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**SOME KEY FEATURES OF THE DANUBE *HOMO SCRIBENS*
BASED ON THE DATABANK *DATDAS***

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From a regrettable error, this article has not appeared in the volume *Signs and Symbols from Danube Neolithic and Eneolithic*, published in Bibliotheca Brukenthal No. XXXV / 2009. We print it here, with our apologies to the author.

Key-words: *Neolithic, Danube script, databank.*

Abstract: *This presentation provides documentary and statistical evidence concerning the inventory, fabric, pattern of features and organizational principles of the Danube script established upon the results of the databank DatDas (Databank for the Danube script), especially created to document it. DatDas is set up on 818 objects, 953 inscriptions (some artifacts have more than one inscription), and 4,408 actual signs. As a main feature, DatDas records not only general and archaeological data concerning objects bearing signs (the site, information on the discovery, museum documentation data, relative and absolute dating, formal and techno-morphological information on the object, and so on), but above all, distinct semiotic information on the inscribed artifacts, the inscriptions, and the signs.*

The Danube civilization, the Danube script, and the Danube communication system

At the end of the nineteenth century and during the early decades of the last century, the presence of an ancient script in the middle and lower Danube basin was seriously maintained by distinguished archaeologists, historians, linguists, epigraphists, and philologists who spent much energy on this issue. Shards and objects found at Turdaş, Vinča and other Danube-Balkan settlements were clearly inscribed with signs of some sort of writing which led scholars to search for links between Southeastern Europe and the more “civilized” regions of Mesopotamia, the Levant, and Eastern Mediterranean areas. This assumption was consistent with their classical education and with the ideas prevailing at that time about the spread of cultures from the southeast to the north and west.

In the last decades, the appearance of reliable dating methods fixed these signs to the Neolithic and Copper Age. However, the concept of such early European writing was so unthinkable that the simple possibility of it was ignored and its evidence was given very scanty attention. Nowadays, the issue is up to date again in the form of an archaic, mainly logographic, script in use in Southeastern

Europe throughout the Neolithic and Copper Age time-frame (Haarmann 1990, 1995, 1998, 2002a, 2002b, 2008a, 2008b; Merlini 2001, 2002a, 2002b, 2004, 2006a, 2006b, 2007a, 2007b, 2008a, 2008b, 2008c, 2008d, 2009; Merlini and Lazarovici 2008; Winn 2008; Haarmann and Marler 2008).

The *Danube script* originally developed in the *Danube civilization* with its hub in the Danube valley and beyond. This study addresses some key features of the Danube script based on the databank of its inscriptions that the author is developing (*DatDas*, Databank of the Danube script). The term “civilization” is used by the author to indicate a complex society with overarching ideologies that possesses a high cultural core (see Yoffe et al. 2005: 253). “Danube Civilization” is an over-arching term for the Neolithic and Copper Age societies of Southeastern Europe that flourished from c. 6400 to c. 3500-3400 BCE (see Childe 1929; Haarmann 2002b: 17ff.; Merlini 2003). This terminology is coherent with the acknowledgment that the Danube River and its tributaries favored the emergence of an institutional, economic, and social network of developed cultural complexes, cultures, and cultural groups that shared several features over a wide territory. They were characterized by extended subsistence agrarian economies and lifestyles, urbanism, refined technologies (particularly in weaving, pottery, building and metallurgy), long distance trade involving status symbol artifacts, complex belief systems, sophisticated patterns of religious imagery, and effective systems of communication by means of symbols and signs (the *Danube Communication System*) which included the technology of writing.

The cultural horizon of the “Danube Civilization” is consistent with the challenge to demonstrate that “early civilization” status can no longer be limited to the regions which have long attracted scholarly attention (i.e. Egypt–Nile, Mesopotamia–Tigris and Euphrates, the ancient Indus valley), but has to be expanded to embrace the Neolithic and Copper Age civilization of the Danube basin and beyond. The script is an important mark of the high status of the civilization that flourished in Southeastern Europe (Merlini 2007b; Haarmann 2008a:12-13).

The over-arching terminology of “Danube script/Danube signs” includes what has been called the “Vinča script” and “Vinča signs” which has to be strictly limited to the Vinča culture that developed in the core area of the great Danube basin (Winn 1973, 1981, 2008: 126; Merlini 2004: 54). The connection of the inscribed signs with the Vinča culture that developed in the Middle Neolithic within the core area of the great Danube basin has a reasonably long history. However, it categorizes only a specific period of the Neolithic and Copper Age time frame, has provincial boundaries and does not evoke a clear geographical region. The Danube script has to be extended in time (from Early Neolithic to Late Copper Age) and in space (embracing the whole Southeastern Europe).

In particular, the area involved by the Danube script extends in Southeastern Europe from the Carpathian Basin south to the Thessalian Plain and from the Austrian and Slovakian Alps and the Adriatic Sea east to the Ukrainian steppe. It includes (in order of contribution to the experiment with writing), the modern-day countries of the Republic of Serbia, Kosovo, Romania, Bulgaria, Greece, Hungary, Republic of Macedonia (F.Y.R.O.M.), Ukraine, Czech Republic, Albania,

Germany, Slovenia, Slovakia, Bosnia and Herzegovina, Republic of Moldova, Croatia, Montenegro and Austria. This macro-region forms a relatively bounded and cohesive unit—although the geographic layout consists of several small and discrete micro-regions exploiting a distinct set of local resources that encouraged regional differentiation among the early farming societies (as well as among the lexicon and interpretations of the archaeologists).

The “Danube script” is an operational term that does not designate a unity of literacy that lacks documentary evidence. When *DatDas* reaches the needed critical mass of information, further investigation is required to assess the unitary frame called “Danube script” dealing with the distinct paths taken in the development of writing in the regional Neolithic and Copper Age traditions of Southeastern Europe. For example, both Hooker and Owens refer to the occurrence of “Balkan scripts” (Hooker 1992; Owens 1999: 116). Comparing the signs from the Gradešnica culture with those from the coeval cultures of Thrace or northwestern (former) Yugoslavia, Bogdan Nikolov expressed the conviction that just a few of them were alike. He concluded that every separate ethno-culture produced its own sign system responding to its tradition (Nikolov 1984: 7). Nevertheless, the veracity of this statement has to be demonstrated based on the understanding of the interconnections of sign use in the different cultural regions.

Up until now, regional and cultural subdivisions have been successfully, although prototypically, tested by the author in the creation of several sub-databanks. *DatTur* is established from the signs utilized by the Turdaş group (Merlini 2008c); *DatVinc* registers data on writing from the Vinča culture; *DatPCAT* records inscribed finds and inscriptions from the Precucuteni–Cucuteni–Ariuşd–Trypillia cultural complex evidencing a late script related to the Danube script (Merlini 2007c, 2008d).

However, criticalities are not only from the side of the cultural and territorial articulation of the script. The concept and trajectory of the Danube civilization have to be more suitably substantiated and it is vital to respond to scholars who negate the presence of a civilization in the Southeastern European Neolithic and Copper Age. It is first necessary to elaborate a clear definition of what ‘civilization’ means, in archaeological or anthropological terms, as well as to chose criteria and benchmarking indicators capable of testing the label of ‘civilization’ for the network of the farming communities in European prehistory.

Cycle of life and the territorial spread of the writing system

Although it is quite probable that the Danube script will remain undeciphered, it is possible to detect some features of its historical framework and semiotic code thanks to statistical work made practical by the dedicated databank *DatDas*. This databank organizes a catalogue of 5,433 actual signs recorded from a corpus of 1,178 inscriptions composed of two-or-more signs and 971 inscribed artifacts (some finds have more than one inscription) compared, when possible, to the original. Between 2001 and 2009, the author had the possibility to visit and examine many Neolithic and Copper Age collections of the Danube Civilization in the modern-day countries of the Republic of Serbia, Romania, Bulgaria, Greece,

Hungary, Republic of Macedonia (F.Y.R.O.M.), Ukraine, Czech Republic, Slovenia, Croatia, Germany, and Austria.

DatDas records c. 194,000 significant statistical data. It is the largest collection of inscribed artifacts belonging to the Danube Civilization and the most numerous corpus of inscriptions of the Danube script thus far assembled. The system consists of a database structure related to an interface software that makes it possible to view and query archaeological and semiotic information in an integrated fashion, including photographs and drawings.

