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Harald Haarmann

Eurowriting: The Historical Context of Antiquity

Abstract

Since the beginning of the 21st century, research on writing, and especially on the history of writing systems in the European context, has experienced considerable changes that resulted in the opening of a new trail of historical awareness of the depth of cultural history and of writing technology. In this contribution, this newly opened trail of writing research in the European context is outlined: the origin of first writing; the infrastructure of writing technology; writing with and without language; writing systems of the ancient civilizations; the emergence of logographic and ideographic writing in the European context; the diacritical technique of distinguishing individual signs; syllabic writing in Europe; alphabetic scripts.

Sommaire

Depuis le début du 21e siècle, la recherche sur l'écriture, et plus particulièrement sur l'histoire des systèmes d'écriture dans le contexte européen, a connu des changements considérables qui ont permis d'ouvrir une nouvelle voie de prise de conscience historique de la profondeur de l'histoire culturelle et de la technologie de l'écriture. Dans cette contribution, cette nouvelle voie de la recherche sur l'écriture dans le contexte européen est esquissée: l'origine de la première écriture; l'infrastructure de la technologie de l'écriture; l'écriture avec et sans langue; les systèmes d'écriture des anciennes civilisations; l'émergence de l'écriture logographique et idéographique dans le contexte européen; la technique diacritique pour distinguer les signes individuels; l'écriture syllabique en Europe; les écritures alphabétiques.

Zusammenfassung

Seit Anfang des 21. Jahrhunderts hat die Forschung zur Schrift, insbesondere zur Geschichte der Schriftsysteme im europäischen Kontext, bedeutsame Veränderungen erfahren, die zu einem neuen Weg des historischen Bewusstseins für die Tiefe der Kulturgeschichte und der Schreibtechnik führt. In diesem Beitrag wird der neu eröffnete Weg der Schriftforschung im europäischen Kontext skizziert: der Ursprung der ersten Schrift; die Infrastruktur der Schreibtechnik; Schrift mit und ohne Sprache; Schriftsysteme der antiken Hochkulturen; die Entstehung der logographischen und ideographischen Schrift im im europäischen Kontext; die diakritische Technik zur Unterscheidung einzelner Zeichen; Silbenschrift in Europa; alphabetische Schriften.

1. Introduction

Since the beginning of the 21st century, research on writing, and especially on the history of writing systems in the European context, has experienced considerable changes that resulted in the opening of a new trail of historical awareness of the depth of cultural history and of writing technology. In this contribution, the newly opened trail of writing research in the European context will be outlined. A concise version of the article is currently planned for a new handbook of Eurolinguistics.

Writing technology is of fundamental significance for the construction of civilization, and the availability of the tool of written communication is among the pertinent properties of any advanced society, ancient or modern. This truism has been repeatedly reaffirmed throughout the long history of studies in the domain of culture and language and its validity has never been seriously disputed. According to the traditional understanding, the emergence of writing was a response to the need for bureaucratic order in the early states, thus enhancing the notation of information for reuse (Gnanadesikan 2009). This view emphasizes the role of writing as a means of information technology.

However, from its very beginnings, writing served multiple functions that were secular as well as religious. In its overall range of functions writing may be addressed as the need of human beings to visually express their ideas of the external world, "to fix those interpretations and make them concrete in order to define them better; […], to communicate with the superior forces" (Martin 1994: 4). In this view, the role of writing is amplified to transcend the boundaries of a mere technology: writing becomes an instrument of the human mind for constructing culture (Haarmann 2011).

How to define the concept "writing"? What does this expression exactly mean? It is easy to distinguish between writing and non-writing in such contexts where one finds manifestations of both. As an example, two versions of an historical contract may be introduced, concluded in 1682, between William Penn and the Delaware Amerindians about the purchase of land in the region that was later named Pennsylvania (see Haarmann 1992: 40-41).

The version of the Europeans who wanted to settle in North America is a text in English and in alphabetic writing (a). Greatly contrasting with this is the version of the Amerindians which is comprised of three so-called wampum belts (b); (Schaaf 1990: 2f.). The motifs in these belts are not mere decoration, but they convey information albeit in a diffuse way and significantly different from writing. The human figures in the first belt depict the parties that concluded the contract: the white man (with a hat) and the Amerindian in a friendly gesture (holding each other's hand). In the second belt, the geometrical motifs signify mountains and, in the third, rivers are depicted.

2. The Origin of First Writing: Setting Cultural History in Perspective

Modern findings in the field of research on the history of writing have produced insights which force us to revise the traditional view of Mesopotamia as the cradle of human civilization. Writing did not first emerge in the city states of ancient Sumer but earlier, in pre-dynastic Egypt, that is at a time when the two states of Upper and Lower Egypt had not yet been united in one empire. Even earlier experiments with writing technology are known which predate the traditions in Africa and Asia. This is true for the system of signs and symbols that was used in southeastern Europe in pre-Greek times. A script originated there around 5500 BCE, serving communication in Old Europe (see Gimbutas 1991 for this concept), also called the Danube civilization in modern literature (see Haarmann 2008, 2019a and 2020a for this concept).

The oldest inscriptions appeared in the settlements of early agriculturalists in southeastern Europe. Signs of writing were used for inscribing figurines, cult vessels, offering tables, miniature altars and weaving utensils (e.g. spindle-whorls, loom-weights); (see Haarmann 2010 for tables and images). Recall that weaving was a craft that was perceived as a divine gift by many people in antiquity. For instance, in Greek mythology, the goddess Athene was the patron divinity of weaving. In pre-dynastic Egypt, writing was used for inscriptions on the funeral statues (Min statues) in the tombs of the ancient rulers, and on tags attached to grave goods, with information about the place of origin and the donor (Dreyer 1998).

In ancient China, writing served religious ends, namely for divination, and priests wrote questions on bones to summon the advice of the ancestors. The bones were thrown into a ritual fire and the priest interpreted the ancestors' responses from the fissures of the bone that had cracked in the fire (Chang 1983: 81ff.). The use of writing for administration in China dates to much later periods. On the other hand, secular functions dominate the use of writing in the early Sumerian city states and in neighboring Elam. In a later phase when the early civilizations of the Old and New World were at their heights, writing assumed multiple roles in the local societies, and these were secular as well as religious.

3. The Infrastructure of Writing Technology

Writing activity is the manifestation of human intentionality. There is no writing without the intention to attain certain ends. Most scholars would agree that writing basically serves the purpose of fixing information for reuse with the help of visual markers. Intentionality has a multifaceted role in this activity because it relates both to the content of a message as well as to the way in which it is rendered. “Intentionality covers those characteristics of mental activities [...] that contain information about something beyond the content and the activity, and to involve a particular sort of attitude towards that content.” (Lyons 1995: 1).

In the formative stage of the ancient scripts, the intentionality of writing is associated with the realm of ideas, rather than with the sounds of the language in which ideas were expressed. The intentions of those who created writing systems did not primarily lie in the exact rendering of speech sounds but in the fixation of ideas and information of which messages were composed. This intentional fixation of information for reuse bears all the characteristics of what we understand as writing, regardless of the missing connection with language. The contents of the ancient Sumerian accounting tablets, can be understood and reconstructed without knowing any word of Sumerian, for the simple reason that the signs of the ancient Sumerian script are pictographic, that is, they render ideas as products of the mind, not words as products of speech.

When correlating the intentionality of fixing information for reuse—with the realm of ideas, on the one hand, and language, on the other—one arrives at the following basic formulas:

(A) The realm of ideas <==> writing /// language (sound structure)

In this pattern, an idea is visually associated with a sign of writing via its representational form (that may be identified with a certain object) or—in the case of an abstract sign—via its conventional use. For example, the concept “woman” in Egyptian hieroglyphs is visually evoked by a graph depicting a sitting female; while in Sumerian writing, the concept “divinity” is evoked by the convention of using a star.

This is the pattern of intentionality which governs the formative process of ancient writing systems. Evidence for this is provided by the early stages of Sumerian pictography (Green/Nissen 1987), Proto-Elamite script (Englund 1996), ancient Egyptian hieroglyphs of the pre-dynastic period (Dreyer 1998), ancient Indus script (Parpola 1994), and ancient Chinese oracle bone inscriptions (Keightley 1978). The same holds true for the Danube script (Haarmann 1995: 31ff., 2011). Although this writing system has not yet been deciphered, its organizational infrastructure, which can be identified, speaks in favor of the pattern described here.

(B) The realm of ideas <—> writing <==> language (sound structure)

In this pattern of writing, which is phonographic writing, the idea (or concept) is only indirectly, via its conventional meaning, associated with the graphic sequence that renders the sound structure of a word. The meaning of words like *dom* or *talo* (as rendered in alphabetic writing) is not recognizable in the graphic appearance of their sound structure because the sound structure of elements of speech is arbitrary in its relation to meaning. The meaning reveals itself only to those who share the conventions of the given speech communities whose members use those words. For instance, in the case of *dom*, this requires the knowledge of Russian language use while *talo* is assigned its conventional meaning in the Finnish speech community. Both *dom* and *talo* have the same meaning, which is 'house'.

This pattern of intentionality is typical of all phonographic writing systems, syllabic (as in Assyrian, Babylonian or Hittite cuneiform writing), segmental (as in Egyptian hieroglyphics of the dynastic period) or alphabetic. In an historical retrospective, this pattern of intentionality, with the sound structure of a given language in focus, is a secondary development of writing systems.

Most modern definitions of writing are associated with the pattern of intentionality identified as (B). Writing of this kind is sometimes called "true writing" (DeFrancis 1989), which is an awkward term since its opposite would be "false writing." Definitions along the lines of "true writing" are exclusive and neglect the pattern of intentionality identified as (A). This negligence is also characteristic for the theoretical discussion in the Russian tradition of writing research (Zinder 1987). The exclusive orientation toward phonographic writing becomes apparent in definitions of writing which explicitly "exclude from the category of writing systems those graphic expressions that do not reflect the sounds of the language" (Daniels 1996: 8).

However, the eclipse of earlier forms of writing is problematic since the emergence of the pattern (B) is difficult to conceive without the prior stage (A). Consequently, only when taking into consideration the duality of stages in the development of writing technology can one perceive the gradual unfolding of the process of phoneticization and gain insight about "the fact that relatively early scripts tend to be logographic rather than phonographic" (Sampson 1985: 36).

