoples: the Elamites, the Lullubi, the Eblaites, the Kassites, the



Hurrians, the Hittites, the Luwians, the Urartians, and others. By the Late Bronze Age (q.v.) many peoples of the Near East, between the Aegean Sea and the Zagros mountains and between the Black Sea and Egypt, used cuneiform. Through simplification and conventionalization the number of signs, originally about 2,000, was eventually reduced to about 800. The Babylonians used only about 570 signs, fewer still with any regularity. Such reduction did, however, lead to ambiguity or polyphony of many signs. Following the expansion of Aramaic-speaking peoples into Mesopotamia, beginning in the 7th century B.C.E., cuneiform was gradually displaced by the Aramaic consonantal script.

The classical Greek authors (such as Herodotus and Ctesias) knew little more of cuneiform than the mere fact that a distinctive system of writing was in use in the Achaemenid empire; they called it “Assyrian letters” (*Assyria* [or *Syria* or *Persikà*] *grámmata*), by which term, however, they also sometimes referred to the Aramaic script (e.g., Thucydides, 4.50.2). The latest known texts written in cuneiform are from the 1st century C.E.; then it sank into oblivion, and its existence became known in Europe only in the 17th century through travelers like the Italian Pietro della Valle, who had seen it at Persepolis in 1621. A great many scholars and amateurs worked on deciphering cuneiform script(s) during the first half of the 19th century; the most prominent among them were Georg Friedrich Grotefend, Rasmus Rask (see below), Henry Creswicke Rawlinson (whose bilingual method opened the way for deciphering the Elamite and Babylonian versions of the inscriptions at [Bīsotūn](#)), Edwin Norris, Edward Hincks, and Jules Oppert.

Cuneiform scripts on Persian territory. Rather than a general survey of cuneiform scripts, an outline of the evidence for cuneiform writing on Persian territory, mainly western Persia, will suffice here. Particularly important are two Akkadian inscriptions of Anubanini, king of the Lullubi tribes (20th century B.C.E., slightly later than the Third Dynasty of Ur; see Edzard, 1973, p. 75a), on the rock at Sar-e Pol-e Dohāb near the so-called Gates of Asia in the Zagros mountains of Kurdistan. The first of these inscriptions is located next to a relief depicting the king in a triumphant pose facing the goddess Inanna; the text is far from complete and does not permit identification of the event depicted. Still less can be said about the second inscription, which was found about 200 m away and shows traces of the same royal name; it must thus be almost contemporary (Edzard, 1973).

Several other approximately contemporary Akkadian inscriptions in the



Zagros are known, for example, one accompanying a rock relief near Kūrīn Šayk Kān (northwest of Sar-e Pol, near the Iraqi border), which is somewhat provincial in character (Farber). Otherwise, inscriptional evidence for cuneiform writing among the Lullubi, Gutian, Kassite, and other populations of pre-Achaemenid Iran is very scanty (except for the Elamites; see below). Several dozen of the many “[bronzes of Luristan](#)” bear cuneiform inscriptions; these objects range in date from the 3rd millennium to the 7th century B.C.E., though most are concentrated in the 10th century B.C.E., for example, a Babylonian inscription of a certain Šilisruḥ (?) on both sides of a bronze plaque found near Hamadān (Diakonoff). The texts, some of which are undoubtedly from western Persia, range from owners’ marks to votive inscriptions, but the exact circumstances in which they were inscribed are not indicated (see Calmeyer, pp. 161-74).

Within the broad range of cuneiform cultures [Elam](#) constitutes a distinct province, for there the essentially pictographic-logographic system of Proto-Elamite and Linear Elamite can be traced back at least to 3000 B.C.E. (see [elam](#) iv, v), whereas Akkadian cuneiform is attested only from the 23rd century B.C.E.; the earliest text in the latter is the so-called Treaty of Narām-Sin. During a short period in which both writing systems existed side by side, cuneiform gradually supplanted the older Elamite script, though it was not well suited to the Elamite language. After about 2200 B.C.E. it was the only script used by the Elamites.