The databank *DatDas* also records 219 settlements containing artifacts bearing inscriptions, substantiating the wide spread of the Danube script. With reference to geographic distribution, the signs of the Danube script are presently primarily found in the region bounded by Romania, Republic of Serbia, and Bulgaria concentrating together 80.55% of the total occurrences. Greece and Hungary follow. Due to the small territory, the contribution from the Republic of Macedonia (F.Y.R.O.M.) has been significant, although limited. The same, at a lesser scale, is for Kosovo. Findings from Ukraine, Czech Republic, and Albania are less numerous. Residual data comes from Germany, Slovakia, Bosnia and Herzegovina, Republic of Moldova, and Croatia. The input from Montenegro and Austria is quite insignificant.

The structured and statistically acquired set of data from *DatDas* leads to an original overview of the Danube script by setting up its cycle of life in sync with Neolithic and Copper Age cultural complexes, cultures and cultural groups of Southeastern Europe. Based on the chronological distribution of the corpus of the signs, one can outline the cycle of life of the Danube script according to six stages: *Formative stage* (c. Early Neolithic); *Accumulative stage* (c. Developed and Middle Neolithic); *Blooming stage* (c. Late Neolithic) when the script reached the peak; *Stamina stage* (c. Early Copper Age); *Fall stage* (c. Middle Copper Age), and *Eclipse stage* (c. Late Copper Age).

The Formative stage of the script

The Danube script was eminently a Neolithic affair. According to *DatDas* evidence, the earliest experiments with literacy originally appeared in the central Balkan area and had an indigenous development starting in Romania around 6000-5900 BCE in the Starčevo–Criș (Körös) IB, IC horizon—some two thousand years earlier than any other known writing. It happened within the frame of the classical white painted pottery-making communities characterized by a demographic boom, and spread over a broader region of the Balkans (Starčevo–Criș (Körös) horizon IB, IC, IIA and early Karanovo I). Remarkable examples from Gura Baciului, Bucova, Ostrovu Golu, Trestiana, Cenad, and Gornea (Romania) show how linear decorative incisions on early Starčevo–Criș (Körös) ceramics could have evolved in a short time into a linear writing (even if linear ornaments are only one of the start-up springboards of the Danube script). The experiment with literacy quickly spread along the Danube valley northward to the Hungarian Great plain, southward to Thessaly, westward to the Adriatic coast, and eastward to Ukraine. The script propagated quickly during the Starčevo–Criș (Körös) IIA phase, which changed

the evolution of the first stages of the Early Neolithic. This phase is characterized by a complex economy with dynamic agriculture, cattle and sheep farming, hunting and fishing, settlements made of surface dwellings (not only pit-houses), the development of pottery with complex shapes, such as cups and bucranium idols, and a variety of painting.

During the Early Neolithic, the signs of the Danube script are concentrated in the Starčevo–Criș (Körös) cultural complex for 76.9% of the total occurrences (including data when the distinct Early Neolithic culture is not specified). The Starčevo–Criș (Körös) cultural complex was not only the incubator of the script, but gave a significant contribution to it clustering 7.1% of the total amount of signs of the writing system. Another prominent Early Neolithic culture, Karanovo I (Bulgaria), accounts for 8.4% of the total frequencies. Anzabegovo–Vršnik III, in F.Y.R.O.M., reaches 1.8%. Limited is the involvement of Banat I (1.4%) in Romania, Sesklo III (1.0%) in Greece and Danilo (1.0%) in Croatia. The input to the formative stage of the Danube script from the Gălăbniț group (0.7%), of Bulgaria, is narrow. Developing as a successful social reproduction strategy for the communities, the Danube script progressed in sync with a gradual increase in social complexity and interaction among micro-regional settlement systems.

DatDas evidence connects the earliest stages of the Danube script to magic-religious liturgies and expressions of identity/affiliation. The sacral root is documented by miniaturized altars for worship belonging to the earliest stages of the Starčevo–Criș (Körös) (Paul 1990: 28, 1995, 2002 online; Gimbutas 1991: 313, figs. 8-9; Ciută 2001; Merlini 2004, 2005; Lazarovici Gh. 2006; Lazarovici and Gumă 2006) and Karanovo cultures. They possibly imitate the shape and inscriptions of monumental communitarian altars or shrines (Lazarovici C-M. 2003: 86: fig. 1.7). The expression of identity/affiliation is rendered by seals ascertained to be the more or less contemporary with Starčevo-Criș (Körös) IIA (Banner 1935: 9, pl. VIII 3-4, 1942: 24-25, pl. XVI: 3-4; Kutzián 1947: 83, pl. XLVI, 3a-b; Makkay 1984: 28, fig. 101) and Karanovo I cultures (Georgiev 1967: 97, fig. 17; Makkay 1984: 12-13; Kalchev 2005: 57; Lazarovici 2006: 341-366; Lazarovici and Lazarovici 2006). The twofold earliest occurrence of the script poses the possibility of a contrasting double function since its earliest phase—one in rituals, in order to support and convey communication with the divine sphere, and the other in daily life. Alternatively, are the seals carriers of magic-religious messages, too?

The pivotal role of the Vinča culture

If the experiment with literacy started mainly in the Starčevo–Criș (Körös) and Early Karanovo communities, it was subsequently developed in the Early Vinča culture which became the main gravitational center of the Danube script. The Accumulative stage of writing was carried by polychrome and dark burnished pottery communities, which, in order of literate significance, are: Vinča A, A/B and B in Serbia and Romania; Starčevo–Criș (Körös) IIIB-IVA and IVA-IVB; Banat I in Romania; Alföld in southern Hungary; Karanovo III in Bulgaria; LBK I

in Slovakia and Germany; Anzabegovo–Vršnik IV in F.Y.R.O.M.; Szákalhát in Hungary; and Linear pottery–musical notes in Hungary and Germany.

With a large spreading area, long duration, and dynamism, the Late Starčevo–Criș (Körös) and Early Vinča communities influenced the cultural and social evolution of a vast territory and contributed to the appearance of many other cultures, cultural groups, or local variants. It is not insignificant that the other two cultures with significant input for the Danube script experienced a long coexistence with them: the Banat I cultural group and the Gălăbniț II cultural group.

Throughout the Middle/Developed Neolithic, literacy improved its role as a key tool in social reproduction. For example, it developed as an important component of social reproduction strategies supporting the ancestry ideology of the kinship-based Neolithic society. This role is evidenced by the deposition of three inscribed tablets as the only intact artifacts among a pile of fragmentary objects in the ritual grave that consecrated an elderly and ill woman as a revered ancestor at Tărtăria–*Groapa Luncii* (Transylvania, Romania). In this instance, the script is strictly connected with cult and the social memory of a novel forebear, linking generations and possibly communities.

Concerning the utilization of writing technology, the Vinča culture was the most developed, the most lasting and territorially the largest in Southeastern Europe. Within the Vinča culture, an extensive number of settlements employed the Danube script. Literacy had its peak during phase B (5200–5000 CAL BCE), although a significant role was also played during phase A. Phase A is dated—according to stratigraphy, pottery typology and radiocarbon data—between c. 5400 and 5200 CAL BCE (Schier 1996: 150; Gläser 1996: 177; Mantu C.-M. 2000: 78, Lazarovici and Lazarovici 2003, 2006). Makkay and other scholars have stated that the Vinča culture applied pottery signs from the end of phase A until the very end of B2 phase (Makkay 1969: 12). This, however, is not verified due to the appearance of pottery signs in the earliest Vinča A stages, and their presence also in the C and D phases.

During the Accumulative stage of the script, the protagonism of the Vinča B and Vinča A cultures is followed by Banat II that settled in Romania (9.8%) on the high plains area of the actual region of Banat (Lazarovici and Lazarovici 2006). The radiocarbon data are placed in the interval of c. 5300–4950 CAL. BCE (Mantu C. M. 2000: 79), consistent with those established by R. Gläser (1996: 86) for the Vinča B culture (5200–4850 CAL. BCE)

The accumulative spread of the Danube script within a culturally interconnected core region is also documented by the significant presence of the Alföld culture in southern Hungary and Romania (6.3%). To a far lesser degree are contributions from Sitagroi II (4.7%) in Greece, Karanovo III (3.8%) in Bulgaria, and the Vinča A/B (3.7%) in the Republic of Serbia and Kosovo. They are followed by LBK I culture (2.6%) in Slovakia and Germany, Anzabegovo–Vršnik IV (2.1%) in F.Y.R.O.M., Szákalhát (2.1%) in Hungary, and Linear pottery–musical notes (1.9%) in Hungary and Germany, and Sarmar I (1.6%) in Romania and Hungary. and the Vinča A/B (4.3%) in the Republic of Serbia.