In certain cultural environments, one can observe a floating between the principles (A) and (B) in the history of local literacy. Sumerian writing illustrates this state. In the early phase of Sumerian literacy (c. 3200 - c. 2900 BCE), there was no explicit intention to render Sumerian words according to their sound structure and grammatical elements were omitted in writing.

> ”Sumerian is an agglutinative language in which nouns take suffixes and verbs both prefixes and suffixes. Virtually no trace of these affixes can be found in the early archaic texts, but they begin appearing after 2900 B.C.E. Curiously, they are used in what can only be described as a skeletal way for centuries; and only in the early second millennium, when Sumerian was probably extinct and spoken only in the schools, are the affixes fully expressed." (Cooper 1996: 43)

Still, after the introduction of the cuneiform technology of writing (c. 2700 BCE), Sumerian scribes wrote according to the "catchword principle," writing the key words of a sentence and often neglecting grammatical elements and syntactic markers. "The Sumerian writing never attempted to render the language phonetically correct, exactly as it was spoken." (Thomsen 1984: 20)

The later history of writing in Mesopotamia is the history of a gradual process of reconciling sign sequences with the sound sequences of Sumerian. Throughout the period of Sumerian literacy, writing was never predominantly phonographic. On the contrary, the use of logographic signs abounds.

For many hundreds of years, Sumerian scribes rendered the sound structure of their mother tongue only selectively in writing. It was not until the adoption of cuneiform writing by the Akkadians (c. 2500 BCE) that the decisive step toward a full-scale phonographization was taken. Akkadian cuneiform writing makes use of signs which are predominantly phonographic. ”The writing system thus changed from chiefly logographic to chiefly syllabic, with a trend towards consistent spelling.

In the early first millennium BC, an Assyrian scribe could manage fairly well with just 120 graphemes" (Parpola 1994: 35).

4. Writing with and without Language

When extending the narrow definition of what writing (as "true writing") is to encompass the broader perspective of the patterns (A) and (B), one is confronted with the question of what the boundaries are between writing and non-writing. If pictography is an ancient form of writing (e.g., as used in the oldest Sumerian accounting tablets or on Chinese oracle bones), how does it differ from picture sequences in a pictorial narrative (e.g., as in Palaeolithic and Neolithic rock carvings around the world)?

There is a clear distinctive feature which separates pictography from a pictorial narrative. Any form of writing, regardless of being logographic (ideographic) or phonographic, functions according to the principle of a "1-to-1" equivalence.

> The formula for pictography is:
> ONE picture (iconic sign in a writing system) as the representation of
> ONE idea or concept.
>
> The formula for syllabic writing is:
> ONE sign (iconic as in Mycenaean Linear B or non-iconic as in cuneiform
> writing) as an equivalent for ONE syllable of a given language.
>
> The formula for alphabetic writing is:
> ONE abstract letter (non-iconic sign in a writing system) representing
> ONE sound of a given language.

Pictorial narratives lack this rigid one-to-one equivalence. Individual pictures may stand for a whole sequence of ideas. In the typological overview of the different stages in the development of writing systems, the difference between pictorial techniques and writing (pictography, for one) becomes apparent . The cognitive fabric of writing is highlighted by the features in the central and right columns while, in the left column, the relation between a pictorial sign and ideas remains diffuse, that is, undifferentiated. The diffuse nature of pictures and their meaning in pictorial narratives can be elucidated when contrasting them with signs of writing (see examples in Figure 1b).

Applied principle or technique	The association of pictures with narrative sequences	The association of writing techniques with ideas and/or sounds	
	Clusters of ideas	Single ideas or concepts	
	(Relation to a whole utterance)	(Relation to the conceptual basis)	(Relation to the sound structure)
Pictorial	Picture representing a sequence of ideas	—	—
1. Pictographic	—	Picture representing an individual idea	—
2. Ideographic	—	Iconic sign symbolizing an individual concept	—
3. Logographic	—	Abstract symbol as an equivalent for an individual concept	—
4. Syllabic	—	—	Conventional sign as an equivalent for a syllable
5. Alphabetic	—	—	Conventional sign as an equivalent for a single sound

Applied principle or technique	Visual means of representation	Explanations
Pictorial		Cultural context: Symbol from the Walam Olum, the tribal chronicle of the Delaware, recorded in the *kekinowin* technique of pictorial literacy Reading: *Manitodasin mokol witcemap "palpal!" payat payat wemitcemap* Translation: "The moon woman saved the people and took them into her boat"
Pictographic	 (picture of a stone)	Cultural context: Symbol from the inventory of Aztec glyphs Reading: tetl Meaning: "stone"
Ideographic	 (a foot, water flowing from a jug)	Cultural context: Egyptian hieroglyphs Reading: wʿb Meaning: "pure"
Logographic	&	Cultural context: European tradition of literacy Reading: *and* (English), *und* (German), et (French) Meaning: "and"
Syllabic	み	Cultural context: Symbol from the Japanese syllabary hiragana Syllabic value: *mi*

Fig. 1: Typology of writing systems: (a) principles + techniques, (b) application of techniques (adapted from Haarmann 2011: 257f.)

Written texts have been recorded in about 1,500 languages of the world. Of these, less than 1,000 are regularly used for writing. One could say that those languages, as vehicles of modern culture, have a privileged status. The great majority of the languages in the world lack written standards, and this is true for more than 5,000 languages. This deficit excludes these languages from the world of literacy although the speakers of lesser used languages are not necessarily illiterate. Many have access to literacy through the channel of a second language which is written. Such settings are typical of non-written minority language which are roofed by a language of wider communication (see Comrie 2005: 570-71 for a global overview of modern writing systems.

5. Writing Systems of the Ancient Civilizations (Old World)

Here is an annotated list of writing systems of the ancient civilizations:

- the Danube script (c. 5500 - c. 2600 BCE): Writing systems inspired by the Danube script: Linear A in ancient Crete, Linear B for writing Mycenaean Greek, scripts of ancient Cyprus, scripts in the Near East such as Levanto-Minoan in Syria and Philistine writing in Palestine; the Aegean tradition of linear writing partly inspired the composition of the sign inventories of early variants of the alphabet in the Near East (Haarmann 2010: 81)
- the Egyptian script (c. 3300 BCE - 1st century CE) in the three variants Hieroglyphic, Hieratic, Demotic: A derivation is Meroitic (in ancient Nubia)—the inventory of one-segment signs partly inspired the composition of the early alphabet in the Near East
- the Sumerian script (ancient pictography since c. 3200 BCE, cuneiform since c. 2700 BCE): Derivations are the cuneiform script used for Akkadian, Elamite, Hurrian, Hittite, Ugaritic, Persian
- the Proto-Elamite script (c. 3050 - c. 2700 BCE): No derivations known
- the Indus script (c. 2600 - c. 1800 BCE): No derivations known
- the Chinese script (since c. 1200 BCE): Derivations are: historical Ido (Korea); historical Man'yogana and modern Kanji as well as two syllabaries derived from Chinese characters, Hiragana and Katakana (Japan); historical Chu Nom (Vietnam); script of the Yi/Lolo in southern China; historical scripts of the Yao, Hsi-hsia, Juchen, etc.
- varieties of the alphabet (beginnings in the 17th century BCE): Seminal scripts from which numerous others have derived: Phoenician, Aramaean, Greek, Latin, Brahmi, Cyrillic, etc., including particularly local creations such as Celtic Ogham, Germanic runes, the Gothic alphabet, Korean Hangul.

It becomes clear from the different stages of writing that the establishment of the alphabetic principle (one sign as an equivalent for one sound) is the most advanced and specialized of all techniques. Alphabets follow the principle of a one-to-one correspondence of sign and sound. Each single letter stands for one individual sound. Historical orthography may blur the perspective.The frequent American English spelling of the word <thru> is closer to the basic alphabetic principle than the rendering of the same word as <through> in British English in whose spelling an older (medieval) stage in the phonetic development of the English language is still reflected. In most languages which use varieties of alphabetic scripts, though, the one-to-one correspondences of sign and sound are much more clearly recognizable than in writing English (e.g. in Spanish, Hindi or Finnish).

A principal asset of any writing system, ancient or recent, is its organizational infrastructure. This means that the sign inventory is organized in a systematic way (not randomly assembled), that signs are conventionally used, and that the use of signs isintentional (not accidental). Although these features are separate, they usually function together to make up what is called here the external organizational principle. It is essential to observe the close relationship between the systematic character of a given sign inventory and the fact that signs are applied according to accepted conventions (see Harris [1995: 56ff.] for a theoretical discussion).

6. The Emergence of Logographic and Ideographic Writing in the European Context

Starting in antiquity, many writing systems have emerged and many of them have fallen into decline. The most successful of all types of writing that the human mind has ever crafted is the alphabet. Alphabetic writing is based on the principle of rendering one sound by means of one specific letter. This one-to-one correspondence of sound and sign is the most sophisticated specialization of writing technology and it is the latest system to appear in the history of writing (Healey 1990).

It has to be emphasized here that the alphabetic principle of writing is but the last stage in a process of technological evolution that lasted for thousands of years. The earliest traces of alphabetic writing are found in the Near East and date to the seventeenth century BCE (i.e. the proto-Sinaitic script), but the alphabet gained in importance only after 1000 BCE. Eventually, alphabetic scripts replaced older writing systems of antiquity, except in East Asia where Chinese writing and scripts derived from it (e.g. Japanese kanji) have remained in use.

The alphabet was among the technologies that the Phoenicians “exported”—together with their trade goods—to the countries around the Mediterranean Sea. The Phoenician alphabet produced many local derivatives such as the Greek, Etruscan, Latin and other scripts, partly in a subsequent succession, with Etruscan as a subsequent derivative of Greek and Latin as a subsequent derivative of Etruscan. The Aramaean alphabet had a similar seminal influence on many cultures and languages in the Near East and in South Asia. The great variety of local alphabets that emerged in India find their origin in the Aramaean script. Of the two earliest adaptations to the languages of India, the Brahmi script is the one from which derived most of the modern alphabetic scripts in use, not only in India but also in many regions of Southeast Asia. Among the wide-spread of these writing systems is Devanagari, in which Sanskrit is written.

There are many facets in the cultural chronology of the major writing systems of the world (ancient and modern; Haarmann 2011: 16f., 2020a: 158ff.). With the emergence of the Danube script, a new chapter was opened for world cultural history.