Although only a few texts survive from the Old Elamite period (23rd-15th century B.C.E.), there is a rich array of inscriptional evidence (building inscriptions, dedications, etc.) of the Elamite kings between the 13th and 11th centuries B.C.E. (the Middle Elamite period). Inscriptions of Untaš-Napiriša and Šilhak-Inšušinak I from Susa and several other sites (including Liyan [Līān] and [Čogā Zanbīl](#)) constitute the most reliable basis for grammatical analysis of the Elamite language (see [elam vi](#)). After an interval of about 400 years, from which no record survives in Elamite script and language, inscriptions are once more plentiful from the Neo-Elamite period (8th-early 6th centuries B.C.E.), including specimens of economic and literary character (e.g., a tablet with astrological omens). Rock reliefs and inscriptions of a local ruler called Hanni from the Mālamīr plain (at Kūl-e Farah and Šekaft-e Salmān) east of Susa show that knowledge of cuneiform writing had in the meantime spread far from the urban centers. The unbroken Elamite language tradition of Susa and Elam was continued with the inclusion of Elamite cuneiform in the mostly trilingual



Achaemenid royal inscriptions (where it takes second place to Old Persian) and the administrative tablets of Persepolis (Royal Achaemenid Elamite period, 6th-4th centuries B.C.E).

When borrowing cuneiform script from the Akkadians, the Elamites made a selection from extant signs but did not immediately change their forms and values. In the course of time, however, some modification of the cuneiform syllabary did occur, so that a kind of provincial scribal tradition developed (Steve, 1992). Special traits of Elamite cuneiform script (beginning in the Middle Elamite period) are the relatively small number of determinatives (used only for gods, personal names [including personal pronouns], place names, and wooden objects) and word signs (logograms) and the use of the Akkadian plural marker MEŠ as a postpositional indicator of logograms (which are sometimes simply Elamite words or abbreviations). By the Middle Elamite and especially the Achaemenid periods a completely differentiated and considerably simplified variant of Akkadian syllabic cuneiform had been developed; it was characterized by an almost complete absence of polyphony or homophony, only a small number of complex syllabic signs of the CVC type, and so-called “broken writing” (e.g., *-nu-iš-* instead of *-nu-uš-* for *-nus-*). A list of the signs used in Royal Achaemenid Elamite has been provided by R. T. Hallock (1969, pp. 82-86).

Urtu, which included parts of modern Persia (western Azarbaijan), also constituted a distinct province among cuneiform cultures. Writing seems to have been unknown there until the 9th century b.c.e. (whether or not the so-called “Urtian hieroglyphics” found mainly on vessels and objects functioned as a system of writing is still in dispute). Only under King Sardure I were the Assyrian language and cuneiform script introduced for inscriptions. Under his son Išpuini (ca. 830-20 b.c.e.) the first texts in the Urtian language began to appear; they were also written in a variant of Neo-Assyrian cuneiform. One of the most important texts is on a stele from the Kal-e Šin pass (on the border between Persia and Iraq southwest of Ošnūya), a bilingual inscription in Assyrian and Urtian referring to the joint foundation of a temple by King Išpuini and his son King Minua. As there are close parallels with the inscriptions, formulas, titles, epithets, and the like of the Neo-Assyrian kings and especially of Aššunarširpal II, it must be concluded that the Urtian writing system came directly from Assyria, perhaps from a northern provincial town (Wilhelm). One departure from Assyrian usage is the scribes’ tendency (which recurs in Old Persian; see below) to avoid crossing a



horizontal and a vertical wedge.

The surviving Urartian inscriptions are almost exclusively monumental; those carved on carefully smoothed rock faces range in date from the reign of King Minua to the fall of the empire. The texts, which are often formulaic and repetitive, include not only building inscriptions but also foundation deeds and war records; at the height of the empire, under Argišti I and Sardure II, these annals were very extensive, containing hundreds of lines.