The Blooming stage of the experiment with writing

Throughout the Late Neolithic, far-reaching changes occurred in the social, cultural, and even ethnic makeup of Southeastern Europe with the emergence of new cultural complexes and groups. In the Vinča C, Turdaş, Gradešnica, and Karanovo IV and V horizon, literacy progressed and assumed the role of a key tool for social reproduction, reaching the greatest variety and richness.

The Blooming stage of the Danube script was sustained at first by Vinča C settlements, which concentrated about one third of the signs belonging to this period. In addition, the pivotal role of Vinča C revolutionized the spreading model of the script settled during the previous stages with a resolute extension towards the south, substantially involving the Bulgarian and Greek territories. This trend is connected to the social, economic, and cultural upheaval that some scholars call “Vinča shock” due to successive migrations from the south with several intermediate stages (Lazarovici Gh. 1979: 118, 137, 1987, 1994; Kalmar 1991: 124 ff.).

The second gravitation center of writing was the Turdaş culture, with a 22.8% concentration. It had its genesis on a Vinča B foundation implanted with Vinča C1 elements established in southwestern Transylvania and in the basin of the medium course of the river Mureş. *DatDas* provides evidence that the Turdaş settlement participated in a leading position in the development of the system of writing during its booming period.

The input from the third pillar in the flowering of the system of writing was much more limited: the Karanovo IV–Kalojanovec culture in south-central Bulgaria (10.5%), which has exhibited correspondences in Precucuteni I from Moldavia and Eastern Transylvania (C.-M. Lazarovici and Gh. Lazarovici 2008). The fourth developing column was the Tisza–Herpály–Csöszhalom complex, settled principally in Hungary, but also in Romania (5.1%).

The wide territorial distribution of the Danube script, the differentiation in function with occurrence also beyond the sacred sphere, and the growing capability to connect and distinguish communities through regional gravitations of writing are strong indicators of increasing complexity in the Southeastern Europe throughout the Late Neolithic.

The Stamina stage of the script

The Stamina stage (c. Early Copper Age) was a resistance period for the system of writing within an economic socio-cultural framework that reached a high degree of civilization equal to that one of the Eastern Mediterranean basin. However, the peripheral position and the beginning of attacks and intrusions from the less advanced neighboring populations from the eastern steppe led to a decrease in the rhythm of evolution (Luca 2006a: 45). If it was a declining phase, however it was still vital, with 18.8% of the totality of the signs.

During the Stamina stage, the main gravitational center of the Danube script was the Bulgarian Gradešnica–Brenica, which settled in northwestern Bulgaria. This culture was characterized by extensive utilization of the script as well as

engraved abstract geometric ornaments forming spiral-meander motives often incusted with white or red paint. The Gradešnica “tablet or plate” and coeval artifacts have been considered by Bulgarian literature to be the first written record in human history: the “Gradešnica–Karanovo writing” (Georgiev 1969: 32-35; Nikolov and Georgiev 1970: 7-9, 1971: 289). However, even if most of the authors consider the famous Gradešnica find as a tablet or a plaque, dazzled by a first view of its shape and aligned signs along reading rows (Winn 1981: 210; Renfrew 1973: 177; Masson 1984: 108), nonetheless it is actually a little, rounded shallow receptacle with evident lips and two holes for suspension (Gimbutas 1991: 313 fig. 8-12). My semiotic investigation—which revises the published signs and publishes the totality of the signs occurring on the internal and external lips of the little Gradešnica tray (Merlini 2005, 2006a)—establishes that the outside face of the artifact appear to contemporaneously employ two communication channels: the iconic symbolism of a stylized pregnant Moon which is “oranting through dancing with movements directed toward the four corners” (Merlini 2006a) and an inscription surrounding it depicting constellations.

The inside of the Gradešnica flat receptacle bears a long inscription that, according to the majority of scholars, is divided into four horizontal registers (Nikolov 1974; Masson 1984; Todorova 1986). However, if one looks at the stylized humanoid on the outside of the vessel and turns it, one can see that the signs on the inside are actually aligned vertically and not horizontally (Čohadžiev 2006: 72.)³ The large majority of the signs incised on the front of the Gradešnica platter can be included in the inventory of the Danube Neolithic and Copper Age script. The author accepts with reserve V. Nikolov’s interpretation that they make up a schematic model of the lunar circle (not a lunar calendar), where its four phases are embodied in the four columns (V. Nikolov 1990).

The Gradešnica–Brenica culture was followed by the Gradešnica–Slatino I–III culture (11.0%). Therefore, the Vraca region was the leading centre of the Stamina stage of writing technology. The Gradešnica–Slatino I–III culture developed the script in parallel to an exceptional variety and elegance of ceramic forms (such as the amphorae with plane handles and fruit-dishes on high legs) and rich graphic ornamentation. The system of writing spread in southwestern Bulgaria along the river Struma as well into northern Greece. S. Čohadžiev connects the emergence of the need to encode information in a “pre-script” form to intensive contacts in western Bulgaria and the inception of primitive pre-state formations, an institutional configuration likely born through the union of tribes (Čohadžiev 2006: 71).

At a lesser extent, throughout the Early Copper Age writing technology was spread in other leading cultures. It was first present in the Precucuteni–Trypillia A of Romania, Republic of Moldova and Ukraine (9.0%), where a related script

³ The in column layout has been strangely judged by several scholars as a written text structured with supposed guidelines for a literate religious adept. The author’s studies provide documentary evidence on how the vertical alignment of the signs was employed in other inscriptions of the Danube script following a widespread feature of other ancient writing systems.

possibly developed (Merlini 2004, 2007c). The number of recorded script signs and their combinations is nearly 100. They are enough to postulate the presence of a script, but not enough to detect the complete sign inventory. However, the inscribed objects are sufficient to refute the hypothesis that the Moldavian populations reproduced imported signs of writing just for magical purposes, without reading them or realizing their communicative value. The prominent use of script signs on cultic objects implies their association with a belief system and religious ceremonies. The Precucuteni–Trypillia A (18.2%) was established in Romania, Republic of Moldavia and Ukraine. About 79% of the Precucuteni–Trypillia A signs are correlated with those from the Danube script. Any parallelism with early Mesopotamian writing appears weak for chronological and graphic reasons. First, the Precucuteni–Trypillia A sign system predated similar trends in Mesopotamia by almost a millennium. Second, there is no substantial convergence in sign shapes. Preliminary statistical evidence on the script supports the Balkan origin of the Precucuteni–Trypillia A phenomenon in Boian III-IV and Marița I-III communities, which merged with the Linear ceramic tribes of Moldavia and the Starčevo-Criș (Körös) cultural complex. These were subjected to significant influences from Vinča and Hamangia cultures and sporadically from the southern Bug culture.

To sum up, the working hypothesis is that the Precucuteni–Trypillia A script was cognate of the Danube script and originated from it. Through time and according to a drift from west to east, two active centers with strong connections developed close and related sign systems in the Danube basin and in the Moldavian–Ukrainian region. The subsequent Cucuteni A1-A2 phase is correlated with the Precucuteni III and Gumelnița A1-A2 (C.-M. Lazarovici and Gh. Lazarovici 2006).

Writing technology is an attribute that can easily fit in well with the type of civilization that flourished in Copper Age times on the eastern border of the Danube civilization. Distinctive attributes of the Precucuteni–Ariușd–Cucuteni–Trypillia cultural complex are a highly productive mass farming system, a large number of proto-cities (i.e., fortified and mega-size settlements with a planned layout),⁴ an elaborate architecture for community dwellings and cult buildings, a semi-hierarchical organization of society, a sophisticated religion, the smelting and the forging of metal, the mass movement and control of raw materials such as salt, flint and copper, strong trade over long distances, a system of calculation, a careful observation of the movement of celestial bodies, and messages on pottery through multicolored symbols. These communities used clay tokens—the same as in Mesopotamia.