6.1. The Danube Script (c. 5500 - c. 2600 BCE)

Striking resemblances can be observed when comparing the wealth of signs of the Neolithic with motifs of earlier times, in particular with the signs that one finds in the cultural layer of Lepenski Vir and in the rich symbolism of its imagery (Borić 1999). According to Kozlowski (1992: 20), this Mesolithic culture may ultimately be based on foundations that were laid by migrants who came from Central Europe and occupied campsites in the Danube valley between about 29,000 and 27,000 BP (before present).

On the continuum of cultural evolution, the complex of Lepenski Vir (Borić 1999) is the immediate predecessor of the Vinča tradition (see Brukner 2002 for an outline). In the visual heritage of Lepenski Vir, one finds basic abstract forms (Winn 1981: 259).

It has been suggested that the symbolism of the hunter-gatherers who frequented Lepenski Vir and other Mesolithic sites such as Vlasac and Padina in the seventh millennium BCE should be identified as "'signs of all time' [...] which might have been associated with religious beliefs and practices, altered states of consciousness and shamanic rituals" (Budja 2005: 65).

When correlating the assemblages of artifacts that bear signs with ritual practices that can be reconstructed for the transitional phase in the communities of hunter-gatherers and of early farmers, then a trajectory of transition in visual communication from the Mesolithic to the Neolithic can be recognized. The signs and symbols from objects found in Transsylvania (Turdas and Tartaria)—the oldest variety of writing in the Neolithic of southeastern Europe (Maxim et al. 2009)—draw on visual motifs in the iconography of earlier periods, for instance, from the Mesolithic site of Lepenski Vir and from cave paintings and rock carvings of the Balkan region. Basic motifs of this earlier iconography that finds its meaningful embedding in shamanic activities of communal significance continued to be used in community life by those hunter-gatherers who went through a process of acculturation, adopting farming and an agrarian way of living.

As a master/mistress of ceremonies the shaman retained his/her prominent role for the sustainability of the living-conditions in the early agrarian communities, and the shaman was in control of writing as a potent means of communication with the spirit-world. The transfer of iconographic symbols from pre-agrarian to agrarian media can be illustrated, among others, for the basic motif of the spiral that features, in the Danube script:

> "Paradigmatic was the act of attaching spirals—an old symbol on the new media—ceramic vessels—that had been incorporated into existing hunter-gatherers' ritual practices and symbolic structures (Lepenski Vir). This principle was evidently maintained in farmers' contexts, as identical pots have been embedded in similar symbolic structures or associated with prestigious artefact sets in trapezoidal pit-dwellings, ..." (Budja 2005: 65).

It seems reasonable to conclude that the drive toward the specialization of sign use in southeastern Europe, from the context of hunter-gatherers' iconography to written communication in the early agrarian communities originated on the continuum of ritual practices under shamanic supervision (Budja 2004). When assessing the experiments with writing technology in the European Neolithic from this viewpoint it becomes conceivable why and how basic shamanistic motifs came to form the core of the inventory of the Danube script (Haarmann 2011).

With the rise and spread of agrarian lifestyles in the Balkan region the repertory of cultural symbols and signs also proliferates. During the sixth millennium BC, when the use of abstract symbols and signs in the Danube region began a period of rapid expansion, this was not the sudden leap of the human mind into a hitherto unknown dimension. Rather, this phenomenon is indicative of the intensification of a process of experimenting with symbol-making that had been developing over millennia.

In southeastern Europe, the use of signs reached a higher organizational level than elsewhere, eventually developing into systematic forms of notation and an archaic form of writing (see Haarmann 2008 for an analysis of the Danube script and its organizational principles). The systematic structure of the sign inventory of the Danube script alone would not suffice as a parameter defining it as a script. Equally decisive for its definition as such is the fact that its sign use followed conventions that were acknowledged in more than a hundred places where literacy flourished.

All ancient writing systems are composed of hundreds of signs. The Danube script operated with about 720 signs, and these signs are documented for some 1,100 inscriptions (Merlini 2009). The reason for the high number of signs is the logographic principle of writing, which demands individual signs for writing individual concepts or ideas. The concepts that dominate daily communication easily amount to several hundreds and, if special terms used in professional fields are also included, the number further increases to several thousands. Ancient Sumerian pictography (of the Uruk III and IV periods) operated with about 770 signs and, from the collection of the oracle bone inscriptions of ancient China, some 1,200 to 1,400 signs are known. The Proto-Elamite script is characterized as "using less than 1000 individual signs and thus in the range of logo- or ideographic writing systems" (Englund 1996: 161f.). Altogether 410 individual signs are included in the repertory of the ancient Indus script.

Even in Egyptian writing, which is characterized by a stable set of phonographic signs, the majority of signs were nevertheless used in ideographic functions. Ancient Egyptian writing utilized between 700 and 1,000 hieroglyphic signs. Continuing into the era of the Middle Kingdom (c. 2055-1795 BCE), the second intermediate period (1795-1550 BCE), and the New Kingdom (c. 1550-1069 BCE), the majority of signs had ideographic value, amounting to almost 60 percent of the entire inventory of hieroglyphic signs (Hannig 1995: xxxiv ff.).

The establishment of a network of trade relations, with the Danube river and its tributaries as the most frequented routes, favored the emergence of an economic oecumene with an egalitarian society. Within the context of an early agrarian community, cultural symbolism and sign use developed the multi-faceted profile that we know from Old Europe (from the Danube civilization, respectively). The older term "Old Europe" has not lost any of its cogency. This became clear with the exhibition that was organized, by the Institute for the Study of the Ancient World (ISAW) in New York, under the theme of "The Lost World of Old Europe - The Danube Valley, 5000 - 3500 BC" (from November 2009 to April 2010); (Anthony 2009).

The richness of signs and symbols in southeastern Europe shows considerable variation in space and time. The culturally interconnected zone of southeastern Europe extended as far as Hungary and Ukraine. Core symbols that may reflect basic ideas of a large coinage, such as the spiral, the meander, the V sign and others are wide-spread while other symbols have a more limited range and are restricted to certain regions (Figure 2).

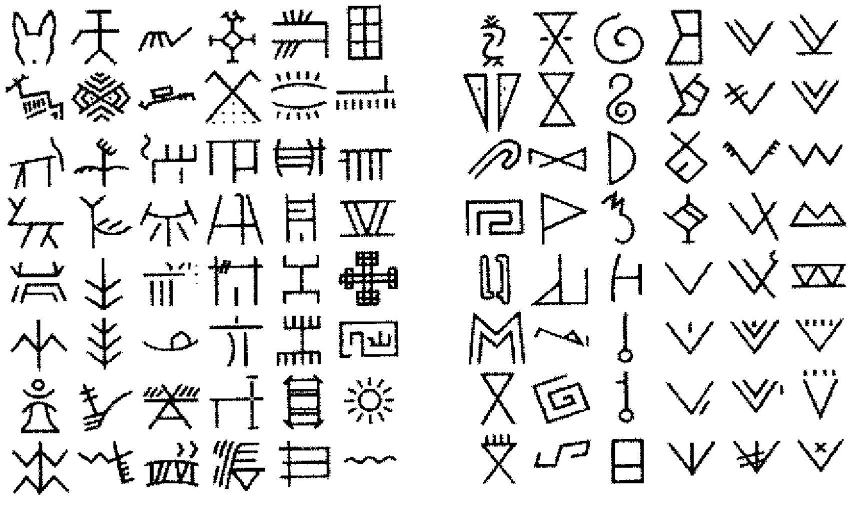

Fig. 2: Sign inventory of the Danube script (selection) – left: iconic signs, right: abstract signs (adapted from Haarmann 2020a: 162)

A closer inspection of ornamented and inscribed artifacts reveals that motifs in common use interact with symbols of local origin, forming local symbolic networks. The use of writing technology in the cultural provinces of the Danube civilization spread widely. Inscribed objects have been found at more than 180 sites (in 13 states) throughout southeastern Europe, concentrating mainly on the territories of Serbia, Romania and Bulgaria (see Merlini [2009: 751ff.] and Haarmann [2010: 155] for surveys).

Although much research has been carried out and ample documentation of inscribed objects—stored in data banks—has been provided, there are still traditional scholars who doubt the character of the signs as script. In the case of the Danube script (Old European writing) it appears that the discussion about writing technology outside the traditional canon of writing research assumes the role of an arbiter in the modernization process of this discipline in the humanities. This role as arbiter has been emphasized already in the 1990s. Richard Rudgley (1999: 70f.) gives the following evaluation:

> "If the Old European script is a highly developed form of writing—and Gimbutas and Haarmann have presented a credible case for it being so—its very antiquity makes it a book that seems to be destined to remain firmly shut. … The notion of an Old European script goes against many of the entrenched positions of archaeology and the traditional view of the development of civilisation. The implications are immense. …The ideological wall constructed to divide prehistory and history, the primitive and the civilised, and writing and re-writing would fall overnight were the Old European script to be indisputably vindicated. It would herald nothing less than the collapse of the present notion of civilisation."

6.2. Writing Systems Inspired by the Danube Script

The tradition of writing in the Danube civilization eventually declined, surviving until c. 2600 BCE in western Ukraine. After a hiatus of several hundred years writing technology was revived in the ancient civilizations of the Aegean (Crete, the Cyclades). The oldest documentation of written texts is in the Minoan script Linear A, which itself became the source of inspiration for other writing systems: Linear B for writing Mycenaean Greek, scripts of ancient Cyprus (Cypro-Minoan, Cypriot-Syllabic), scripts in the Near East such as Levanto-Minoan in Syria and Philisto-Minoan in Palestine (Haarmann 1995: Fig. 195). The Aegean tradition of linear writing partly inspired the composition of the sign inventories of early variants of the alphabet in the Near East (Haarmann 2010: 81).

7. Origins of the Supplementary Letters to the Greek Alphabet

The derivation of most letters of the Greek alphabet from one particular source, the Phoenician script, has been proved without leaving any doubt (Threatte 1996). What has remained a matter of debate is the origin of the so-called "additional" or "supplementary" letters of the Greek alphabet, and these are phi, psi and khi (xi). "The origins and sound-values of these supplementary letters have not yet been satisfactorily explained" (Jeffery 1990: 35). These non-Phoenician features of the Greek alphabet are mostly treated as a *quantité négligeable*. Admittedly, their impact on the formation of the complete alphabet may be minor (i.e. several letter forms, punctuation signs in local use), their importance as evidence of pre-Greek literacy, however, makes them significant.

