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# Workshop INVENTION OF WRITING

12<sup>th</sup> – 15<sup>th</sup> January 2021

## *Book of Abstracts*



## Session 1 - Is Iconography a Springboard for Writing?

**Tuesday 12 January 2021, 13:30 - 17:00**

In this first session, archaeology and anthropology will approach images as points of departure for inventions of scripts. Taking us back to engraved patterns from before the arrival of modern humans, Derek Hodgson will explore precursors to first writing and how this emerged from the perspective of both archaeology and neurology. Olivier Morin will address the question of why ideographic codes made up of stable images are limited in their scope in contrast to full writing systems, including Chinese. Gwenola Graff will examine early Egypt and the relationship between iconography, art and the hieroglyphs. Jennifer Ross will bring us back to the roots of cuneiform script, namely seal images and sealing practices from Mesopotamia and surrounding areas, all the way to the Neolithic period.

**Derek Hodgson**, *Independent scholar*

### **The Deep Foundations of Writing Systems: Neuroarchaeology, Neurorecycling, and Pattern Perception**

Writing systems are considered to be purely cultural. Recent neuroimaging research, however, suggests a more nuanced scenario, especially as a specific brain region of the visual cortex has been found to be common to all writing systems. Neurorecycling of evolutionary defined cortical networks is now thought to be key to understanding such universality. Thanks to important archaeological discoveries over the past two decades, the beginning of that process can be traced to a series of inaugural engraved patterns predating the arrival of anatomically modern humans. In this presentation, the relevance of the precursors to the first writing systems will be explored from the perspective of the early visual cortex and archaeology, which can shed light on how fully-fledged writing emerged.

**Olivier Morin**, *Max Planck Institute for the Science of Human History, Jena*

### **Solving the Puzzle of Ideography**

Ideographic signs ( $\pm$ ,  $\text{☺}$ , 1, \$, ©) encode a concept without encoding a specific word in a natural language. Unlike spoken or signed words, they are enduring static images. Unlike the core symbols of writing systems, they do not represent the words, morphemes or phonemes of a spoken language. Ideographic signs may be used as complements to a writing system (as in the sentence "this iPad© cost \$1000"), or they may be organised into stand-alone codes, like musical or mathematical notations.



Such ideographic codes differ from writing systems in two ways. First, most of them are narrowly domain-specific: musical notations can only encode music; mathematical notations, road signs, are similarly restricted. Second, those rare ideographic codes that can encode information on a wide range of topics (e.g., the pictographic notations used to encode shamanic chants in several cultures) tend to serve mnemonic purposes rather than communicative ones. The codes once considered to be all-purpose ideographic systems turn out to be regular writing systems, where the vast majority of frequently used symbols encode words, morphemes or phonemes, not directly ideas. (Some Chinese characters may stand for one word and its translation in several other languages, but that is thanks either to auxiliary linguistic notations, or to substantial morpheme-level similarities between related Sinitic-languages words.) The near-absence of widespread, all-purpose ideographic codes is a puzzle. This talk will discuss two types of solutions to it. The first type emphasises the practical difficulties of using an all-purpose ideography. A typical spoken language has distinct lexemes numbering in the tens of thousands. All known writing systems (including Chinese) manage to reduce this complexity drastically by encoding words at the level of morphemes, syllables, or phonemes. This would not be an option for an ideographic code: its users would need to memorise a vast number of distinct shapes, each one complex enough to be distinctive; to store them mentally in such a way that they could easily be recalled; to spend energy and resources inscribing them on suitable material.

This talk will argue that these obstacles are not insuperable. Instead, it will claim that general-purpose ideographies, though viable, struggle to evolve, because the form of communication they are most adapted to is not suited to the collaborative design and gradual improvement of symbols that interactive conversations allow. The main advantage of graphic communication, compared to speaking or signing, is asynchrony: the capacity to transmit information in one go across vast distances of time or space. Yet asynchrony does not allow for repair; it makes pragmatic disambiguation and interactive alignment difficult. The conventions for using graphic symbols thus cannot evolve spontaneously, but must be explicitly taught and maintained. Codes specialised to represent numbers, musical notes, or the sounds of languages may be established in this way, but not the vast, complex repertoire of pictographs that would constitute a general-purpose ideography.