The fourth pivotal role was played by the Vinča D culture (7.8%), settled mainly in the Republic of Serbia and partly in Romania as the evolution of Vinča C and the final phase of the Vinča group at a reasonable date of 4700-3500 CAL BCE. Nearly half of the inscribed objects are anthropomorphic statuettes. All of them are from the eponymous settlement of Vinča. In most cases, they have an

⁴ See Šmagli 2001 concerning the settlements of the Uman area.

unknown gender. When it is known, it is female. The Vinča D culture was followed by the Gumelnița A (6.0%) and the Boian Giulești plus Boian–Poljanica (4.5%) in Romania. They have been distantly followed by the Petrești culture (3.3%) in Romania, Lengyel in Hungary (3.3% resulted by Lengyel I 2.2% and Lengyel II 1.1%).

The cultures of the Fall and Eclipse stages of *ars scribendi*

The Danube script flourished up to about 3500 BCE, when a social upheaval took place. According to some, there was an intrusion of new populations, whilst others have hypothesized the emergence of new elites. At that time, the Danube script was eclipsed and was later to be lost. The drop in the magnitude of sign use was articulated by two stages. The first was represented by a general Fall (c. Middle Copper age). In the second, the Eclipse stage (c. Late Copper age), the collapse was actually quite abrupt. The Fall stage records around 3%. In the Eclipse stage, the collapse was actually abrupt: 1.7%.

During the Middle Copper Age, the Danube script appears in three horizons: The Karanovo VI–Gumelnița–Kodžadermen cultural complex (mainly in Bulgaria, but also in Romania), the Cucuteni A3–A4–Trypillya B (in Ukraine), and Coțofeni I (in Serbia). The first, rates 68.6% of the frequencies; the second, rates 24.2%; and the third, rates 7.6%.

In the Late Copper Age period, known as transitional to the Bronze Age, the Danube script endured principally in the Cucuteni AB–B–Trypillia C culture (38.8%) in Romania and Ukraine. The other three resisting “Fort Alamos” were the Coțofeni II (17.5%) in Serbia, the Kostolac culture (15.6%) in Serbia and, between c. 3500–2600 BC in central and southern Romania, and the Varna II–III (10.7%) in Bulgaria.

The Danube script fits a network model of civilization

DatDas records 219 settlements where the Danube script is present. Data suggest different production intensities of literacy and the positioning of settlements in the circulation of the script. The Southeastern European script has been developed through a model of civilization far from the traditional state-bureaucratic political centered prototype, being based on a network of nodes composed of settlements (within micro-regions) that shared the same milieu with different levels of authority keeping the social systems stable.

The state-bureaucratic model is well known from the Mesopotamian tradition since Sumerian times. It is a system of hierarchal and centralized authority hinged on state organization, urban agglomerations with a centered layout acting as cultural centers, social class stratification and the presence of an elite, temple economy, and bureaucratic affairs. This was the environment of the distinctive pictographic script in ancient Sumer (Crawford 1991: 48 ff.; 193 ff.). Therefore, the traditional perspective considers statehood, centralized political leadership, hierarchies of authority, and a stratified society to be essential and general features for achieving civilization, i.e., a higher organizational level of

cultural development that includes writing technology. Within this model, *ars scribendi* does not guarantee statehood, however it is an obliging ingredient and supportive device. Traditionally the Mesopotamian state-bureaucratic model is believed to be the original setting for the dawn of civilization and literacy to which all the other regions had to conform. See, for example, the Indus civilization which “because of its scale, urbanism, iconography and other attributes . . . has been forced into the classificatory straightjacket of ‘state’ or even ‘empire’” (Maisels 1999: 220). Alternatively, see the narration of the dawn of writing technology in Minoan society (Godart 1992).

Crossing territorial and chronological data, *DatDas* provides documentary evidence that in the Neolithic and Copper Age of Southeastern Europe a civilization emerged that was organized as a network of nodes along political-institutional, socio-economic and cultural spheres. In contrast to the state-bureaucratic model, the historical situation that produced the Danube script was similar to the Harappan civilization in the ancient Indus valley. Maisels (1999) utilizes the term *oecumene* to define a society that is the opposite of a “territorial state” and synonymous with a commonwealth in the sense of an “economically integrated commerce-and-culture area.” The Danube civilization qualifies as an *oecumene* in the sense that the interconnected cultures within Southeastern Europe composed a “disparate, overlapping and interactive sphere of authority: economic, political, religious and, only derivatively, territorial” (See Maisels 1999: 236-7, see also 224, 226, 252 ff.). Haarmann was the first to utilize this concept for the Danube civilization (Haarmann 2003: 154 ff., 2008a: 26-7).

What do we know about the synchronic and diachronic relationship between settlements in the Danube civilization? Some paradigms taken from social network analysis can be usefully applied to describe, analyze, and explain the relations between them. A social network is defined as a specific social structure, community, or society made of linkages among a definite set of nodes or *actors* (i.e., discrete individual or collective social units linked to one another by social *ties*) (Mitchell 1969: 2). The social network perspective focuses on structured connections among entities and not on the attributes of the units assumed to be independent actors. The aim of this kind of analysis is to discover and explain the structure of a given network indicating the ways in which actors are connected (Schweizer 1996: 166; Wassermann and Faust 1994: 17; Scott 2000; Speck 2007).⁵

Utilizing correspondence analysis of territorial spread and chronological sequence of the Danube script, a civilization emerged which was organized as a hierarchical and multi-mode network of nodes along three spheres: political-institutional, socio-economic and cultural. The network or *oecumene* model of the Danube civilization—as appearing from the standpoint of the script within the frame of social network analysis—centers on features of (a) a web of politically ranked urban centers and micro-regions; (b) a socio-economic *oecumene*, i.e., an economically integrated commerce-and-culture area (see Maisels 1999: 236-7,

⁵ See Classen 2004 in terms of the application of this analytical approach on communication networks between settlements of the Bandkeramik in the Rhineland.

224, 226 for the general concept; Haarmann 2003: 154 ff., 2008a: 26-7; and 2008c), a common cultural koine.

The five-range hierarchical and decentralized network of literacy

The first feature, the political-institutional frame, was based on a network of political authority, piloted by leading settlements as well as cultural macro- and micro regions. Settlements are the key actors; macro- and micro regions are the groups and subgroups that collected all actors on which ties are to be determined from the point of view of literacy. The Danube script developed along a five-range hierarchical network based on exchange relationships for mutual political advantage. Pivotal settlements, such as Vinča (Republic of Serbia) and Turdaș (Romania), elaborated the innovation and had a wide area of radiance, while intermediate settlements may have developed regional variants. Micro-regional settlements were nodes at a district level. Local sites were likely regular users of the sign system, and subsidiary nodes may simply have been sporadic exploiters of the sign system.

The script developed and spread according to a model where major centers from the region, using the Danube River as a backbone for water-based mobility, elaborated the innovation and then irradiated it into the hinterland. The primary nodes of the script network were (in order of importance) Vinča and Turdaș, which were also pivotal in connecting trade routes and technological development along the Danube and its tributaries.

The regional sites were (in order of signs production) Gradešnica (Bulgaria), Jela (Republic of Serbia), Parța (Romania), Nova Zagora–Hlebozavoda (Chlebozavoda) (Bulgaria), Sitagroi (Greece), Slatino (Bulgaria), Višac–At (Republic of Serbia), Borovan and Kurilo (Bulgaria), and Donja Branjevina (Republic of Serbia).

Sites of micro-regional relevance were Brenica (Bulgaria), Dimini and Paradimi (Greece), Trestiana and Rast (Romania), Dispilio (Greece), Gornea, Măgura, and Ostrovu Golu (Romania), Ovčarovo (Bulgaria), Zorlenț (Romania), Čoka-Kremenyák and Mezökövesd-Mocsolyás (Hungary), Banjica (Republic of Serbia), Glăvăneștii Vechi and Vitănești (Romania), and Lepenski Vir (Republic of Serbia).