The assumption that the additional letters derive from graphical items of the decaying Aegean linear writing is most pervasive since the parallelism of sign forms strikes the eye (Figure 4).

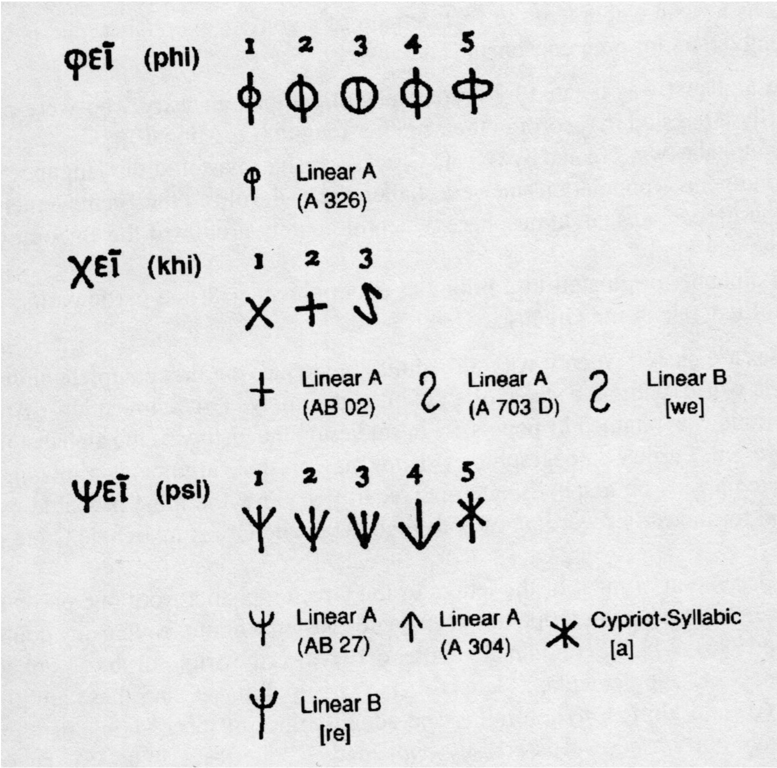

Fig. 3: The supplementary letters of the Greek alphabet and their equivalents in Aegean linear writing (adapted from Haarmann 1995, Fig. 170 & 171)

Despite the fact that the use of linear writing for practical purposes declined in Crete, knowledge of Aegean linear signs, as part of cultural memory of the local inhabitants of the island, persisted throughout the dark ages into classical times. Following the traditional view, Aegean linear writing had totally disappeared when the Phoenician alphabet was adopted in the eighth century BCE, and scholars have become accustomed to looking for the origins of the additional letters exclusively in the Near East or in south-west Asia. There, no evidence has been produced for the period in question. Some scholars have drawn this conclusion from the fact that there are no prototypes for the supplementary letters in the Near East, saying that the “supplementary letters may be considered as unique and secondary Greek creations” (Wachter 1989: 36).

Taking the Aegean tradition of linear writing and its fragmentary continuity throughout the “dark ages” into consideration, one is not surprised to find parallels for the additional letters in the older systems of linear writing. The signs for the supplementary letters are indigenous, but in the sense that they were adopted by the Greeks from their local knowledge of older linear signs, rather than by way of ingenuous “creation“. For the origins of the Greek signs and their sound values the question of sound equivalents in older linear signs seems to be of secondary importance. It can be assumed that, out of the repertory of linear signs which were still known at the places where the archaic versions of the Greek alphabet were elaborated, certain unequivocal forms were selected. The basic criterion may have been the general aesthetics of the letter forms.

8. The Diacritical Technique of Distinguishing Individual Signs

Among the prominent features in the structuring of the Old European writing system is the extensive use of strokes as well as occasionally of other markers such as dots or crosses to produce variants of basic signs. This can be observed in the vast repertory of abstract signs where entire columns of sign variants fall under this category (Figure 4).

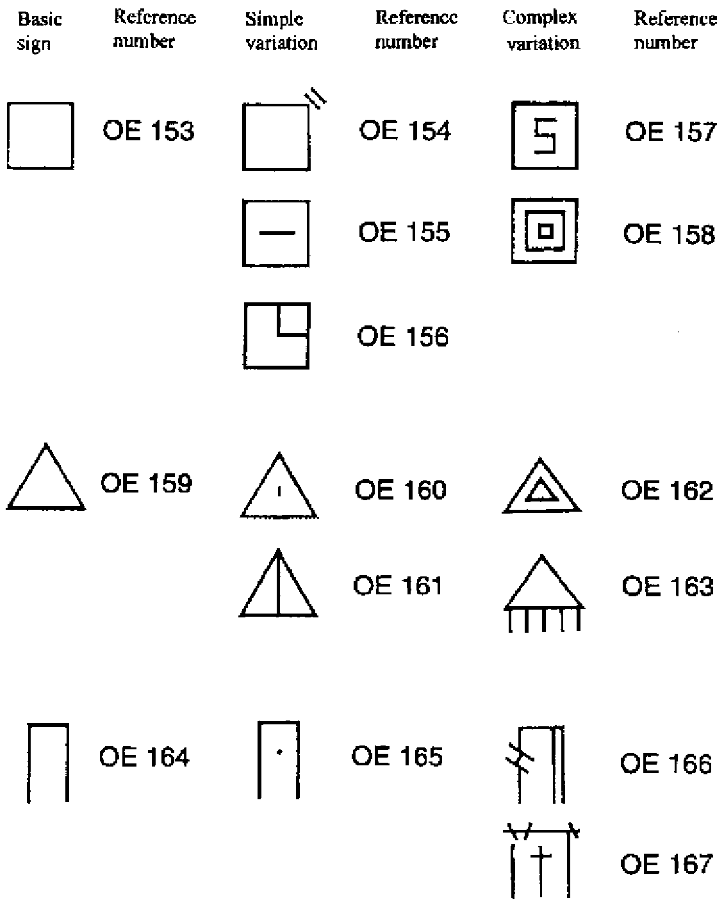

Fig. 4: Sign variation and the diacritical technique in the Danube script (adapted from Haarmann 1995, Fig. 32).

The use of diacritical marks in Old Europe provides the earliest evidence for this technique in the history of writing. Outside the European cultural domain there is another ancient script that makes extensive use of the diacritical technique, this being the Indus script.

As for the question of continuity, the use of strokes and/or dots to produce sign variation is not a prominent organizational principle of linear writing in Crete. Nevertheless, the basic workings of this technique can be observed in the structuring of the Linear A system (see Haarmann 1995, Fig. 101).

At a later date, the diacritical technique again sees extensive application in the structuring of the chronologically latest derivative from a writing system in the Old European complex: Cypriot Syllabic (see Haarmann 1995: 109ff.).

9. Syllabic Writing in Europe

Of all the ancient regional cultures that emerged in Europe in the aftermath of the Danube civilization, the Greek writing tradition is the oldest as well as the one used for the longest time without a break. This is a world record on both counts. Chinese is generally considered to be the world's oldest written language, in use up to the present. However, ancient Chinese was not written until about five hundred years later than Greek, i.e. in the 12th century BCE. Greek has been recorded in writing without a break since the 17th century BCE, although this fact is not well known outside of expert circles. Many of the scholars who are researching the history of Linear B and the Greek alphabet are also unaware of the special conditions under which Greek literacy developed. Recent research indicates that the history of written Greek is that of a long drawn-out process which, despite various changes of script, has been going on continuously for over 3,500 years (see below). Greek, as the medium of expression of a mosaic culture, is the oldest written language still in use today anywhere in the world.

Syllabaries are mainly made up of characters that represent individual syllables, and most of them also include logograms as an additional component, where a single character represents a complete word. The Cypriot syllabary is the only one that does not use logograms.

9.1. Linear B for Writing Mycenaean Greek

The oldest script used by Indo-Europeans is Linear B, which was used to write Mycenaean Greek. Traditional accounts of Ancient Aegean cultures limit themselves to stating that the Minoan script Linear A was the forerunner of Linear B. At best its origin is merely speculated about, and for most people the roots of writing in Southeast Europe remain shrouded in mystery. The history of the two linear scripts can only be understood if they are seen as part of the ancient civilizational network of Balkan-Aegean convergences.

The Old European heritage in the domain of writing also played its part in forming the character of the Greek cultural mosaic. The adapted Phoenician alphabet was not the first script to be used by the Greeks. It is simply the most recent of the Greek writing systems, a later technological innovation in a domain that the Greeks had already been familiar with for centuries.

As far as visual communication is concerned, there is an echo of Old Europe in the Ancient Cretan notation systems. These include the use of clay stamps with decorative patterns and cultural symbols (pintaderas), the writing of numbers by means of strokes and dots, the transfer of writing technology (more than 50% of the characters of the Minoan Linear A script show similarities with the Danube script characters); (Haarmann 1995). Moreover, the scripts both had a function in the service of religion.

Early Greek writing is attested in inscriptions dating back to the 17th century BCE. The oldest is an inscription from the holy sanctuary of Delphi. The language is early Mycenaean, a variant of Eastern Greek. The Mycenaean Greeks wrote their language in a linear script (Linear B), which is one of the Ancient Aegean writing systems and totally unrelated to any of the Near Eastern systems. It was indisputably derived from the older Minoan Linear A script. Both Linear A and Linear B formed part of the cultural tradition of the wider region, which has recently become known as the Balkan-Aegean Convergence Zone (Chadwick 1990: 158).

There are many inscriptions in Linear B. The texts were carved into soft clay on tablets which were then fire hardened. Another writing technique involved painting inscriptions on vases. Most of the Linear B texts come from two Mycenaean centres of power: Crete (Knossos palace archives, more than 3,000 clay tablets) and the city-state of Pylos in the southwestern Peloponnese (palace archives, more than 1,000 clay tablets) (Hooker 1980, Ilievski 2000).

It used to be thought that the beginnings of writing in Linear B were in the 16th century BCE (Bennett 1996) and for a long time it was believed that the oldest written documents were from Crete. Clay tablets have been found that were unintentionally hardened in a fire that destroyed the palace of Knossos and were thus preserved for posterity. The discovery of a votive inscription in Linear B in the sanctuary of Olympia on the Greek mainland, as well as the fact that we now have a more accurate dating for the volcanic eruption of Thera (Santorini), has made it necessary to rethink older assumptions.