**Gwenola Graff**, *Institut de Recherche pour le Développement, Marseille*

### **Egyptian Predynastic Iconography and Early Hieroglyphic Writing: What Kind of Relationship?**

The emergence of writing in Egypt is preceded by several millennia of image production within a continuous cultural substrate. As hieroglyphic writing has



retained a very strong iconic character throughout its development, trying to understand the relationships between the archaic forms (at the end of the 4th and 3rd millennia) of this writing with the iconography that precedes it or is contemporary with it, allows us to hope to better understand the links between image and writing. We will address these issues through entrances located at three different levels: the material and plastic level, by dealing with the evolution of the dialectic of the image and its support, at the graphic level by focusing on the choices made for the stylisation of representations, the representation's conventions and the constitution of a catalogue of signs based on the categories of the real, and finally, at the communicative level, by addressing the nature of the information transmitted on the one hand by writing in its most ancient forms, on the other hand by graphic systems that exist with writing but are not writing themselves.

**Jennifer Ross**, *Hood College, Frederick, Maryland*

### **On the Periphery: Communicative Practices and Signs at the Dawn of Writing in Mesopotamia**

In the centuries preceding the introduction of writing, ca. 3500 BCE, residents of the geographic areas surrounding Mesopotamia, from western Iran to southeastern Anatolia, engaged in an array of regular acts that linked iconicity and identity. These acts depended on the inherent qualities of clay, malleability and durability, for their success. As was true in many other parts of the world, the main way that personal and professional identity was conveyed, and extended temporally and spatially, before writing was "invented," was through the use of seals. Research suggests that those seals, and the practices employed in their expert usage, contained the seeds of the script that otherwise might seem to have emerged full-blown at Uruk, where the earliest cuneiform tablets have been found. Seal iconography going back to the Neolithic period provided a set of visual cues to authentication and communication, while sealing practices offered a model for the specific activities and actions that were, at last, recorded in the earliest cuneiform administrative documents. Combining image and action, seal-carvers and their patrons developed a repertoire of cognitive categories that were then drawn upon by the first scribes (themselves likely coming from the same background in communicative technologies).



## Session 2 - The Dawn of Writing

**Wednesday 13 January 2021, 14:00 - 17:00**

The second session goes back to the very beginnings of writing, approaching some of the earliest scripts and potential original inventions in the world. The Indus Valley civilisation and the creation of a 'script', whose status is debated, and which rarely features as a theme, is treated by Dennys Frenez. And back again to early Egypt, with Andréas Stauder arguing that the proper linguistic process that led to writing ("phonetisation") was gradual, hinged on the role played by highly iconic signs. will address the question of why ideographic codes made up of stable images are limited in their scope in contrast to full writing systems, including Chinese. Françoise Bôttero will present cases of sign formation in the earliest Chinese at the end of the second millennium BC, which was both figurative and phonographic. And, finally, the New World, with the development of the Maya script in Central America, addressed by Christian Prager.