The most significant sites of local relevance are listed by country:

Rep. of Serbia: Medvednjak, Potporanj, Selevac, Divostin, and Drenovac;

Romania: Daia Română Tărtăria, Târpești, Ocna Sibiului, Isaiia, Balaci, Fratelia, Pișcolt, Scânteia, and Iclod;

Bulgaria: Chelopechene–Obreshka, Baurene, Capitan Dimitrievo, Slatina, Sapareva banya, Lukanovo darvo, Hotnitsa–Kaya Bunar, Durankulak, Azmashka, Kovačevo, Karanovo, and Samovodene;

Greece: Dikili Tash, Giannitsa, Dimitra, and Sesklo;

Hungary: Kőkénydomb, and Öcsöd–Kováshalom.

F.Y.R.O.M.: Anzabegovo and Osinchani.

Ukraine:	Čapaevka and Aleksandrovka.
Czech Republic:	Mohelnice.
Kosovo:	Fafos.

Some final sites of local relevance are Vésztò–Magor, Lozna, Bazovets, Gorna Beshovitsa, Suplacu de Barcău, Cifer–Pác, Drama–Merdzhumekja, Ballenstedt, Suceveni, Hotărăni, Gomolava, Bina, Butmir, Hotnitsa–*Orlovka*, Kisunym–Nádasi, Sé, Aszód, Valač, Ribnjak–Bečei, Vršnik, Battonya, Győr Szabadret, Szegvár–Türköves, Kisköre, Valea Nandrului, Tangâru, and Lepenska potkapina. The other settlements were sporadic exploiters of the sign system.

Expanding upon the subject of the hubs of the Danube script, a corpus of 704 signs is attributed to Vinča. These signs belong to the long period spanning the Accumulative stage to the Stamina stage.⁶ The Blooming stage and the Accumulative stage provided the most evident, and equivalently significant, contributions. During the Stamina stage, the script concentration declined, subsequently leading to an abrupt eclipse. At Vinča the most frequently inscribed objects are human figurines: 29.4% of the total. About 51.3% of them belong to the Late Neolithic, 25.0% to the Middle/Developed Neolithic and 23.7% to the Early Copper Age. In 50% of the cases, the anthropomorphic representations are asexual or have not distinct gender features. In 33.1% of the instances, gender is unknown. Only 15.1% of the figurines show clear female attributes. The contribution from potshards is 21.5%. The number of findings for mignon altars/offering tables is also significant: 16.2%. The signs are usually inscribed on their walls. The input from miniaturized vessels, which are mainly inscribed on the rim/upper body, is 9.0%. A fourth kind of inscribed artifacts are vessels, 6.1%, which are always inscribed on the rim/upper body. Residual contributions have come from animal figurines (2.9%) and plate-tablets (1.7%). *DatDas* has no record of any altar, spindle-whorl or amulet bearing signs from Vinča.

Turdaş lists 537 signs (9.9% of the *montant global*), all concentrated in the Blooming stage of the script. In the Late Neolithic, Turdaş acquired a starring leading role, accounting for 22.2% of the signs, whereas Vinča was subjected to an evident crisis and fell to 7.9%. The Turdaş culture played a pivotal role in the blossoming and spread of literacy in Neolithic and Copper Age Southeastern Europe, but was not in the genesis of it.

A comparison of the occurrence figures of the Turdaş and Vinča signs yields significant results, because at Turdaş, the range of the inscribed artifacts is much wider than at Vinča although 41.3% of the signs are concentrated on potshards. The contribution from spindle-whorls is 20.9%. The input from anthropomorphic figurines is 8.2%. In 29.6% of the instances, they are asexual or without distinct sexual attributes; in 27.3%, they have obvious female features; in 15.9%, they show a male aspect. For the remaining figurines, sex is unknown. Signs have been found to a lesser degree on mignon altars/offering tables (4.5%), mignon vessels (4.3%), those with inscriptions on their walls (54.2%) and legs (45.8%). Less

⁶ *DatDas* inserts the Vinča A stage in the *Accumulative stage* of the Danube script.

numerous are the contribution from amulets (3.9%), vessels (3.9%), and zoomorphic figurines (3.2%). At Turdaş, the presence of the Danube script on weights (1.7%) and altars (0.4%) is residual.

Concerning the sites of regional significance, Gradeşnica has contributed a corpus of 250 signs. They are all from the Stamina stage of the system of writing and belong to the Gradeşnica–Brenica (4800–4700 BCE) and Gradeşnica–Slatino I–II (4800–4600 BCE) cultures. About 34.6% of the signs are clustered on potshards (half way between Vinča and Turdaş). The number of findings for mignon altars-offering tables is also significant (19.6%). About 75.5% of the signs are present on their walls; 24.5% on the upper surface. The input from spindle-whorls (14.0%) is also significant, while human figurines rate 7.6%. All the figurines have obvious female features and bear signs on chest (41.1%), arms (31.6%), and neck (26.3%). Less numerous is the input from vessels (7.3) which bear signs on the rim/upper body area. At Gradeşnica, significant is the contribution in sign of a single artifact: the famous shallow receptacle bearing a synodic and sidereal lunar cycle calendar: 19.2%

Jela represents a corpus of 231 signs. All were present exclusively in the Blooming stage of the Danube script. About 32.9% of the inscribed artifacts are potshards. Human figurines accumulate 10.8% of the frequencies. In 88.0% of the instances, they have a clear female gender and are inscribed mainly on the chest, while the input from spindle-whorls is 8.7%.

The input from Parţa is less copious, with a corpus of 164 signs. Their range of occurrences is found remarkably from the Formative stage of the Danube script until the Blooming stage. Their distribution in time occurs 48.2% in the Accumulative stage, 32.9% in the Blooming stage, and 4.9% in the Formative stage. At Parţa, the Danube script has deep roots and a long-lasting utilization of literacy, especially considering the fact that here it was restricted to the Neolithic. Vessels contribute about 40.1% of the signs. In the Middle Neolithic Banat II, signs are inscribed mainly on the area near the base. In the Late Neolithic Banat III, if they are still engraved on this part, most of them cluster on the rim/body area. Potshards record 13.1%. Less numerous are tablets-plates (10.2%).

Nova Zagora–Hlebozavoda has 149 signs. Here the Danube script has deep roots, too. The distribution in time of the signs is 69.8% in the Blooming stage of the script (Karanovo IV–Kalojanovec culture),⁷ 15.4% in the Accumulative stage (Karanovo III), and 14.7% in the Formative stage. Peculiar of Hlebozavoda are cultic artifacts oval in shape and with an oval section or almost rectangular to slightly trapezoid shape with an oval or elliptical section. They gather 55.7% of the signs. Significant are also anthropomorphic figurines (20.1%). About 73.3% of them have a female gender and bear signs on the front and abdomen-belly. About 26.7% are male and are inscribed only over the front. The script was also massively present on cultic discs: 12.1%. About 10.1% of the artifacts that are bearing signs regard zoomorphic representations, engraved on the chest and neck.

Sitagroi has a corpus of 129 signs, all from the Blooming stage of the Danube script. About 38.0% of the signs are clustered on mignon altar/offering

⁷ See 9.C.d “The script on the Karanovo IV–Kalojanovec figurines.”

tables, with walls that are always inscribed. They are followed by spindle-whorls (24.0%). Inscribed cylinders (16.3%) constitute a distinct feature from Sitagroi. Anthropomorphic figurines represent 15.5%. When the gender is known, it is female. However, the presence of statuettes without clear gender attributes is high. The contribution from dwelling models and potshards is marginal.

Slatino lists 127 signs from the Stamina stage of the Danube script. Human figurines are the most frequently inscribed artifact (35.4% of the totality of the signs). They are concentrated in the Gradešnica–Brenica culture and have mainly asexual features. In 95.6% of the instances, they are inscribed on the front. The remaining figurines are inscribed on the hips. The Danube script was also massively present on mignon altars–offering tables (24.3%), even if restrictedly to the Gradešnica–Slatino I-III assemblage. In all the cases, they bear signs on their walls. Inscribed potshards rate 14.8%. They occur only in the Gradešnica–Slatino I-III assemblage and are always from the base-bottom of the pots. The presence of the script on ovens (7.8%) and mignon vessels (6.1%) was much less. They occur only in the Gradešnica–Brenica culture and are always from rim/upper body area. The input from seals (4.3%) and spindle-whorls (3.5%) was much more limited.