The inscription at Olympia dates from the middle of the 17th century BCE, which means that Linear B is much older than previously thought. It also appears certain that the Mycenaeans had already experimented with the Minoan Linear A script on the mainland before they took over northern Crete. This is confirmed by studying the character set of the Mycenaean Greek linear script itself. There are some characters that have clear parallels with Old European symbols, but have no equivalents in the Minoan Linear A system.

It seems that the Mycenaeans did not first appear on Crete in the 15th century BCE, but had in fact arrived a century and a half earlier. The arrival of the Mycenaeans on Crete is generally considered to have occurred directly after the volcanic eruption on Thera, but the dating of the eruption has been revised and it is now believed to have taken place in around 1615 BCE (Johann 2020: 232f.). So when the Mycenaeans landed on Crete and established their power in the palace of Knossos, they were already familiar with the Minoan script and had already derived their own writing system from it.

Texts in Linear B were written on a variety of materials. Of these, however, only the clay tablets have survived. Most of the rest was probably written on perishable material, such as leather or palm leaves, and was subsequently lost. However, it is certain that such texts did exist, as Linear B font displays italic features (e.g. in the vase inscriptions), suggesting that it was suitable for many purposes beyond just palace bureaucracy. Certain names can be recognised on text fragments found at the Mycenaean cultural metropolis of Thebes that indicate that there was perhaps a Mycenaean version of the Ancient Greek myth of Demeter.

Compared to the alphabetic script that followed it, writing Greek in the Linear B syllabary was rather complicated. The Linear B characters could not perfectly reproduce Greek phonology. Vowel lengths were not marked at all, and consonant clusters could only be indicated by a few special characters. The phonology and syllable structures of the Minoan language were obviously simpler than those of Mycenaean Greek. This becomes clear when reading Linear B syllabograms and the Greek words associated with them. It is quite cumbersome to use the Linear B syllabary to write a language such as Greek with its many consonant clusters: e.g. Linear B *tu-ka-te* for Greek *thugater* ‘daughter’, *i-je-re-ja* for *hiereia* ‘priestess’, *ti-ri-po* for *tripos* ‘tripod’, *ka-ko* for *chalkos* ‘bronze’, *Pa-ki-ja-ne* for *Sphagianes* (name of a region in the city-state of Pylos).

Despite its lack of precision in sound reproduction, Linear B was used to write Greek for centuries. When the Greeks came into contact with writing and began to experiment with it, they were only familiar with the Cretan scripts. They had no readily available alternatives. Half of Linear B’s character set was taken from Linear A’s inventory; the remaining characters were innovations.

9.2. Cypriot Syllabary for Writing Greek on Ancient Cyprus

Linear B fell out of use on Crete during the 13th century BCE, and on the mainland, Mycenaean Greek ceased to be written in the course of the 12th century BCE. The traditional opinion of scholars of antiquity is that, after the decline of Mycenae, the Hellenistic world regressed into a state of illiteracy and entered a “Dark Age”. To this day, many scholars still claim that this age lasted from about 1050 to 750 BCE (Robb 1994: 21, Bintliff 2012: 210, Fox 2013: 285). However, the concept of the Dark Age and the alleged absence of writing is a myth. It is worthwhile taking a look at the real facts, and to do this, we have to answer a crucial question: Was Greek written between 1050 and 750 BCE?

The literary tradition of early Greek did not end after the collapse of Mycenaean power, but rather cultural activities shifted to Cyprus. Greek was in fact written in that period; however, not on the mainland, but by the Greeks who had fled to Cyprus in several waves after the collapse of Mycenae and who soon made up the majority of the local population. The language of those Cypriot Greeks was a variant of Arcadian, and their original home was in the north of the Peloponnese (Reyes 1994: 11f.). Arcadian Cypriot was the basis for the regional written language.

The culture of Ancient Cyprus is also associated with other Ancient Aegean cultures due to the close maritime ties to that region. Before the introduction of alphabetic writing, it can be assumed that the systems of visual communication used in this convergence zone were historically and culturally interrelated, with the Danube script as the oldest system and the Cypriot syllabary as the latest manifestation.

Minoan culture radiated far into the eastern Mediterranean, and evidence of its influences have even been found on Cyprus. Trade goods did not travel directly from Crete to Cyprus; rather, they were transshipped at the port city of Ugarit (Ras Shamra) on the Syrian coast. Along with the Minoan goods, another very special cultural asset was also imported by the Cypriots: the Ancient Cretan linear script. The striking similarities between Linear A and the oldest Cypriot linear script fully justify its name: “Cypro-Minoan”.

The local use of writing on Cyprus began in around 1500 BCE with texts in the Cypro-Minoan script. This script was used to write Eteocypriot, a non-Indo-European language. Later, another script was used on Cyprus and it outlasted the older form: the Cypriot syllabary. The oldest records of this script date back to the 11th century BCE. It was used to write both the Eteocypriot and the Greek languages. Although the Mycenaean culture disappeared on the Greek mainland and the Aegean islands, it survived on Cyprus for several centuries. Mycenaean cultural traditions were preserved on the island until the 1st millennium BCE.

The historical relationship between the Ancient Aegean scripts (Linear A and B) and the Ancient Cypriot scripts (Cypro-Minoan and the Cypriot syllabary) illustrate the close cultural contacts in the eastern Mediterranean (Haarmann 1995: 110ff.). The development of the later Cypriot script marked an impressive leap forward in the history of writing. The Aegean writing systems and the Cypro-Minoan are syllabaries with an additional logographic component. This means that words were written using syllabic characters as well as with a number of logograms, which were used to designate certain basic terms without taking their pronunciation into account (e.g. names of goods). All other known syllabaries used in Asia Minor and Mesopotamia (variants of cuneiform script, Anatolian hieroglyphics) had similar characteristics.

In contrast, logograms are completely absent from the Cypriot syllabary, which lives up to its name as it exclusively uses the principle of phonetic spelling with syllabic characters. In this respect, the purely phonetic Cypriot syllabary was the most advanced syllabic script in the Ancient World (see Haarmann 2020b: 310).

Greek writing in the Cypriot syllabary continued right into classical antiquity. For a while, the local Cypriot script was in competition with the new alphabet, but then it had to give way more and more to the new writing technology. The last Greek inscriptions in the Cypriot syllabary date back to the 3rd century BCE.

10. The Iberian Script (Hybrid Writing with Both Syllabic and Alphabetic Signs)

The Iberians (Greek: *Iberes*, Latin: *Hiberi, Iberi*) belong to the pre-Indo-European populations of the Pyrenean Peninsula, which is also called Iberian Peninsula. According to the frequency with which the Iberians are mentioned in the ancient sources, they were the best known and most influential people in Spain during pre-Roman times. Cultural traditions with specific Iberian characteristics can be identified at the earliest during the 6th century BCE.

The Iberian settlement area was divided into three main zones: southwestern Andalusia, the Spanish "Levante" (concentrated in the area of today's Spanish provinces of Albacete, Murcia, Alicante, and Valencia), and northeastern Spain (Catalonia). Some Iberian localities were also founded on the north side of the Pyrenees in the region of southern France (including Pech Maho, Ensérune, Mailhac). The density of the Iberian settlements on the Spanish east coast is larger than the density found in the inland villages. From the beginning, the Iberian regional cultures were in contact with other indigenous or imported cultures.

Influences on the culture of the Iberians in Andalusia initially came from Tartessos, while at a later stage the Phoenician influence gained in importance. In northeastern Spain, the influence of the Greek colonies in the western Mediterranean (especially from Massalia and Emporion) began during the 6th century BC. The Greeks had also founded a colony on the southern coast of Andalusia (Malaca). However, this colony soon fell under the political supremacy of the Carthaginians. Of all the regional zones in the distribution area, the Iberian traditions (settlement spaces and house architecture, bronze sculptures, techniques and styles of ceramic production, religious iconography, burial forms, coinage) were best preserved in the northeastern region. The Iberian society had been hierarchically structured since the 6th century BCE. The aristocratic elite, especially in the northeast, relied on the influence of the Greek urban culture, and as early as 550 BCE, the first Iberian city was built up completely. This was only about 20 km from the Greek Colony of Emporion (northeast of Girona). The urbanization of the Iberian settlements was a continuous process which continued until the beginning of the Roman epoch. The cities were also the centres of Iberian arts and crafts as well as of the Iberian coinage. The Romans, who incorporated eastern Spain into their sphere of power from 201 BCE onwards, showed themselves impressed by the Iberian urban culture.

The Iberians belong to the ancient Mediterranean peoples, including the Tartessians and Aquitans living on the Pyrenean peninsula. As non-Indo-Europeans, the Iberians differ from the Celtic population living in the north of Spain. The contacts of the Iberians with the Celts in the northern region of Spain make it clear that it is in that region that the process of cultural and linguistic convergences unfolded. The folklore of the Celts on the Pyrenean Peninsula has been profoundly shaped by Iberian traditions and their culture is a Celtic-Iberian fusion product, so that you can speak of the Celtiberians and their mixed culture.

Between the 5th and the 1st century BCE, the Iberian language was written in a local script (Swiggers 1996). So far, around 1,800 inscriptions have been known, written in the Iberian language. The majority of the texts can be found on script carriers such as for example stone (grave stelae, rock walls), ceramics (vases, bowls, pots, amphorae) and metal (for example: lead plates). A smaller group of inscriptions (around 60) are coin legends. A few Iberian inscriptions have been written with the Latin alphabet. The Iberian script was used in three different regional variants, called the southwestern (of the Basti-Turdetans), the eastern (of the Levantines) and the northeastern variant. The use of writing among the Iberians also radiated into neighbouring cultures. The Tartessians wrote their language with the southwestern variant of the Iberian script, while the Celtiberians wrote their language in the northeastern Iberian variant.

The Iberian script is characterized by unmistakable peculiarities which are not known in any other European writing system. The inventory of signs consists of letters (for writing vowels, the liquid sounds [l, m, n, r] and the sibilant sounds) and of syllable signs ([ka, ki, te, tu, bi, bo], etc.); (Swiggers 1996: 109).

It is clearly recognizable that the shapes of the signs are inspired by the Phoenician alphabet in the south and by the Greek alphabet in the North. However, there is an additional component made of sign shapes which show similarities to the characters of Aegean linear scripts (such as the Cretan Linear A and the Cypriot syllabary). Indeed, it has been proven that the Greeks from Cyprus were already trading with Iberian merchants before the foundation of the Greek colonies in the western Mediterranean in joint ventures with Phoenician traders.