**Dennys Frenez**, *International Association for Mediterranean and Oriental Studies, Rome*

### **Crafting a Writing System: Insights on the Invention and First Developments of the Indus Script**

The Indus (or Harappan) Civilization, developed along the Indus River basin of present-day Pakistan and northwestern India between ca. 2600 and 1900 BC, was acknowledged almost one century ago as a cultural complex coeval to other Bronze Age state-level urban cultures in Egypt, Mesopotamia, and the Iranian Plateau. Nonetheless, failure to decode its writing system severely limited our understanding of significant aspects of its ethnolinguistic, sociopolitical and economic organisation. Over the past decades, several unsuccessful attempts to define the syntactic structure of the Indus Script and even decipher it have been made using different paleographic methods and linguistic approaches. Such efforts were, unfortunately, often driven by biased cultural preconceptions (and the relative reactions) that led to interpret the Indus Civilization as a secondary urban phenomenon deeply influenced by 'western' cultures. However, the main reason to fail was the lack of a thorough archaeological study of the inscribed media and their discovery contexts, which prevented to define coherent synchronic corpora of signs thus introducing erroneous population parameters in the statistical interpretations. This paper, therefore, aims to present the specific socio-economic context and original cultural patterns that led to the local creation and first developments of the Indus Script during the Early Harappan Phase, ca. 3200-2600 BCE. The main features, stylistic and morphologic developments, and absolute



chronology of the inscribed media will also be discussed to set a firm ground for the future definition of a coherent group of signs and variants.

**Andréas Stauder**, *École Pratique des Hautes Études, Université Paris Sciences et Lettres*

### **Iconicity and Early Phoneticization in Egyptian Writing, c. 3100 BCE**

The advent of phoneticism is often seen as a categorial divide from earlier stages of signing. This view, which emphasizes the linguistic and systemic dimensions of writing, is largely a back-projection of what writing would later become, and of yet more recent ideologies of phonetic writing. Instead, I will consider phoneticization as a gradual process occurring in culturally embedded practices with the signs. The earliest Egyptian phonetic writing emerges by the late Dynasty 0 (c. 3100 bce) out of practices with earlier, non-linguistic, signs that are highly iconic, prestigious, and suffused with significations (however difficult these may be to reconstruct now). Various factors and motivations can be identified for early phonetic notation. Among these, I propose, is phoneticism as a possible strategy to reduce, and to some extent neutralize, the high iconicity, and indeed power, of the signs in certain contexts. Another, at first seemingly opposite, motivation, I propose, is phoneticism as a strategy to expand the scope of what can be written without harming the visual integrity of the signs, which is thus preserved. In addition, the performative dimensions of early Egyptian writing could have played a role. Overall, I argue that early phoneticization is, in the Egyptian case, related to the specifically hieroglyphic—as distinct from merely partly depictive—nature of the script.

**Françoise Bottéro**, *CNRS, Paris*

### **The Beginnings of the Chinese Writing**

The beginnings of the Chinese writing are rather mysterious. It is possible that earlier documents existed, but the oldest known documents today are bone and bronze inscriptions that go back to the 13th - 12th century BCE. In these inscriptions, mostly dealing with divinatory or commemorative concerns, the writing appears as a full-fledge system that records the language, with no real connection to the older repertoires of Neolithic signs.

I shall present the different iconic as well as non-iconic processes the scribes used to form graphs, and introduce some interesting ad hoc methods involved for visual cognition. The earliest Chinese writing looks quite figurative, but is also highly phonographic. Yet some ligatures as well as some ad hoc graphs raise questions



about the relation between the script and the language. Were these phenomenon limited to the first documents of the Chinese writing or did they existed in other writings?

**Christian Prager**, *University of Bonn*

### **Maya Writing between Tradition and Innovation: Diachronic and Synchronous Approaches to Understanding Graphemic and Graphetic Principles in a Two-Thousand-Year History of Writing in the Americas**

Maya script consists of about 800 iconic morphographs and syllabic signs, known from thousands of inscription-bearing objects that come from around 550 sites and span dates between around 500 BC. to 1500 AD. The language of the hieroglyphs is called Classic Mayan and has been preserved in varying degrees in the colonial and recent Ch'olan and Yucatecan languages. Most of the texts contain calendric information that date events down to precise days and thus provide unique data on the history of writing and language, which can then be very precisely reconstructed and compared with the findings made by historical linguistics. All more than 12.000 inscriptions were created around the palaces of kings, who ruled over independent city-states that were extended across the territories of present-day Mexico, Guatemala, Belize and Honduras.