Vršac–At gathers a corpus of 117 signs, which occur mainly in the Blooming stage of the script, in the Vinča C culture. There is additional sporadic evidence during the Formative stage of the script, in the Starcevo–Cris (Körös) IIIA phase. Signs occurred primarily on potshards (63.2%). In 48.6% of the instances, they are inscribed on the rim/upper body area, in 36.1% on the area near the base, and in 15.3% on the base/bottom. The Danube script was also massively present on mignon altars–offering tables: 21.9%. They all belong to the Late Neolithic Vinča C culture. About 76% of the signs are incised on walls, and 34% on legs. Vessels cluster 8.8%. They all belong to the Vinča C culture and their inscriptions are restricted to the base-bottom. The contribution from zoomorphic figurines (6.1%) is less numerous.

The archaeological site located 3 km. northeastwards from the village of Borovan gathers 111 signs, occurring restrictedly in the Blooming stage of the script (Gradešnica–Brenica culture). They are massively clustered on human figurines: 92.8. In 68.0% of the instances, human representations have obvious female features. In the last instances they are without distinct gender attributes. The signs occur over a wide range on anatomic parts: chest (28.6%), back (21.4%), legs (20.0%), abdomen-belly (10.0%), front (10.0%), and hips (2.9%). The human representations of unknown gender are inscribed restrictedly on legs and hips.

Kurilo contributed 100 signs, all from the Blooming stage of the Danube script. They are concentrated in the Karanovo IV–Kalojanovec culture of south-central Bulgaria. According to Todorova, Kurilo yielded Middle and Late Neolithic pictograms (Todorova 1986: 210, Pl. 115). The signs are clustered on human figurines (63.0%). About 60.3% of them have a female gender. The signs occur over a wide range on anatomical parts: back (44.7%), legs (23.7%), chest (21.0%), abdomen-belly (5.3%), and sex (5.3%). Anthropomorphic representations are followed by plate/tablets (17%). Potshards record 15.0%, and are always inscribed on the rim/upper body area. The input from zoomorphic figurines (4%) is limited.

Donja Branjevina gathers 90 signs, all clustered in the Formative stage of the script. C. 92.2% are concentrated on miniaturized altars. At Donja Branjevina the presence of the script occurs only in the Early Neolithic. Parța, Nova Zagora–Hlebozavoda and Vrșac–At are characterized by continuity in literacy throughout the Neolithic. Vinča and Sitagroi have script signs throughout the Developed/Middle and Late Neolithic. During the Blooming stage of the Danube script, the production of signs was most significantly associated with the hub of literacy that became Turdaș. Besides, the roles of Jela and Kurilo came to be increasingly important. However, all these main centers assembled signs exclusively in the Blooming stage of the script. Even Sitagroi reached the peak in sign production during this period. Gradeșnica, Borovan and Slatino are the key literate settlements of the Stamina stage.

DatDas provides documentary evidence for the assertion that—even if the pivotal role in the coinage of literacy was played by major cultural centers—the Danube script was not confined to these centers due to intense cultural networking. The influence of pivotal cultural agglomerates irradiated far into adjoining regions, identifying a wide literate wave that had the Danube valley as its axis. This wave of sign use propagated northward to the Hungarian Great plain, southward to Thessaly, westward to the Adriatic coast, and eastward to Ukraine. Writing was also a highly decentralized experiment, spreading in peripheral areas and communities. The average presence of signs was even high in non-central villages (see some observations in Haarmann 2008a: 26). Any settlement that participated in the collective experiment with writing gathered, on the average, 24.9 signs as units of two or more sign inscriptions. This trend makes it evident that, within such settlements, the writing system was not a vacillatory “candle in the wind,” but sent down strong roots and had a strong local power base. However, few settlements played an enduring role in the development of the Danube script.

Gravitational centers of literacy: rapid turnover vs. consistency

To summarize, the model of literacy networking based on the Danube script was hierarchical, intense, broadly used in a wide area, decentralized, and strongly rooted. However, as documented below, few settlements played an enduring role in the development of the Danube script. Expanding upon the subject of the continuity/discontinuity among the influential settlements, the Danube script was present throughout the Neolithic only at Parța and Nova Zagora–Hlebozavoda. However, at Parța the main concentration of signs was in the Developed/Middle Neolithic, whereas at Nova Zagora–Hlebozavoda it was in the Late Neolithic. Throughout the Neolithic, *ars scribendi* occurred with some gaps at Vinča, Sitagroi, Vrșac–At, Dimini, Paradimi, Zorlenț, Čoka–Kremenýák, Banjica, Tărtăria, Slatina, Anzabegovo, and Sesklo. Literacy was present at none of these during the Copper Age. Azdashka is the only site of significant size with writing technology in the Early Neolithic and Early Copper Age.

DatDas substantiates Donja Branjevina, Lepenski Vir (Republic of Serbia) and Gornea, Ostrovu Golu, Trestiana, Glăvăneștii Vechi, and Ocna Sibiului (Romania) as key sites for the start-up of the system of writing. Nonetheless, after

the Early Neolithic there were no more traces of the script at these settlements and in many cases of the village itself. Sesklo in Greece, Kovačevo⁸ in Bulgaria, near the Greek border, and Ribnjak–Bečei, Republic of Serbia, are other sites that concentrated significant occurrence of the script exclusively during the Early Neolithic. Between the Early Neolithic and the Developed/Middle Neolithic the script was continuously utilized only at Parța, Nova Zagora–Hlebozavoda, Anzabegovo, and Porodin.

From the Developed/Middle Neolithic and the Late Neolithic the script seems to have had a stronger center of gravity, maintaining permanence at Vinča and Banjica in Serbia, Parța, Zorlenț, and Tărtăria Pișcolt, and Zorlențu Mare in Romania, Nova Zagora–Hlebozavoda and Samovodene in Bulgaria, Sitagroi, Dimini and Paradimi in Greece, Čoka–Kremenyák in Hungary, and Fafos–Mitrovica in Kosovo (which continued also in the Copper Age).

During the Accumulative stage of the Danube script, the pivotal role was played by Vinča, where the system of writing lasted until the Stamina stage. This feature is coherent with the archaeological record according to which in the areas with presence of carriers of the Vinča A culture this civilization had a longer life, until the Copper Age. At Parța the script reached its acme during the Accumulative stage, however it was present during the previous and subsequent stages. At Nova Zagora–Hlebozavoda the script reached its peak during the Blooming stage, however it was present during the previous stages. The script remained continuous from the Developed / Middle Neolithic through the Late Neolithic in a limited number of settlements. Vinča, Parța and Nova Zagora–Hlebozavoda apart, in order of significance they are Sitagroi, Dimini, Paradimi, Zorlenț, Čoka–Kremenyák, Banjica, Tărtăria, Pișcolt, and Samovodene. However, while at Tărtăria the presence of the Danube script was higher in the Developed and Middle Neolithic than in the Late Neolithic, at Zorlenț the presence of the script remained continuous. At Sitagroi, Dimini, Banjica, Pișcolt, and Samovodene the script was more performing in the Blooming stage than in the Accumulative stage. Paradimi and Čsoka clustered the script during the Late Neolithic, but it also occurred to a lesser degree during the Developed and Middle Neolithic.

Paradimi and Čoka–Kremenyák clustered the script during the Late Neolithic, but it occurred to a lesser degree also during the Developed / Middle Neolithic. Among the long-running settlements, Vinča apart, during the Blooming stage of the Danube script there is little evidence at Azmashka, where signs are concentrated in the Formative stage of the script. At the third level for magnitude, there are some settlements where the script occurred only during the Developed/Middle Neolithic. In order of the number of signs, they are Dispilio, Lukanovo darvo and Mezőkövesd–Mocsolyás. They are followed by Giannitsa, Fratelia, Selevac, and Ballenstedt (Germany).

Minor centers of the script that concentrated the signs in its Accumulative stage were Osinchani (F.Y.R.O.M.), Bina (Slovakia), Butmir (Bosnia and Herzegovina), Battonya (Hungary), and Kisköre (Hungary). Few sites played an

⁸ The earliest C14 date from Kovačevo is 6159-5926 BC.

enduring role from the Accumulative of the Danube script through the Blooming stage. Most of them were subjected to replacement.