11. Alphabetic Scripts

From the 8th century BCE onwards, Europeans became accustomed to writing with scripts on the basis of the alphabetical principle. Of these, the Greek adaptation of the Phoenician alphabet was the first to be used in Europe. Contrary to a widely held academic opinion according to which the Greek sign set would have been borrowed entirely from the Phoenician alphabet, modern writing research has proven that the Greek alphabet also borrowed from the earlier Aegean linear scripts.

11.1. The "Greek" Alphabet: A Minoan-Greek Joint Venture

Experiments with an alphabet based on the Phoenician script led to the development of the Greek alphabet, whose letters (in contrast to the Middle Eastern version) not only included consonants but also vowels. This adaptation was an innovation in writing technology by the Greeks, but was by no means a completely new beginning for their literacy.

At the end of the 2nd millennium BCE, the Phoenicians already had flourishing trade links with Cyprus and Crete. The Cretans had already become familiar with the Phoenician script towards the end of the 10th century BCE, if not earlier. The oldest Phoenician inscription on the island dates back to this period. Recently discovered inscriptions suggest that the first adaptations of the Phoenician alphabet in Europe took place in the cultural milieu that was Crete.

The traditional view is that the adoption of the Phoenician alphabet in the Aegean region was an exclusively Greek cultural innovation. However, the overall picture of intercultural contacts in the eastern Mediterranean at that time was more complex. The question that must be asked is: Why did the Greeks need an alphabet, when the trading of goods had been going on for centuries without the use of writing? Moreover, the oldest surviving Greek documents written in alphabetical notation are not purchase contracts, inventory lists or other commercial records, but tomb and votive inscriptions as well as fragments of epic poetry. The initial adoption of the alphabet cannot be directly explained by the trade links of the time.

The Greek alphabet, it turns out, was not a purely Phoenician cultural import either. It is possible that the traditional ancient Aegean writing systems also provided impulses for the development of the Greek alphabet. Contrary to the older belief that the Doric conquest of Crete in the 11th century

BCE would have resulted in the complete destruction of the mixed Minoan-Mycenaean culture, more recent archaeological discoveries seem to indicate that a Greek-Minoan cultural symbiosis developed on the island, which was sustained by the Eteocretans (late descendants of the Minoans) and Mycenaean Greeks as well as Doric immigrants (Haarmann 1995: 131ff.). There is some indirect evidence of cooperation between Greeks and Eteocretans. One Minoan legacy transmitted to the Greeks was legislation. The oldest recorded laws originated on Crete, and there is evidence of pre-Greek terminology in the legal language (Jeffery 1990: 53f.).

The revitalisation of writing, based on the most modern technology available at the time, the Phoenician alphabet, was to be expected in a multicultural milieu such as Crete. The memory of the period of pre-alphabetic writing (in Linear A and B) was still alive there, and it was known that the Greeks on Cyprus also wrote their language in one of the Cypriot syllabaries. The conventionally held belief about the Greek "Dark Age" following the decline of Mycenae is a myth that does not reflect the situation on Crete, nor the Greek cultural milieu on Cyprus.

It is certain that the Eteocretans and the Greeks were both involved in developing the oldest version of the alphabet on Crete, which can be dated to no later than the 10th or 9th century BCE, because the oldest inscriptions in the new script include some in Eteocretan, which was a language unrelated to Greek (Duhoux 1981: 288). The credit for having created the first complete alphabet (with letters for consonants as well as vowels) should be given to those who engaged in a joint venture in the cultural contact milieu that existed on Crete at that time, and by no means exclusively to the Greeks, who would subsequently claim this honour all for themselves.

The positions in the alphabet that were reserved for certain sounds, specific to Phoenician but foreign to Eteocretan and Greek, were filled with vowels. In this way, certain consonants and semiconsonants became associated with Greek vowels: aleph with alpha, he with epsilon, heta with eta, iodh with iota, ayin with omicron. Among the innovations of the Eteocretan-Greek alphabet were the additional characters phi, chi and psi, for which there are no precedents, neither in the Phoenician script nor in any other script variant of the Near East. These characters were appropriated from the Ancient Cretan linear systems and incorporated into the repertory of letters.

In combination with the Greek language, this complete alphabet that was perfected on Crete turned out to be an extremely popular cultural export all around the Mediterranean region and beyond. The first non-Greeks to use the new writing technology were the Etruscans, who adapted it to create their own script after becoming familiar with the Greek version at the trading centre of Chalcis on Euboea. Towards the end of the 7th century BCE, the Etruscans passed on their script to the Latins, a regional group living in Latium. The Latin alphabet was transferred by the Romans to many regions in the Balkan area and into western Europe and, in time, it came to spread around the world and become the most successful writing system of all time (see below for the emergence of the Etruscan and Latin alphabetic scripts).

The regional adaptations of the Greek alphabet had very different scopes of application. The 4th century Gothic script (adapted for writing Visigothic) never spread beyond this one language, whereas the Slavic scripts Glagolitic and Cyrillic, which were developed in the 9th century, came to be used interregionally. The Cyrillic alphabet is used in many regional variants (Rehder 2012: 14 f. on special Cyrillic characters in Slavic languages), of which the Russian is the most significant. In the area of the former USSR, a number of non-Russian languages are also written in Cyrillic (see the chapter on "Eurowriting: Developments beyond antiquity" for details).

Since Mycenaean Greek was written for the first time, three different writing systems have been used to write a total of seven different variants of Greek:

– Mycenaean Greek in Linear B (17th – 12th century BCE)
– Cypriot Greek in Cypriot syllabary (11th – 3rd century BCE)
– Ancient Greek regional variants in alphabetical script (8th – 4th century BCE)
– Koiné: the common Greek language of the Hellenistic period (second half of the 4th century BCE – 4th century CE)
– Mediaeval Greek/Byzantine (5th century CE – 1453 CE)
– Classical Attic/Katharevousa (middle of the 1st century BCE – modern times)
– Greek vernacular/Demotic (since the 17th century).

11.2. Etruscan Writing

The inspiration for writing Etruscan arose in the context of Etruscan-Greek contacts in southern Italy. Although in the early days only a few Greek settlers knew the script, they must have been quite advanced if we consider that among the oldest texts written in Greek alphabetic writing there is a text coming from southern Italy, Nestor's cup, from the colony of Pithekoussai (around 725 BCE; see Arena 1996: 192).

During the following era, the use of writing spread in the newly founded colonies, where local administrative institutions as well as authors in their cultural activities became the guarantors of literacy. There are numerous inscriptions on votive objects in shrines. For economic life in later times writing would play a role in the drafting of purchase and sale contracts (Haarmann 2019b, chapter 3).

Until now, it has not yet been clarified with certainty when and where the Etruscans adopted alphabetic writing for their own language. However, it is clear that the Etruscans learned their writing from the Greeks, and not directly from the Phoenicians. This is the reason why the oldest written testimonies in the Etruscan language should be expected to be found in an area where the Etruscans were in contact with the Greeks of Magna Graecia, that is, in Pithekoussai, on the island of Ischia. But that's not the case. The oldest written document in which the Etruscans used their writing comes instead from the central area of Etruria, where it seems that Greek masters already operated in the course of the eighth century BCE.

The oldest document written in Etruscan is an ivory tablet with the Etruscan alphabet engraved on its edge. This Marsiliana d'Albegna tablet (found in the province of Grosseto) is dated to the 8th century BCE (Facchetti 2000: 18).

The signs of this alphabetic model refer to the western Greek script transferred from the commercial city of Chalkis to the west in the context of the colonization initiated by Euboea (see Marchesini 2009, table XII for Proto-Tyrrhenian (archaic Etruscan) writing compared to Western Greek). "The direction of writing at the beginning oscillated (right, left and alternate). However, the left-oriented way of writing quickly established itself and was then, with sporadic exceptions, maintained by the Etruscans throughout the course of its history [...]" (Facchetti 2008: 234).

However, another issue remains to be clarified: Had the Etruscans acquired knowledge about writing from the Magna Graecia region? Or was the western Greek version of the alphabetic script that the Etruscans knew through commercial contacts with the port city in Euboea already in the cultural baggage of Etruscan emigrants and was brought from them to Italy with a final migratory wave?

The hypothesis of an early transfer of alphabetic writing from outside Italy to the Etruscans is not at all contradictory in light of the inscriptions found recently. There is evidence showing that the knowledge of the alphabet was widespread in Italy at a time when there were no Greek colonies. An inscription from Lazio dating back to 770 BCE is a few decades older than the foundation of the oldest Greek colony in southern Italy, Pithekoussai. In a female tomb (the tomb number 482) near Osteria dell'Osa, the ancient Gabii, archaeologists found a terracotta vase with an inscription (Camporeale 2004: 67).

The sequence of the letters *eulin* or *euoin* has been identified as the name of an Etruscan woman. It is not surprising that an Etruscan source was found in the context of a burial in the middle of a strip of landscape populated by Latins, if we consider that the political and cultural influence of the Etruscans surpassed the central region of Etruria already in the eighth century BCE.

Long before writing Latin texts, a society with a literary tradition had developed in Etruria. It is surprising that the first written testimonies of Etruscan have not only been found in the central places of Etruscan writing, but also in the peripheral areas, that is, in Rome. During World War II, in 1941, a sensational discovery was made:

> "At the foot of the Capitol, a Bucchero vase has been found with an Etruscan "talking" inscription dating back to the sixth century, which is older than the cippus of the forum [in Latin "black stone"] and the inscription of Duenos. [...] What then followed were the discoveries of three other Etruscan inscriptions from Rome: one inscription was found on a Bucchero fragment on the Palatine Hill, another on the fragment of a dough pot in the area of S. Omobono on the Forum Boarium, dated by Pallottino to the 7th-6th century and considered to be the oldest evidence of Etruscan presence in Rome; an inscription on the back of an ivory lion also found in the area of S. Omobono." (Breyer 1993: 10)

The Italian etruscologist Massimo Pallottino called the Etruscans the "people of the books". This term refers not only to literary texts in the sense of belles lettres, but also to collections of religious texts and instructions for the rituals of the temple and communication with supernatural forces with the institution of greetings. Divinatory practices were highly appreciated, and the Etruscans celebrated the mythical figure of a fortune-teller, Chalchas.