The hieroglyphic writing system, which had remained only partially deciphered until a few decades ago, belongs to one of the most significant writing traditions of the ancient world. In contrast with Egyptian or Mesopotamian writing traditions, the great challenge facing Maya writing projects is that only some 70% of all signs for words and syllables have been securely deciphered to date. Today, in addition to the principle of rendering words using logographic or phonetic signs or combining both, we are aware of a wide range of writing and layout principles, through which not only individual graphemes, but also words of Classic Mayan could be written using a great number of variants. Scribes aspired to achieve the utmost visual splendour and optical variation and it is possible that, alongside the well-known graphic and artistic horror vacui, there was also a horror repetitionis. Probable reasons for this may be that, apart from the contents of the text, both the high aesthetic quality of the whole work and the individual skills of its creator should aim to impress the viewer's eye: To the present-day viewer of hieroglyphic texts, it would seem that monotony, conformity, and repetition were to be avoided; calligraphic variety determined the work of a writer or his workshop.

In laying out a text and its individual graphemes, scribes had to pay attention not only to the nature and form of the text-carrying material, but also to the space available to them for the image program and the text. They considered both aesthetics and writing economics making use of a palette of graphotactic and



formal layout possibilities. Master scribes, in order to avoid displeasing repetitions in a text, in addition to the principle of pars pro toto writing of full variants, also used graphic allomorphy and took into account principles of homophony, polyphony, and complex groups of signs in order to produce calligraphically differentiated texts. Abbreviations or short versions of full variants arose particularly in the context of ligature and infixation, i.e. through the interference of several graphemes in a single hieroglyphic block. This graphetic phenomenon is referred to as overlapping or superimposition; it results from the complete or partial superimposition of two or more signs, in which the elements that are covered remain only partially visible (pars pro toto), but are understood as previously independent graphemes. One should not forget the existence of writing strategies based on the different functions of signs, through which words are formed using either only word signs or only syllabic signs, as well as a combination of word and syllabic signs, or with the help of diacritical signs. Once again, the full repertoire of calligraphic usages came into play.

In my contribution, I would like to examine these graphemic and graphetic principles diachronically and pursue the question of whether these are principles that can already be found in the earliest texts of the Maya or at what point in time they first appeared as innovations and were used consistently in the scriptural tradition. Questions: Are the above-mentioned graphetic and graphemic phenomena cumulative, widespread in time and space, or are they regional and temporally limited phenomena in the history of writing.



## Session 3 – More Recent Inventions

**Thursday 14 January 2021, 14:00 - 17:30**

In the third session, the role of iconicity is seen in connection with inventions of writing in the new era. Piers Kelly will kick off the session with the Vai and Bamum from West Africa and the Caroline Islands script, three writing systems invented in the late 19th and early 20th century. Davide Domenici will present on the undeciphered script from the Classic Mesoamerican city of Teotihuacan and argue that it was perceived as 'emblematic' by Maya scribes. Scholars find that the Teotihuacan script has some principles in common with the later script of the Aztecs, or Nahuatl, whose close interface with icons will be the subject of Gordon Whittaker's talk. The session closes with a double-bill on the Rongorongo script of Easter Island: Konstantin Pozdniakov will propose a revised repertoire of signs and their iconographic nature, and Miguel Valério will discuss possible mechanisms through which Rongorongo may have registered Rapanui, the local Polynesian language.