Among the influential settlements in this period of the system of writing only Parța and Vrșac-At, apart from Vinča, had occurrences of signs in the Formative stage as well. However, at Parța the main concentration of signs was in the Developed and Middle Neolithic, whereas at Vrșac-At it was in the Late Neolithic. Among the settlements from the local range, Paradimi concentrated signs primarily in the Late Neolithic, however, it also had a modest presence during the Middle Neolithic. Dimini and Nova Zagora-Hlebozavoda exhibit similar figures, but with a more consistent presence in the Middle Neolithic. The system of writing had a long cycle of life at Banjica, with a peak of concentration in the Late Neolithic as well as a significant presence in the Developed/Middle Neolithic. Zorleň had equal occurrences in the Late Neolithic and in the Developed/Middle Neolithic. Samodovene, in Bulgaria, concentrated signs in the Late Neolithic with little evidence in the Middle Neolithic. Slatino script production peaked in the Early Copper Age, but also illustrated notable occurrences during the Late Neolithic.

The Vinča settlement maintained a key position during the Blooming stage of the Danube script, as indicated by the concentration of signs and their sustained presence. However, as mentioned above, during this period the production of signs was most significantly associated with the hub of literacy that became Turdaș. Over time, the roles of main centers that assembled signs exclusively in the Blooming stage of the script came to be increasingly important (Turdaș, Jela, Kurilo, Rast, Magura, and Kőkénydomb). This booming period of the system of writing was characterized by a widespread production and use of literacy, as well as by the presence of well-structured proto-cities. Such centers interpreted it and eventually developed regional variants, but script use subsequently declined at the end of the period.

Other crucial nodes where sign use was present exclusively during the Blooming stage include (in descending order of number of signs): Chelopechene-Obreshtha, Kapitan Dimitriev, Öcsöd-Kováshalom, Sapareva banya, Medvednjak, Dikili Tash, Hotnitsa-Kaya Bunar, Potporanj, and Dimitra. The most obvious concentration of sign use in minor centers occurred in the Blooming stage. These include: Mohelnice (Czech Republic), Iclod (Romania), Divostin (Republic of Serbia), Drenovac (Republic of Serbia), Chelopechene-Obreshtha (Bulgaria), Čoka-Kremenyák (Hungary), Vésztő-Mágó (Hungary), Suplac (Romania), Hotărani (Romania), Hotnitsa-Orlovka (Bulgaria), Vallač (Kosovo), Szegvar Türköves (Hungary), Valea Nandrului (Romania), Sadievo (Bulgaria), Pločnik (Republic of Serbia), and Kačica (Romania).

In the Blooming stage, among the long-running settlements with the script, there is little evidence of signs at Azmashka (where signs are concentrated in the Formative stage of the script), at Tărtăria and Čoka-Kremenyák (where signs are concentrated in the Accumulative stage of the script). Continuity in the presence of signs from the Neolithic to the Copper Age is illustrated only at Vinča, Slatino and Durankulak.

During the Stamina stage of the Danube script, Gradešnica was the most important node of literacy. Slatino, Borovan and Brenica were other key centers of the Stamina stage of the Danube script. They all belong to the same area and culture and in all of the script occurred only during the Early Copper Age. Another significant center continued to be Vinča, although with reduced relative contribution during this period. Daia Română (Romania), Baurene (Bulgaria), Târpești (Romania), Isaiia (Romania), Aleksandrovka (Ukraine), Suceveni (Romania), Sé (Hungary), Kisunyom-Nádasi (Hungary), Aszód (Hungary), Tangâru (Romania), Deve Bargan (Bulgaria), Djakovo (Bulgaria) were settlements yielding signs exclusively during the Stamina stage of the Danube script.

Vitânești was the most significant settlement in the Fall stage of the Danube script, approximately corresponding to the Middle Copper Age. However, Ovcharovo was a key site because of size in production of signs and continuity from the previous stage. Karanovo was the third settlement of local range. Scânteia (Romania) had a presence of signs concentrated in the Fall stage of the Danube script. All the other sites involved in the experiment with literacy during the Middle Copper Age were less significant nodes with sporadic exploitation of the sign system. They were Chitila–Fermă, Drăgușeni, and Putinești (Romania), and Rousse (Bulgaria). Marginal was the production of signs at Greaca (Romania). They are all concentrated through this stage.

Considering the previously examined features, a distinct geo-political profile of the development of the Danube script emerges. It is characterized by few larger agglomerations that assumed roles as gravitational centers of literacy within a milieu of disseminated writing technology as part of an extremely dynamic, and sometimes dramatic, historical framework. This feature is consistent with a more general frame of cultures that do not have an isolated and conservative character but present many connections (Luca 2006a: 24) and the absence of traditional statehood. However, the cesuras between the Early Neolithic and the Developed/Middle Neolithic and between the Developed/Middle Neolithic and the Late Neolithic document that the Neolithic was not a monolithic period, but an era characterized by multiple discontinuous ebbs and flows of sign use. In the life cycle of the script, the passage to the Copper Age evidences on one hand the social, economic and cultural upheavals that occurred at the end of the Late Neolithic, and on the other hand, a sort of relative continuity in a number of distinct areas.

Some results applying the social network analysis to address issues of change and stability

The strong breaks during the Neolithic and evidence of discontinuous usage from the Late Neolithic to the Copper Age substantiate the already mentioned warning: The term “Danube script” solely has an operational value used to indicate the original experiment with writing technology of these ancient populations. This expression is not intended to contend an extent of unity of literacy that extends beyond the support of existing documentary evidence. When *DatDas* reaches the needed critical mass of information, further investigation will be required to assess

the unitary term “Danube script.” It has to be determined in which proportion the different main sites shared a homogeneous inventory of the signs, if within time they developed (weak or strong) regional variants, or if they elaborated a distinct, even if related, script based on their own traditions. The setting of the amount of uniformity in the list of signs has to settle actor-by-actor matrices at three levels: at a general level, within a macro-region and cultural complex, or limited to a micro-region and culture/cultural group. This three-fold exercise can explain at which level a strong traditional background was at play and which may have been watched over by a particular settlement within a distinct geographic and cultural frame. The establishment of consistency or discrepancy in the sign repertory, and the speed of change, also indicates if conflicts and population movements were given or not among settlements and cultural regions, and at which degree and mobilizing effects. Conformity of inventory in time can be interpreted as indicative of direct exchange or contact within the context of continuity or increasing authority of the settlements, and the groups within them, that developed literacy in the earlier stage. At the opposite, a growing discrepancy in inventory can be interpreted as a loss of their authority and traditions. Dealing with relational data within the frame of the social network analysis, archaeological facts such as certain similarities or differences in the material record (such as, for example, the spectrum on pottery decoration or the matrix of exchange for status symbol artifacts) can indicate nondirectional and dichotomous or, at the opposite, directional and valued relationships among settlements. To what extent does the influence of the single macro-prominent or regional-scale actor differ? Which potential does it have in triggering and controlling literacy flow within the network?

For example, the comparison between the sign list belonging to the Danube script in general (recorded by *DatDas*), the sign list of the Danube script employed at Vinča B and C levels (recorded by the database *DatVinc*), and the sign list of the Danube script at Turdaş (recorded by the database *DasTur*) and the comparison of the related matrices and graphs with archaeological data give significant insights. According to this framework, the “Turdaş script” has to be ascribed to the Late Neolithic, new cultural impulse due to the collision and merge between Vinča C1 communities of immigrants from Serbia to Transylvania (through the Mureş river Valley or the Poiana Ruscă Mountains) and an indigenous Vinča B foundation.

It is still under investigation and discussion if the Turdaş culture, as well as the “Turdaş script,” resulted from a migratory wave from Serbia that implanted Vinča C1 elements on a native Vinča B2 foundation (Gh. Lazarovici 1987; Draşovean 1996: 93-100) or if the Turdaş cultural phenomenon was already formed when the first Vinča C1 immigrants arrived to modify it (Luca 1997: 73, 2006b: 349). According to Draşovean, the earliest layer at Turdaş is Vinča C1. Significant is the still unpublished analysis on Vrşac-*At* pottery (Republic of Serbia) carried out by Gh. Lazarovici and Draşovean. At the oldest Vinča C level, identical pottery and artifacts (ceramic, statuettes, cultic house models) from Turdaş appear; at the subsequent horizon (Draşovean 1996: 273), only Vinča C material occurs and none is identical to the Turdaş material (C.-M. Lazarovici and Gh. Lazarovici 2006: 569). The conflicting hypothesis that the Turdaş cultural

phenomenon was already formed when the first Vinča C1 immigrants arrived to modify it can be substantiated by the discoveries from Mintia–Gerhat (Draşovean and Luca 1990).