The oldest text known so far in the Etruscan language and associated with a religious context is the so-called bandage of the mummy of Zagreb, a linen bandage into which the mummified body of a woman had been wrapped. The said mummy is kept at the National Museum in Zagreb. The bandage (*liber linteus zagrabiensis*) has aroused special interest among scholars of writing research. The mummy originally came from Egypt, or from a tomb near Alexandria dating back to the Ptolemaic epoch. In 1849, Michael von Barich had acquired the mummy as an exotic travel souvenir and brought it to his hometown of Vienna. After Michael von Barich's death, his brother transferred the mummy to the national museum in Zagreb (Agram was the ancient name of Zagreb). The characteristic features of writing were then observed by numerous visitors to the museum and also by many researchers. A long period of discussion followed. Several hypotheses were advanced about writing, including speculations about hieroglyphs of the Egyptian language and later also Coptic, Libyan or Carian.

In 1892, Jakob Krall succeeded in identifying the text as Etruscan. The mummy bandage is 3.4 m long and 39 cm wide. The Etruscan text of the Liber linteus

> "is a linen fabric folded into an accordion which originally consisted of 12 columns, of 34 lines respectively. Until now about 1350 words have been identified, composed of some 400 different lexical units. The original document had been cut into strips which were then used to wrap an Egyptian mummy." (Facchetti 2008: 222)

This text written during the 3rd century BC contains instructions relating to ritual actions and linked to calendar dates (see van der Meer 2007).

The legal tradition of the Etruscans is quite well documented. In fact, a series of legal texts have been submitted, including official decrees and sales contracts (such as for example the Cortona table). The Etruscan term *zich* means both ‘text, written text’ and ‘book’. This term often appears as a formula, for example in the final formula confirming the well-known border stone Cippus Perusinus (found in 1822 near Perugia): *cecha zichuche* means ‘as it is written’ (Facchetti 2000: 176).

Judging by the clues found in the works of ancient authors, there was a rich tradition of texts in the Etruscan language, of which, however, only fragments have been preserved. When Roman historians later narrated about the Etruscans, their society, art, and religion, they still knew the sacred books written in the Etruscan language and containing the instructions for greetings. These were books

> “which established precise and known rules only thanks to their mention among the Roman and Greek writers of the imperial era: libri rituales (books of profane and sacred prescriptions), libri haruspicini (books of haruspicina), libri fulgurales (books on the science of lightning), libri fatales (books on destiny), libri archerontici (books on destiny in the afterlife).” (Sprenger/Bartoloni 1990: 14).

The best-preserved inscriptions are those engraved in stone on the walls of sarcophagi and memorial stones. On durable writing media such as these, some fragments of text from sacred books are also handed down. An example is represented by the writing roll part of a sculpture of the priest Iaris Pulena on the lid of his sarcophagus coming from Tarquinia. This priest wrote texts focussing on the art of divination, which consisted of examining the entrails of sacrificed animals. In addition, inscriptions are found on ceramic containers and on famous Etruscan bronze mirrors. The number of known Etruscan inscriptions exceeds 14,000.

The written culture as an achievement of civilization is celebrated on a bronze mirror of Volterra that dates back to the archaic age, in a scene taken from mythology. The goddess Uni (Juno) is represented while she is “adopting” the hero Hercules as her son by delivering him to her breast and breastfeeding him. A servant raises a board on which the following sentence is written: “eca sren tva ichnac hercle unial clan thrasce” (‘This image shows how Hercules became the son of Juno’).

The cultures of both the Greeks and the Etruscans were letter-oriented from the end of the 8th century BCE. At first, the culture of writing was limited to these two regions in northern and southern Italy. But it was not long before other regional cultures in contact with the Etruscans and Greeks also modernized their communication systems, by using writing to record their local languages. The greatest success story of written culture in Italy is without any doubt the adoption of the version of Etruscan writing by the Romans to write the language of their homeland, Latin. The reception of alphabetic writing began in the bi-cultural environment of Rome.

11.3. The Latin Alphabet

The adoption of Etruscan writing by the Latins and the formation of a written tradition for writing Latin was a prolonged process. The beginnings of Latin writing date back to the end of the 7th century BCE. The oldest written document is a tuff block with inscriptions on all sides. This stone, found in 1899 on the edge of the Roman Forum, due to its dark colouring, is called *lapis niger* (“black stone”) (see Briquel 2015: 147).

The references to the Etruscan mediation of writing to the Romans are pretty clear. These indications can be confirmed when investigating the type of writing of the first texts. The Etruscan influence becomes apparent, in different particularities, in the use of individual letters in combination with other characters (Haarmann 2019b, chapter 3). The repertoire of the archaic Latin alphabet included 21 letters: <A B C D E F Z H I K L M N O P Q R S T V X>. <G> was created and <Z> was deleted in the 3rd century BCE, <Y> was imported and <Z> re-introduced from Greek in the 2nd century BCE. Even if Latin was already a written language starting from 600 BCE, it took several centuries for it to become used regularly for written communication.

11.4. Germanic Runes

Germanic populations have been in constant contact with the world of writing since the beginning of the Common Era—mainly with Latin in the west and Greek in the east. Greek script and literature were the source of inspiration for the experiments in developing a writing system for the Gothic language. In the west, the Latin alphabet gave other Germanic peoples a model for the creation of runes. However, the creators of the Germanic runes did not simply follow the basic Latin script; rather, some peculiarities in the design of certain characters indicate a knowledge of the regional alphabets used in northern Italy to write pre-Roman languages. These script variants include some specific features from the Etruscan alphabet, which also served as a model for the Latin alphabet (Elliott 1996).

The Germanic runes were not directly derived from the Latin alphabet. However, it served as a model for writing Germanic phonology insofar as it follows the alphabetical principle that each sound should be represented by one letter. The sequential order of the runes, as documented in various sources, is unrelated to that of the Latin alphabet. The various rune systems are named after the order of their first six letters, and are therefore known as Futhark alphabets. The oldest runic alphabet, the Elder (northwest Germanic) Futhark, has a total of 24 characters (Haarmann 2020b: 321).

Unlike the simple designations given to the letters of the Latin alphabet, the Futhark runes have individual names that were taken from words whose initial sound corresponds to the phonetic value of the rune in question.

This runic alphabet originated in the 1st century CE and the oldest inscribed objects come from sites in southern Denmark and Schleswig Holstein in northern Germany. Inscriptions have been found scattered across large parts of Central and Western Europe, and this spread is most likely connected with the movements of Germanic tribes during the Migration Period. The earliest runic inscriptions are all fairly short and are associated with language used for magical incantations. They were originally inscribed on portable objects, whereas runic inscriptions on stone only date from the Middle Ages. As early as the 6th century, runes were also used for short messages carved onto sticks (called *rúnakefli* in Old Norse); however, most of these sticks date from the 12th century and later.

Elder Futhark runes are also known as Common Germanic, because they were shared by all Germanic peoples in the first centuries of the Common Era. With the emergence of the Younger Futhark in the 8th century, a radical change took place. It appeared in Denmark and was the first purely Scandinavian runic alphabet. However, its inventory of runes was considerably smaller: the Danish Futhark used only 16 characters. The oldest version of this runic alphabet is found on the Gørlev Stones. In southern Sweden, another variant of the Younger Futhark with a similarly reduced inventory was created: the Rök Runes, named after an inscription on the Rök Runestone (in Östergötland), dating back to the first half of the 9th century.

The final Scandinavian variant of the runic alphabet was developed in Norway, in the early 11th century. Known as Mediaeval Runes, it was an amalgam of the Danish and Swedish Futharks (Elliott 1996: 335f.). This Norwegian Futhark alphabet was spread by the Vikings far beyond the original settlement area of the Germanic peoples: to Russia in the east and to Iceland and Greenland in the northwest. No authenticated runic inscriptions have ever been found in North America. Claimed discoveries there are either controversial or have been exposed as forgeries.

Most runic inscriptions were composed in the Mediaeval Futhark (Sawyer 2000). These were mainly carved onto granite memorial stones or on boulders, which have survived due to their size and immovability. In the late Middle Ages, the Latin alphabet gradually replaced the Mediaeval Runes, although they were still used for calendar notation in some remote areas of Sweden up until modern times (Spurkland 2005: 152f.)

Variants of an insular runic alphabet were in use in Britain and Ireland. The Anglo-Saxon runic script had additional characters, initially 28 but later increasing to 31. This variant shows peculiarities in the character set (e.g. the "o" rune) that point to an origin in the Frisian region between the 5th and 7th centuries. The Anglo-Saxon runes were used both to inscribe objects (e.g. a 9th century sword found in the River Thames) as well as to write entire codices (such as a 10th century manuscript which still exists). However, the spread of Christianity in Britain limited the use of runes to commemorative inscriptions, riddles and writing names in manuscripts. Cynewulf, an early 9th century poet, used runes to sign his name on some of his poems.

The employment of runes to write magical invocations remained popular during the entire time that this script was in widespread use. The memory of this has been revived in modern times, and "magic runes" are an integral part of popular esoteric culture.

12. Outlook

The novel direction in writing research has sparked an incentive to stabilise a new framework for the constellation of writing systems in European antiquity. This means making efforts to engage in further comparative investigations regarding the overall network of communicative systems that formed in the pre-Greek era, with its manifold transmissions into Greek antiquity.

References

Ammon, Ulrich / Haarmann, Harald (eds.) (2008), *Wieser Enzyklopädie – Sprachen des europäischen Westens*, 2 vols. Klagenfurt: Wieser.

Anthony, David W. (ed.) (2009), *The Lost World of Old Europe: The Danube Valley, 5000–3500 BC*, New York: Institute for the Study of the Ancient World / Princeton etc.: Princeton University Press.

Arena, Renato (1996), "The Greek Colonisation of the West: Dialects", in: Carratelli 1996: 189-200.

Bennett, Emmett L. (1996), "Aegean Scripts", in: Daniels/Bright 1996: 125-133.

Bintliff, John (2012), "The Complete Archaeology of Greece: From Hunter-Gatherers to the 20th Century A.D.", Malden, MA & Oxford: Wiley-Blackwell.

Borić, Dusan (1999), "Places that Created Time in the Danube Gorges and Beyond, c. 9000-5500 BC", *Documenta Praehistorica* 26: 41-70.

Breyer, Gertrud (1993), *Etruskisches Sprachgut im Lateinischen unter Ausschluss des spezifisch onomastischen Bereiches*, Leuven: Peeters.