**Piers Kelly**, *University of New England*

### **The Dynamics of Iconicity in Emergent Scripts**

Since at least the 18th century scholars in Europe have assumed that iconicity must have played a pivotal role in early script-formation (Rousseau [1781] 1966, Pauthier 1838). Some supposed that iconicity made early scripts intuitive to invent and learn ex nihilo (Hegel [1817] 1870) but that these same icons tended to give way to abstract forms that were easier to reproduce and process (Pitt-Rivers [1875] 1906). Yet investigating the dynamics of iconicity is a vexed undertaking since the archeological record for primary scripts is incomplete and the wider semiotic context may not be well understood. Emergent scripts invented in more recent times, on the other hand, are often better documented and their historical-cultural contexts are relatively easy to access. I introduce three recent scripts invented by non-literates—Vai (created ca. 1833), Bamum (ca. 1895) and the Caroline Islands Script (1905)—to explore the relationship between their earliest sign inventories and the wider symbolic contexts in which they developed. I show that iconicity is routinely employed by naïve script inventors but that it is not the only dimension of relevance. Visual complexity is typical of early sign inventories for emergent scripts, even when complex signs are not always iconically motivated. Early signs tend to give greater prominence to raw morphology while underrepresenting sound values. This encourages the proliferation of homographic



signs and suggests why rebuses and semantic determinatives are prevalent in both primary and emergent scripts.

**Daide Domenici**, *University of Bologna*

### **Texts as Images: Observations on Teotihuacan 'Emblematic Writing' and its Reception in the Maya Area**

Despite the fact that the writing system employed in the Classic Mesoamerican city of Teotihuacan (Mexico) still resists decipherment, some of its structural principles can be grasped by means of a comparison with the later Late Postclassic and early colonial Náhuatl glyphs. In this way, various scholars have been able to tentatively identify toponyms, anthroponyms and titles within the known corpus of Teotihuacan inscriptions, some of which will be discussed in the presentation.

In a seminal paper, Karl Taube defined a specific set of Teotihuacan inscriptions as 'emblematic', stressing their large scale and highly iconic appearance. In this presentation, I will tackle various examples of Teotihuacan emblematic writing in order to stress some of their visual characteristics, arguing that Teotihuacan painters voluntarily and ingeniously emphasized the iconic value of their glyphs "disguising" them as mimetic images and thus virtuously playing across the boundary between text and image.

Karl Taube also observed that the emblematic character of Teotihuacan writing system was clearly perceived by contemporary Maya scribes, as shown by a famous Early Classic bas-relief from Copán where the name of the dynastic founder Yax K'uk Mo' was shaped in an emblematic way alluding to the presumed Teotihuacan origin of the king. In the presentation I will discuss some similar cases painted on Late Classic 'Codex Style' vessels from the K'aanul Kingdom, where various royal names and titles were traced in emblematic form in order to visually communicate the alleged "Teotihuacan connection" of the local Maya royal house.

**Gordon Whittaker**, *University of Göttingen*

### **The Controversial Relationship between Aztec Iconography and Writing**

In this presentation the nature of the unusual relationship and iconic symbiosis between Aztec iconography and writing will be examined. Although a full-fledged writing system, the Aztec hieroglyphic script has freely incorporated a number of features from iconography (including the semantics of colour, dimensionality, and interaction between signs), and vice versa, iconography from writing.



Of particular interest is the phenomenon that I have dubbed “graphic syllepsis,” which is characterized by the use of a sign in two functions or readings simultaneously, not unlike our crosswords, in which a letter can represent part of a sequence in two words at the same time, but more complex in nature. The occasionally curious semantic and aesthetic relationship between two Aztec elements in a glyphic compound, without regard to their status as logograms or phonograms and purely based on their iconic references, is a further feature to be discussed.

**Konstantin Pozdniakov**, *Institut National des Langues et Civilisations Orientales, Paris*

### **The Rongorongo Script**

Rongorongo is one of the independent writing systems and it is still undeciphered. The texts are carved on wooden tablets. The preferred wood for Rongorongo was fine-grained Pacific rosewood, once commonly found on the island (C.Orleac-M.Orleac). The driftwood and wood obtained from the European vessels were also occasionally used for the tablets. The texts are structured in the so-called “reversed boustrophedon” line arrangement – the first line is written from left to right, starting from the bottom left corner of the tablet, the second line is written upside-down above it, starting at the end of the previous line. Thus, each new line is rotated 180° relative to the previous one.