According to the social network analysis applied to the spread of literacy and the archaeological record at Turdaş culture (multiple, overlapping networks described by different forms of material culture such as architecture, representational art, and decorative motifs), it is more probable that—even if the oldest cultural stratum predated the southwestern migration—the *ars scribendi* was brought to Transylvania by Serbian migrants and then developed as a slight regional variant with its own identity, as documented by the wide overlapping of sign inventories.

Coherently, the sudden appearance of a system of writing at Turdaş could be explained by the start-up of the Vinča C phase due to strong cultural transformations taking place all over Southeastern Europe (including migration phenomena from southwestern regions of the central Balkans to Transylvania). It was not, as believed traditionally, an abrupt introduction of Near Eastern influences.

The “Turdaş script” developed as a light regional variant under the framework of the Danube script, having 137 signs in common with the Danube script and only 14 exclusive to the “Turdaş script.” It is not yet known if the evolution of the regional variant only affected the outline of the signs, or if there were changes in the organizing principles with consequences for their meaning. It would be significant to investigate if the eventual changes in the script were in some way synchronized with the three phases along which the Turdaş group evolved while occupying central Transylvania.

A common koine for an integrated commerce-and-culture area

In the socio-economic sphere, from the viewpoint of the script, the Danube civilization is made up of scattered agrarian settlements focused on the exploitation of their ecological niches. On the other hand, through commerce and cultural interaction, these settlements shared strong common socio-economic interests within an economically integrated area. The Danube and its tributaries were the backbone of trade relations in the wider region. The Danube may be seen as the Great-Mother-River who triggered the emergence of this ancient civilization. It symbolized, with the meandering course and the slow and trickling current, the then revered divine feminine: a liquid horizon, womb of the mythical ancestors, lush water, moist and fertile silt, protective current, commercial artery, immigration pathway, but also an escape route. Beginning in the seventh millennium BCE, and lasting three and a half millennia, along this immense European river, thousands of rural villages gave home to farmers, religious adepts, warriors, merchants, and artisans. All of these people were united by the same cultural matrix.

The water-born trade network became the foundation for a complex networking society characterized by semi-egalitarian social relations. This was a

society in its occupational and socially-stratified embryonic stages, characterized by an observance of reciprocal economic interest and mutual conveniences. Villages were built with the same layout and developed for successive layers up to urban scale, however urbanism that did not rob the countryside. The necessity for defensive structures was limited. The development of a script was mainly associated with the religious sphere and not with the economy; it was often linked to images of divinities (frequently female)⁹ and had a highly decentralized spread out of the main urban agglomerates.

Finally, the evidence for common cultural roots has been strong enough to designate an intellectual koine. The culturally interconnected background included, in addition to the writing system, religious beliefs, a religion that guided the community, the form of housing, style of artifacts and artistic production, funerary rites, and cultural symbolism. Symbolism was a complementary and possibly more important system for communication. One of the still numerous key points we have not yet comprehended is why the Danube communities preferred to transmit packages of information and even to express themselves in symbols through stylized, highly abstract, and representations that are difficult for us to understand and interpret. What did they want to communicate with spirals, meanders, linear symbols all over the surface of vessels? Why did they frequently employ all kinds of apotropaic motifs, as if asking constantly for protection against malevolent forces? These ancient communities possibly shared the same language, with more or less pronounced dialectal differences, or even compatible languages. The communication of abstract packages of information by means of writing and the practical skills involved in the knowledge of literacy required shared linguistic grounding or linguistic mediation and not merely an exchange of artifacts and repeated contacts.

Conclusions

To sum up, the Danube civilization evidences that there were major civilizations of the ancient world where statehood was either unfeasible or a marginal factor. Consistently, the Danube script developed through a network of five-range hierarchical nodes according to a model of civilization far from the state-bureaucratic prototype, having the features of a political ranking web of centers, an economically integrated commerce-and-culture area, and a common cultural koine. If the pivotal settlements elaborated the innovation of literacy, it was not confined to them, but was a pattern of high-grade decentralization (Haarmann 2008a: 26). There is no evidence that this network of political authority fit into traditional statehood.

The network model of society was present also in the horizon of the ancient agricultural society of the Indus valley, where “the absence of palaces and temples

⁹ For example, most of the scholars agree in seeing a ritual, religious or at least a spiritual function for anthropomorphs (Gimbutas 1974 [1982]; Todorova 1986; Todorova and Vajsov 1993; Comşa 1995).

. . . makes it strikingly different from its counterparts for instance in Mesopotamia and Egypt. Another reason is the Harappan concern for civic amenities such as wells and drains, with the result that their cities attest to considerable social equality. It is thought that the political power was less centralized and more corporate” (Parpola 2005: 30-31; see also Maisels 1999: 220 ff). Some violence most likely did exist at the individual small-scale group level. However, warfare was almost completely absent in the Indus civilization and fighting was not used to wage military campaigns for territorial dominance (Wheeler 1968; Cork 2005). Artifacts designed specifically for the “professional” killing of other humans are almost completely absent in the archaeological record of the Indus civilization (Green 2006). The Indus system of writing took the form of complex steatite and clay seals to mark pots and walls. Some were arranged into long lines of script that adorned city entrances and other architecture (Green 2006). Writing technology spread widely and was not restricted to the main cities such as Mohenjo-Daro and Harappa, although these agglomerations assumed a role as centers of literacy (Haarmann 2008a: 26).

In conclusion, the features concerning the origin and development of the Danube script point in the direction of abandoning the universalistic claims that assume a “standard model” (the Mesopotamian experience) for the trajectories from foraging/gathering to complex agrarian societies, assuming on the contrary a model of civilization with variable geometry: a civilization based on cultural relativity and conceived as broken down into regional paradigms (Haarmann 2002b). Each ancient world civilization is an experiment with civilization in its own right associated to a specific geo-cultural profile that depends on local socio-economic patterns, institutional configuration and cultural traditions. Concerning the patterns of how literacy emerged, spread, developed and functioned in the ancient world, there is at least a primary model other than the statehood framework from the Mesopotamian prototype: *the network model*.

The civilizations organized as a network resemble a system of nodes (central settlements and regional cultures) linked by common cultural roots, exchange relationships of mutual political advantage and shared socio-economic interests. The network model identifies a complex society characterized by semi-equality in social relations, observance of reciprocal socio-economic interests, absence of the state, the rise of urbanism through expansion (analogous to the spread of an oil spot) from villages to towns with thousands of inhabitants, with the absence of too heavy defense structures. In early agrarian societies, organized according to this model, the villages were not oppressed by a centralized political authority and their local economic surplus was not monopolized by the inhabitants of urban centers. An efficient, although not centralized, relationship linked the urban agglomerates. The distribution of goods and resources was based on interregional trade, not just practiced on local scale. The network society was a relatively tranquil confederation of strongly regionalized cultures with common roots and mutual interests.

In the instance of the Danube civilization, the network model is consistent with new archaeological records and interpretative paradigms that deeply change the idea concerning the historical mechanisms of the genesis and development of

homo scribens. In sharp synthesis, the experiment with writing technology that matured over thousands of years was not an *ex nihilo* act. Literacy was an original apparition throughout the Neolithic period and was not a Bronze Age achievement. This invention originated in several regions as an autonomous and independent innovation and was not a brilliant idea developed once under lucky conditions in a single incubating region (Mesopotamia) and then copied over and over again. *Ars scribendi* was triggered mainly by magic-religious communicational needs and not by economic, administrative and commercial affairs. The practical use of writing was secondary (Winn 1973, 1981, 1990, 2004; Gimbutas 1974, 1991; Haarmann 1995; Gh. Lazarovici 2003; Merlini 2002b, 2004). The script employed an inventory of mainly abstract logographic signs, i.e., it fixed necessary thought and optionally sounds, whereas the canonic interpretation reduces writing to a sequence of signs aimed to faithfully reproduce the sounds of a spoken language.

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