The only evidence that writing was known to the Medes is found on an inscribed silver fragment from a hoard excavated at Tepe Nūš-e Jān (Brinkman); only parts of two cuneiform signs can be recognized, however, so that it is impossible to identify the species of cuneiform script or even the language of the document. It can be assumed by analogy with other known cultural links between Assyria and Media that Assyrian cuneiform script had been adopted by the Medes, an assumption that conforms to the evidence about the origin of the Old Persian cuneiform created and used by the Achaemenid kings (Sancisi-Weerdenburg, pp. 213-14). Some phonological differences between the Old Persian and Babylonian versions of the Bīsotūn inscription also suggest that the latter is closer to the Median dialect and was perhaps even copied by Median scribes.

Old Persian cuneiform script. The term “cuneiform” in its broader sense also encompasses scripts that cannot be regarded as continuing the rather complex Akkadian cuneiform tradition but instead resemble it only superficially, owing to the wedge and angle forms of the single elements in the signs. One of these “different” cuneiform scripts is that in which Old Persian was written, a simplified version invented in the 6th century B.C.E. It was the official script adopted by the Achaemenid kings (from [Darius I](#) to [Artaxerxes III](#)) for writing their mother tongue, which was essentially the southwestern Iranian dialect of Persis (modern Fārs) but in its attested form also shows some characteristics (foreign words, archaisms, etc.) of an artificial literary language. Old Persian cuneiform (as well as the language itself) was “confined to royal prestige purposes” (Gershevitch, p. 122), particularly monumental inscriptions (mostly trilingual in Old Persian, Elamite, and Babylonian), which in large part could not even have been intended to be read, for they were either engraved too high on rock faces or encased in foundation walls. It was a “splendid” script suitable only for hard surfaces (stone, metal, and occasionally clay tablets but not parchment, papyrus, etc.) and limited almost entirely to the central lands of the empire: Persis, Elam, and Media. It was thus clearly not intended for use

in everyday life. There is not yet a complete corpus of surviving inscriptions in Old Persian language and cuneiform script (for the present, see Kent, *Old Persian*, pp. 107-57; Mayrhofer, 1978, esp. pp. 37-47; and Schmitt, 1989, p. 58 par. 2.2.3.2; for a new edition of the Bīsotūn text, see Schmitt, 1991).

Old Persian cuneiform was not a continuation of the Mesopotamian system (with the exception of the sign for *l*; see below) but was, on the contrary, an independent creation, resembling Aramaic in that it reflects a tendency to equate one sign with one sound. There is a total of thirty-six phonic signs, which may be classed in four groups: three pure vowel signs (*a*, *i*, *u*); twenty-two neutral consonant signs, that is, either with no inherent vowel (occurring only before consonants or at the ends of words) or with inherent *a*: *b^a*, *c^a*, *ç^a*, *d^a*, *j^a*, *g^a*, *h^a*, *j^a*, *k^a*, *l^a*, *m^a*, *n^a*, *p^a*, *r^a*, *s^a*, *š^a*, *t^a*, *θ^a*, *v^a*, *x^a*, *y^a*, *z^a*; four with inherent *i*: *dⁱ*, *jⁱ*, *mⁱ*, *vⁱ*; and seven with inherent *u*: *d^u*, *g^u*, *k^u*, *m^u*, *n^u*, *r^u*, *t^u*. There are also eight logograms, which are not obligatory and not used consistently, two word dividers (in the form of oblique wedges), and several numerals (for the full list, see Kent, *Old Persian*, p. 215). The phonic signs consist of a maximum of five elements each (horizontal or vertical wedges and angles, called in German *Winkelhaken*), which never cross (including *vⁱ*, against earlier opinions; see Hoffmann, p. 621). The logograms, which denote “king,” “god,” “land,” “earth,” and Ahura Mazdā respectively, have much more complex shapes, however, with up to twelve elements and even horizontal wedges or angles placed above angles. For a synopsis of attested signs (excluding numerals), see [Figure 23](#).