The discovery of Rongorongo dates back to the 1860’s, coinciding with the demographic catastrophe and massive slave raids that ravaged Easter Island. Hundreds of tablets disappeared. Today, only a small number of once numerous inscribed Rapa Nui artefacts survives – approximately two dozen artefacts with a total number of glyphs around 15,000. This is certainly not many but enough to get reliable statistics.

However, it is possible to perform reliable statistical analysis when there is a reliable catalogue of signs. The most known catalogue is that of Th.Barthel (1958). Barthel used three-digit numbers to encode 800 possible glyphs (638 of which are used). Digits of sign numbers record different glyph categories, and also the shape of hands, bodies and feet. The problem is that Barthel included not only singular signs but also hundreds of ligatures (sign combinations) in his catalogue. If we exclude these ligatures, we obtain only 60-70 signs (Pozdniakov). This drastically changes the results of statistical analysis, as well as our attitude to the type of the Rongorongo writing system.

To answer what type of writing system are we dealing with means to determine what is denoted by signs: words, syllables or sounds? The Rapanui language allows



only open syllables formed by a consonant and a vowel or a vowel alone. With ten consonants and five vowels, the possible number of Rapanui syllables is 55. The number of separate signs in Rongorongo is too high to denote sounds and too small to denote words, while it is completely sufficient for representing every Rapanui syllable. More likely we are dealing with a mostly syllabic writing which can also include some determinatives (non-phonetic signs). A comparison of the statistical parameters of the Rongorongo signs, on the one hand, and the syllables of the Rapanui language, on the other, confirms this hypothesis. The texts feature a number of structural properties that look similar to the Rapanui language in syllabic notation (I.Pozdniakov-K.Pozdniakov 2007).

Another question is, what is the basis for the Rongorongo sign inventory? Boris Kudriavtsev, a young scholar from Leningrad, discovered important foundations for it. By the end of 1930's he found that three known Rongorongo tablets record the same text (Kudriavtsev 1949). Subsequently, two other tablets bearing the same inscription were identified. On one hand, Kudriavtsev's discovery "reduced" the number of surviving texts, but on the other, it offered a strong basis for further understanding of Rongorongo. Only by comparison of parallel texts could we for the first time identify significant and non-significant sign differences. Secondly, dozens of repeating fragments were discovered later by different scholars. These fragments are recurrent in different texts (or in the same text) but are structured in different orders. Today, it is clear that about one third of the corpus of Rongorongo consists of such repeated fragments of variable length (from 5 to 100 signs). Some texts (for example on tablets N, R, H/P/Q) consist more or less entirely of such sequences of signs. As soon as one sequence finishes, another one begins. Such texts represent a kind of a collection of numerous «mini texts» (Pozdniakov 1996).

Most scholars still use the hand-drawn copies published by Barthel. Today a new page has been opened in the paleographic study of Rongorongo. P.Horley almost finished his computer tracings of the entire corpus. All texts were traced with Paint.net 4.16 (dotPDN LLC). The tracings are made with four-node Bezier curves to achieve the required accuracy. Horley discovered that scribes made many corrections to the tablets, which means that they were concerned with accuracy of the texts they produced.

What do the Rongorongo signs look like? One could find: 1) anthropomorphic and zoomorphic signs (birds, marine creatures, lizards, turtles); 2) universal geometric motifs; 3) signs explicitly related to the environment and culture of Easter Island (floral elements, depictions of tools and personal adornments); 4) signs which are difficult to identify. A remarkable feature of Rongorongo is the use of five different signs depicting hands formed into various shapes, which are combined not only with anthropomorphic signs, but also with signs of birds, fish, as well as with signs



depicting inanimate objects. According to my assumptions, these five hand signs correspond to the language's five vowels. In my presentation, I aim to demonstrate and to discuss the Rongorongo iconography in detail.