Briquel, Dominique (2015), "I Romani di fronte ai testi etruschi", in: *Gli etruschi – maestri di scrittura: Società e cultura nell'italia antica*, 145-153, Milano: Silvana editoriale.

Brodie, Nei, / Doole, Jenny / Gavalas, Giorgos / Renfrew, Colin (eds.) (2008), *Horizon: A Colloquium on the Prehistory*

of the Cyclades, Cambridge: McDonald Institute for Archaeological Research.
Brukner, Bogdan (2002). "Die Vinča-Kultur in Raum und Zeit", in: *Akademiya Nauka i Umyetnosti Bosne i Hercegovine, Godishnyak* 32: 61-103.
Budja, Mihael (2004), "The Transition to Farming and the 'Revolution' of Symbols in the Balkans: From Ornament to Entoptic and External Symbolic Storage", *Documenta Praehistorica* 31: 59-81.
Budja, Mihael (2005), "The Process of Neolithisation in South-Eastern Europe: From Ceramic Female Figurines and Cereal Grains to Entoptics and Human Nuclear DNA Polymorphic Markers", *Documenta Praehistorica* 32: 53-72.
Camporeale, Giovannangelo (2004), "Greci a Veio e nell'agro fallisco-carenate", *Annali della Fondazione per il Museo "Claudio Faina"* 11: 47-68
Carratelli, Giovanni Pugliese (ed.) (1996), *The Western Greeks: Classical Civilization in the Western Mediterranean*, London: Thames & Hudson.
Chadwick, John (1990), "Linear B and Related Scripts", in: *Reading the Past: Ancient Writing from Cuneiform to the Alphabet*, 137-195, London: British Museum Publications.
Chang, K.C. (1983), *Art, Myth, and Ritual: The Path to Political Authority in Ancient China*, Cambridge (MA) & London: Harvard University Press
Comrie, Bernard (2005), "Writing Systems", in: Haspelmath et al. 2005: 568-571.
Cooper, Jerrold S. (1996), "Sumerian and Akkadian", in: Daniels/Bright 1996: 37-57.
Daniels, Peter T. (1996), "The Study of Writing Systems", in: Daniels/Bright 1996: 3-17.
Daniels, Peter T. / Bright, William (eds.) (1996), *The World's Writing Systems*, New York & Oxford: Oxford University Press.
DeFrancis, John (1989), *Visible Speech: The Diverse Oneness of Writing Systems*, Honolulu: University of Hawaii Press.
Dreyer, Günter (1998), *Umm El-Qaab I: Das prädynastische Königsgrab U-j und seine frühen Schriftzeugnisse*, Mainz: Philipp von Zabern.
Duhoux, Yves (1981), "Les Etéocrétois et l'origine de l'alphabet grec", *L'Antiquité Classique* 50: 287-294.
Elliott, Ralph W.V. (1996), "The Runic Script", in: Daniels/Bright 1996: 333-339.
Englund, Robert K. (1996), "The Proto-Elamite Script", in: Daniels/Bright 1996: 160-164.
Facchetti, Giulio M. (2000), *L'enigma svelato della lingua etrusca*, Roma: Newton & Compton editori.
Facchetti, Giulio M. (2008), "Etruskisch", in: Ammon/Haarmann 2008/1: 221-235.
Fox, Margalit (2013), *The Riddle of the Labyrinth: The Quest to Crack an Ancient Code*, New York: Harper Collins.
Gimbutas, Marija (1991), *The Civilization of the Goddess: The World of Old Europe*, San Francisco: Harper.
Gnanadesikan, Amalia E. (2009), *The Writing Revolution: Cuneiform to the Internet*, Malden (MA) & Oxford: Wiley-Blackwell.
Green, Margaret W. / Nissen, Hans J. (1987), *Zeichenliste der archaischen Texte aus Uruk*, Berlin: Gebrüder Mann Verlag.
Haarmann, Harald (1992), *Universalgeschichte der Schrift*, 2nd ed., Frankfurt: Campus.
Haarmann, Harald (1995), *Early Civilization and Literacy in Europe: An Inquiry into Cultural Continuity in the Mediterranean World*, Berlin & New York: Mouton de Gruyter.
Haarmann, Harald (2008), "The Danube Script and Other Ancient Writing Systems: A Typology of Distinctive Features", *Journal of Archaeomythology* 4: 12-46.
Haarmann, Harald (2010), *Einführung in die Donauschrift*, Hamburg: Helmut Buske.
Haarmann, Harald (2011), *Writing as Technology and Cultural Ecology: Explorations of the Human Mind at the Dawn of History*, Frankfurt, Berlin, Brussels & New York: Peter Lang.
Haarmann, Harald (2019a), *The Mystery of the Danube Civilization: The Discovery of Europe's Oldest Civilization*, Wiesbaden: marix verlag
Haarmann, Harald (2019b), *Die Anfänge Roms: Geschichte einer Mosaikkultur*, Wiesbaden: marix verlag.
Haarmann, Harald (2020a), *Advancement in Ancient Civilizations*, Jefferson (N.C.): McFarland.
Haarmann, Harald (2020b), *On the Trail of the Indo-Europeans: From Neolithic Steppe Nomads to Early Civilizations*, Wiesbaden: matrix verlag.
Hannig, Rainer (1995), *Die Sprache der Pharaonen: Großes Handwörterbuch Ägyptisch-Deutsch (2800–950 v. Chr.)*, Mainz: Philipp von Zabern.
Haspelmath, Martin (eds.) (2005), *The World Atlas of Language Structures*, Oxford & New York: Oxford University Press
Healey, John F. (1990), "The Early Alphabet", in: Hooker 1990: 197-257.
Hooker, J.T. (1980), *Linear B: An Introduction*, Bristol: Bristol Classical Press.
Hooker, J.T. (ed.) (1990), *Reading the Past: Ancient Writing from Cuneiform to the Alphabet*, London: British Museum Publications.
Ilievski, Petar (2000), *Zhivotot na mikencite vo nivnite pismeni svedoshtva, so poseben osvrt kon onomastickite i prosopografski izvodi*, Skopje: Makedonska Akademija na Naukite i Umetnostite.
Jeffery, L.H. (1990), *The Local Scripts of Archaic Greece: A Study of the Origins of the Greek Alphabet and Its*

Development from the Eighth to the Fifth Centuries B.C., 2nd ed., Oxford: Oxford University Press.
Johann, Ulrich (2020), "Resurrection of Atlantis Minoica, Part 2", ms., preprinti. <DOI:10.13140/RG.2.2.22435.48161> (accessed 01-07-2024)
Jolivet, Vincent (2013), "A Long Twilight: 'Romanization' of Etruria", in: Turfa 2013: 151-169.
Keightley, David N. (1978), *Sources of Shang History: The Oracle-Bone Inscriptions of Bronze Age China*, Berkeley: University of California Press.
Kozlowski, Janusz K. (1992), *L'Art de la Préhistoire en Europe Orientale*, Milan: Presses du CNRS.
Lyons, William (1995), *Approaches to Intentionality*, Oxford: Clarendon.
Marchesini, Simona (2009), Le *lingue frammentarie dell'Italia antica. Manuale per lo studio delle lingue preromane*, Milano: Hoepli.
Marler, Joan / Dexter, Mirjam R. (eds.) (2009), *Signs of Civilization: Neolithic Symbol System of Southeast Europe*, Sebastopol (CA): Institute of Archaeomythology.
Martin, Henri-Jean (1994), *The History and Power of Writing*, Chicago: University of Chicago Press.
Maxim, Zoia / Marler, Joan / Crisan, Viorica (eds.) (2009), *The Danube Script in Light of the Turdas and Tartaria Discoveries*, Cluj-Napoca: National History Museum of Transylvania; Sebastopol, CA: Institute of Archaeomythology.
Merlini, Marco (2009), *An Inquiry into the Danube Script*, Sibiu & Alba Iulia: Editura Altip.
Parpola, Asko (1994), *Deciphering the Indus Script*, Cambridge & New York: Cambridge University Press.
Rehder, Peter (2012), *Einführung in die slavischen Sprachen*, 7th ed., Darmstadt: Wissenschaftliche Buchgesellschaft.
Reyes, A.T. (1994), *Archaic Cyprus: A Study of the Textual and Archaeological Evidence*, Oxford: Clarendon Press.
Robb, Kevin (1994), *Literacy and Paideia in Ancient Greece*, New York & Oxford: Oxford University Press.
Rudgley, Richard (1999), *Lost Civilisations of the Stone Age*, London & Sydney: Arrow Books.
Sampson, Geoffrey (1985), *Writing Systems*, London, Melbourne & Sydney: Hutchinson.
Sawyer, Birgit (2000), *The Viking-Age Rune-Stones: Custom and Commemoration in Early Medieval Scandinavia*, Oxford: Oxford University Press.
Schaaf, Gregory (1990), *Wampum Belts and Peace Trees: George Morgan, Native Americans and Revolutionary Diplomacy*, Golden (Col.): Fulcrum Publishing.
Sprenger, Maja / Bartoloni, Gilda (1990), *Die Etrusker: Kunst und Geschichte*, Munich: Hirmer.
Spurkland, Terje (2005), Norwegian Runes and Runic Inscriptions, Martlesham: Boydell Press
Swiggers, Pierre (1996), "The Iberian Scripts", in: Daniels/Bright 1996: 108-112
Thomsen, Marie-Louise (1984), *The Sumerian Language: An Introduction to Its History and Grammatical Structure*, Copenhagen: Akademisk Forlag.
Threatte, Leslie (1996), "The Greek Alphabet", in: Daniels/Bright 1996: 271–280.
Turfa, Jean Macintosh (ed.) (2013), *The Etruscan World*, Abingdon, Oxen & New York: Routledge.
van der Meer, L. Bouke (2007), *Liber linteus Zagrabiensis—the Linen Book of Zagreb: A Comment on the Longest Etruscan Text*, Louvain: Peeters.
Wachter, Rudolf (1989), "Zur Vorgeschichte des griechischen Alphabets", *Kadmos* 28: 19-78.
Winn, Shan M.M. (1981), *Pre-Writing in Southeastern Europe: The Sign System of the Vinča Culture ca. 4000 B.C.*, Calgary: Western Publishers.
Zinder, L.R. (1987), *Očerk obščej teorii pis'ma*. Leningrad: Nauka.

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