Only in a few instances can development in the shapes of single signs be observed: In the Bīsotūn text, which is the first known Old Persian inscription, the oblique wedge (not an angle) functioning as word divider (see Hinz, 1973, p. 24) is only half the height of the line, whereas in all other inscriptions it stands the full height. Similarly, the first (vertical) wedge of the *y* sign is only half the height of the line at Bīsotūn, in contrast to later usage. The logogram for “land” is normally DH₁, whereas DH₂ is restricted to a few instances in later inscriptions.

The decipherment of Old Persian cuneiform, which had to be based on the texts themselves, became possible only after 1778, when Carsten Niebuhr published for the first time more precise copies of some Achaemenid inscriptions (mainly from Persepolis; pp. 139, 158, pls. 23, 24, 31). The process has often been described, in varying degrees of detail (e.g., Kent, *Old Persian*, pp. 10-11; Weissbach; Borger, 1975-78; see also above). Niebuhr recognized at once that



the script was written from left to right. In 1798 O. G. Tychsen identified the oblique wedge as the word divider (pp. 24-25), and in 1802 Friedrich Münter attributed these texts to the Achaemenid kings (pp. 124ff.). The actual decipherment of the script was initiated later that same year by Grotefend, who succeeded in ascertaining the approximate phonic values of about ten signs (see Meyer). He assumed that the inscriptions had been sponsored by Persians and that, following the pattern of Sasanian royal inscriptions, which had first been deciphered only a few years earlier, the names, titles, and genealogies of some of the Achaemenid kings would be mentioned in them. On the sound foundations laid by Grotefend other scholars have built step by step. Rask (1826, pp. 27ff.) identified the *n* and *m* signs in the genitive plural ending *-ānām* (corresponding to Av. *-anq...m*); in 1836 Eugène Burnouf and Christian Lassen made systematic comparisons with Avestan (q.v.), which had by then become better known and had turned out to be closely related to Old Persian; and in 1845 Lassen recognized that the consonant signs have inherent vowel components, as in the old writing systems of India. The process was almost completed when Rawlinson, in 1846-47, published, translated, and interpreted the entire text of the large Bīsotūn inscription. Finally, in 1851, Oppert deciphered the last of the phonic signs, the *l* sign (1851, p. 76), which is attested only in four foreign names, for example, *l-b-n-a-n-* = *Lab(a)nāna-* “Lebanon” (the phoneme /l/ being nonexistent in Old Persian proper); this sign seems to be the only one borrowed from the contemporary Elamite or Neo-Babylonian cuneiform syllabary (Paper).

Old Persian cuneiform is neither phonemic nor phonetic, as is apparent from the ambiguity of most signs (e.g., the entire second group: *b* or *b^a*, etc.), as well as from the inconsistent and asymmetrical structure of the inventory as a whole (e.g., *d^a*, *dⁱ*, *d^u*, *t^a*, and *t^u* but not *tⁱ*). The thirty-six phonic signs could therefore not be used without certain “orthographic conventions” for rendering particular phonemic sequences. It is sufficient to mention only the most important of these conventions, those that are attested with certainty or linguistically probable.

First, long vowels are not distinguished from short vowels, except for /ā/ in medial position.

Second, proto-Iranian final short *-ǎ* is written *-C^a-a* /-ā/ (and apparently lengthened in speech; see Hoffmann, pp. 633-35).

Third, the vowels /i, u/ are written with the corresponding vowel signs and, in



medial position, with an additional preceding C^i , C^u , when such signs are available, or C^a , when not.

Fourth, final $/\bar{i}/\bar{i}$, $-\bar{u}\hat{A}'_1/$ are written with an additional semivowel $-i-y$, $-u-v$ (traditionally considered to be purely graphic, but see Hoffmann, p. 635).

Fifth, short diphthongs are written $-C^a-i-$, $-C^a-u-$, so that they are only partly distinguishable from simple vowels (m^a-i- = $/maj-/$ and m^i-i- = $/m\bar{i}/\bar{i}/$ occur side by side, but, e.g., $/taj-/$ and $/t\bar{i}/\bar{i}/$ are written t^a-i-).

Sixth, long diphthongs are written $-C^a-a-i-$, $-C^a-a-u$ but are not distinguished from short diphthongs in initial position.