In summary, the following scenario of the Rongorongo evolution can be assumed today. Eastern Polynesians populated Easter Island approximately in IX-X centuries – probably from Marquesas Islands. Even if they did not bring the writing system with them, they came with the idea of using carved symbols as an “external memory”. The high level of standardization of signs shows that the writing was developed during several centuries. The iconography of the texts suggests that the Rongorongo writing system developed in full accordance with the general canons of local wooden art, elaborated by the inhabitants of Easter Island. Subsequently, the Rongorongo texts probably went through a phase of becoming sacred, as evidenced by the oral tradition. In the 19th century, it lost this status, and the skills to use it disappeared.

**Miguel Valério**, *University of Bologna*

### **Evidence for Language Notation in the Rongorongo Script**

The highly iconic script of Easter Island or Rapa Nui, conventionally called Rongorongo, is one of a handful of potential cases of primary invention of writing. It is therefore key for the history of this phenomenon worldwide. The nature of Rongorongo is still debated, but several of its characteristics, such as the number of signs and their arrangement in linear sequences, strongly suggest that it constitutes proper writing. In this case, one would expect Rongorongo to notate Rapanui, the Polynesian language of Easter Island. According to the main definition in use, in order to be considered writing a system of notation should contain not only semantic signs, but also signs capable of representing speech sounds. This has not yet been fully demonstrated for Rongorongo, however, because it remains undeciphered.

Pozdniakov has established that most inscriptions, especially the longer ones on wooden ‘tablets’ or ‘boards’, differ sharply from Text I or Santiago’s Staff. Pozdniakov and Horley have also shown that this significant portion of the corpus (some twelve inscriptions) comprises textual types consistent with lists and repetitive contents, including possibly “poems” or “chants”. Following this trail, this paper focuses on the epigraphic specificities of Text I and argues that they are consistent with it recording natural language and grammatical features more closely. Namely, this inscription employs dividers for possible sentences or groups of sentences (‘paragraphs’) and certain signs in distributions that contrast much with their use in the rest of the corpus.



The patterns in Text I can be compared against syntactical and morphological features of the Rapanui language, especially at its earlier attested stage in the late 19th and early 20th century (“older Rapanui”) and help to formulate new hypotheses on how the script functioned. Evidence will be presented in support of the hypothesis that Rongorongo is a morpho-phonographic script, with semantic as well as phonetic signs. Like most inventions of writing, one would expect phonetic signs in Rongorongo to be syllabic, which has been the operating assumption of past scholarship. And since the syllabic structure of the language is limited to V and CV types, we would also expect to find these types in the script. However, this starting assumption is at odds with the evidence that no Rongorongo sign patterns like the super-frequent Rapanui monosyllabic ‘functional words’, including the aspect and nominal predicate marker *he*, the article *te*, possessive *o* and ‘*a*, the preposition *ki* ‘to’, etc. Thus, the investigation of the possible phonetic signs of Rongorongo must build on the hypothesis that, like the early stages of other invented scripts (e.g. archaic Sumerian cuneiform), its spellings omitted certain grammatical features.



## Session 4 - Iconic vs non-Iconic Signs

**Friday 15 January 2021, 14:00 - 17:00**

The fourth session will explore the limits of iconicity in writing systems and 'alternative' paths to script creation. First, Barbara Montecchi will address how suitable the label 'linear' is, typically used in contrast with 'picture-based', to describe the Linear A script of Minoan Crete. Sabine Hyland will make a case for the presence of iconic signs in the non-iconic three-dimensional khipu used in the Inca empire, while Alex de Voogt will challenge the view that iconicity is always a necessary and stable part of the development of writing systems. The Workshop will conclude with a talk by evolutionary neurobiologist Mark Changizi, who will argue that writing, speech and music follow and mimic structures already existing in nature, which act as stimuli that our brain learned to process through evolution.

**Barbara Montecchi**, *University of Bologna*

### To What Extent is Linear A 'Linear'?

Soon after their discovery in the Palace of Knossos, A. Evans put an effort in explaining the relationships existing among the three scripts attested on Crete during the second millennium BCE in strict evolutionary terms, from the "primitive pictographic system, the hieroglyphic" to the "advanced linear systems of Classes A and B". Nevertheless, if Evans' terminology has become traditional, and the three scripts are still called Cretan Hieroglyphic, Linear A and Linear B, his evolutionary view can nowadays only apply to the last one, which is also the only one that has been deciphered. This is a syllabic system used to register an early phase of ancient Greek (Mycenaean Greek), whose graphic repertoire has been proved to have largely derived from Linear A.

The relationship between the earliest Cretan scripts, namely the Hieroglyphic and Linear A, is far less clear. First, this is because they coexisted for a long period. Second, because the two scripts also share a number of similar features, which sometimes makes it difficult to establish whether an inscription belongs to one or the other system. Despite having been branded as 'pictographic', the Cretan Hieroglyphic graphic repertoire is not entirely picture-based, as much as Linear A is not entirely linear or geometrical. Even the earliest attestations of script on Crete (dated to the end of the third millennium BCE) can be interpreted as either, or as a proto-script from which both Cretan Hieroglyphic and Linear A would have derived.

The aim of the present talk is to shed light on the graphic characteristics of the Linear A repertoire and to highlight that the label "linear" can be still justified as



far as the orientation of the signs is concerned, but not entirely as to the shape of the signs. One of the peculiarities of the Cretan Hieroglyphic system is that the signs can be freely rotated and flipped, while this phenomenon is far less common in Linear A. Nevertheless, if we focus on the shapes of Linear A sign and we group them in signs which appear as a simplification/schematization of Cretan Hieroglyphic signs, and signs which are only attested on Linear A, we notice that the second group is mainly made up of picture-based, not geometric signs.

**Sabine Hyland**, *University of St Andrews*

### **Iconic Signs in a Non Iconic Writing System: Khipus with Potatoes, Feathers, Figurines and Other Objects**

Khipus, the knotted cord communication system of the Andes, are often regarded as an example of a non-iconic writing system. With few exceptions, scholarly analyses of khipus semiosis have focussed exclusively on colours, knots, and ply direction, ignoring any iconic elements. This talk will present the first survey of khipus with iconic elements, both those tied onto khipu pendants, and those attached to the ends of the main cord. Such iconic inclusions include: dried potatoes, dried beans, feathers, human figurines, needlework bundles with symbolic designs, tufts of raw wool, etc. The significance of these iconic images will be explored in conjunction with the khipus' ritual and economic functions. As scholars attain a greater awareness of the sophistication and diversity of khipus over their one thousand year history, it becomes evident that iconic representation has played a role in khipu signification.

**Alex de Voogt**, *Drew University*

### **Optional and Ephemeral Iconicity in the History of Writing Systems**

Iconicity is frequently attested in the earliest writing systems and its presence is often explained in functional terms. For instance, iconic signs lend themselves for rebus writing, may be at the basis for the production of sign inventories (with a similar shape or similar theme), and could also assist in the memorization of signs. It is argued that these three possible functions of sign iconicity are neither necessary nor stable over time. Using examples from both ancient and twentieth century scripts, a more limited and short-term functionality of iconicity is proposed to explain its presence in some as well as its absence in other writing systems of the world.

**Mark Changizi**, *Institute for Human and Machine Cognition, Florida*



## The Nature of Language and Music

Language (writing and speech) and music are central to what it means to be human. But where did they come from? In his book "Harnessed", cognitive scientist Mark Changizi argues that language and music are in us not because we evolved for them, but, rather, because they evolved for us. Over history, language and music came to have the structure that our non-language and amusical brains could brilliantly absorb. In particular, language and music came to mimic the structures in nature, just the sorts of stimuli our brain had evolved to process. It is this "nature-harnessing" that explains who we are today.