Seventh, $/r/$, in all probability pronounced $[ər]$, is written $a-r^a-$ = $/r-/$ in initial position (and thus cannot be distinguished from $/ā/ā-/$) but $C^a-r^a-C^x$ = $/CṛC/$ in medial position.

Eighth, nasal consonants $/m, n/$ are written before consonants only in exceptional cases (e.g., $/mn/$ in $k^a-m^a-n^a-$ = $/kamna-/$).

Ninth, in contrast to final $/-n/$, final $/-m/$ is commonly written ($a-b^a-r^a-m^a-$ = $/abaram/$ “I brought” but $a-b^a-r^a-$ = $/abaran/$ “they brought”).

Tenth, the only written final consonants are $-m$, $-r$, and $-š$.

Eleventh, postconsonantal $*\bar{i}$, $*\bar{u}$ (proto-Iran. $C\bar{i}$, $C\bar{u}$) are regularly written $C^{i/a}-i-y$, $C^{u/a}-u-v$, often (and especially in personal, geographical, and other names) $/Cij$, $Cuṽ/$ (and presumably pronounced Cij , $Cuṽ$; see Hoffmann, pp. 636-37).

Twelfth, Iranian h (from Indo-Iran. s) before Old Persian $\bar{u}\hat{A}'_1$, m , r was omitted in writing, as it was pronounced weakly or not at all in the underlying Old Persian dialect (also the group proto-Iran. $h\bar{u}$ is represented as OPers. $u-v^a/uṽ/$).

Finally, Old Persian $/\bar{i}/\bar{i}$ is often omitted after h in writing.

From this survey it is clear that it is impossible to associate a single phoneme unequivocally with each sign. On the contrary, there are rather important deficiencies in the writing system, including the lack of graphic distinction between $/t\bar{i}/\bar{i}$ and $/taj/$ (so that, e.g., the verbal endings $/-ti/$ and $/-taj/$ of 3rd pers. sing. pres. act. and med.-pass. cannot be distinguished) and the omission of nasal consonants before consonants (so that, e.g., the verbal endings $/-ti$, $-tu/$ of 3rd pers. sing. and $/-nti$, $-ntu/$ of 3rd pers. plur. cannot be distinguished).



Altogether these orthographic conventions give rise to several possible interpretations of nearly every attested word, requiring in each instance philological and linguistic analysis or both to achieve a correct reading. In order to illustrate the problems, an oft repeated example may be cited. The expression $a-s^a-t^a-i-y^a$ “he/she/it is” can be read, according to established orthographic conventions, in seventy-two different ways: $\bar{a}/\check{a}/(n)-s^{a(n)}-t^a-\bar{i}/\check{i}-y^a$. That the correct reading must be *astiy* = /asti/ can be ascertained only by comparing Avestan *asti*, Vedic *ásti*, Middle Persian and New Persian *ast*, and the like. A reading can be found when a word is cited in its Old Persian form in the Elamite or Akkadian versions (e.g., *a-r-j-n-m* “ornamentation,” compared with the Elamite *ha-ra-an-za-na-um*, should be read as *āranjanam*, as already conjectured before the Elamite form was known). Many such difficulties remain unresolved, however, and perhaps will never be resolved. In using existing editions, grammars, manuals, and the like, it must be kept in mind that the readings of the words and grammatical forms represent only interpretations of the highly ambiguous graphemes. In publishing inscriptions and discussing Old Persian words and grammar, both a graphemic transliteration and a phonemic transcription should be provided.

The origin of the Old Persian script. The genesis and introduction of Old Persian cuneiform are among the most controversial problems in Old Iranian studies; since the 1960s they have been treated repeatedly and from different points of view, without achieving general agreement (see Schmitt, 1980, pp. 17-20). The following general outline is based on the testimony about the invention of the script given in par. 70 of Darius’ major Bīsotūn inscription (DB 4.88-92), where a new style of writing “in Aryan” devised by the king is mentioned (for the full text, see [bīsotūn iii](#)); on various archeological and stylistic observations that permit the delineation of several stages in the genesis and development of the Bīsotūn monument; on inscriptions supposed to predate Darius; and, finally, on analysis of the writing system itself. It is likely that development of a new script in which to write the Achaemenids’ mother tongue had already begun in the reign of [Cyrus II](#), but the oldest attested examples of the new type of cuneiform are the major and minor inscriptions of [Darius I](#) at Bīsotūn. Claims that some surviving inscriptions are older can be conclusively refuted: Two inscriptions on gold tablets from Hamadān composed in the names of Ariaramnes (AmH) and Arsames (AsH), respectively great-grandfather and grandfather of Darius I, appear from their rather faulty language, which resembles that of the latest Achaemenid texts, not to be authentic. Furthermore, two small fragments from the Pasargadae inscriptions (CMB,



CMc), which have been assigned to Cyrus II, appear in fact to belong to Darius (Mayrhofer, 1978, pp. 11-13), whereas a third (CMA) was written first in Elamite and Babylonian only, to which an Old Persian translation was added later (in the time of Darius) on uninscribed portions of the surface (Nylander).

Nevertheless, the conclusion that Old Persian cuneiform began to evolve under Cyrus finds some support in the observations and arguments of Hallock (1970), who focused on the signs k^u and r^u , which are necessary in writing the name Kuruš: These signs must have been among the oldest, for their shapes are quite simple (with two and three wedges respectively), even though the frequency of the phonemic sequences /ku/ and /ru/ is rather low. That there must have been a chronological gap between invention of the script and its actual use is confirmed by some striking features, which have been brought out most clearly by Karl Hoffmann (1976), who also tried to explain them. The inconsistent structure of the inventory of signs seems best explained by assuming that originally the aim was a consistent and unambiguous system of marking vowels and diphthongs by means of three signs planned for each consonantal set plus the pure vowel signs (e.g., $*da = /da/$, $*da-a = dā/$, $*da-i = /daj/$, $*da-a-i = /dāj/$, $*da-u = /dau/$, $*da-a-u = /dāu/$, $*di = /di/$, $*di-i = /dī/$, $*du = /du/$, $*du-u = /dū/$) but that at some point a less clear system triumphed instead. This system includes many ambiguities (see above), especially as most consonantal sets contain not three but two or even single signs. The decisive factor in discarding the original concept must have been a desire for simplicity, as is attested by such formal and stylistic features as a tendency to avoid complex signs of more than five elements and signs involving crossed wedges. Indeed, the latter feature, along with the preference for rock inscriptions, the royal title “king of kings” (OPers. *xšāyaθiya xšāyaθiyānām*), and several specific formulas (*vašnā Auramazdāha* “by the favor of Ahura Mazdā,” *θātiy NN xšāyaθiya* “says NN, the king”), may be ascribed to Urartian influence (see above). Only an assumption that the script was introduced in haste can explain this astonishing concentration on ease in writing instead of on ease and clarity in reading.

The decisive argument for the introduction of the script in connection with the inscription beneath the Bīsotūn relief undoubtedly lies in the history and the genesis of that monument itself, for the Old Persian inscriptions accompanying the single figures in the relief and in the major inscription are later additions to the original design of the monument (see, e.g., Hinz, 1976, pp. 21-37; *bīsotuʿn iii*). The initial adoption of only pre-Achaemenid languages



must be interpreted as evidence that Old Persian had not yet come into use for written records. Old Persian cuneiform was obviously created specifically for writing the Old Persian language, rather than for some other Old Iranian dialect like Median (Hoffmann, pp. 620-21): The shape of the ζ sign is quite simple and was thus probably among the initial signs but represents the phoneme (< OIran. * θr , phonetically close to [s]), which is characteristic, as far as is known, only of Old Persian and is foreign to the Median phonological system, which retained θr .

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Figure 23. Attested cuneiform signs in Old Persian. After R. Schmitt, ed., *Compendium Linguarum Iranicarum*, Wiesbaden, 1989, p. 63.