Bookkeeping Without Writing:

Early administrative technologies in context

NINO POSTDOCTORAL RESEARCH FELLOW FIRST ANNUAL CONFERENCE

5th & 6th February 2021 (online)
Programme

Nederlands Instituut voor het Nabije Oosten
The Netherlands Institute for the Near East
Leiden University

BOOKKEEPING WITHOUT WRITING:
EARLY ADMINISTRATIVE TECHNOLOGIES IN CONTEXT

NINO Postdoctoral Research Fellow 1st Annual Conference
5th & 6th February 2021

Organised by Lucy E. Bennison-Chapman
Postdoctoral Research Fellow, Netherlands Institute for the Near East (NINO), Leiden University, Netherlands

CONFERENCE ABSTRACT

This conference brings together varied specialists to explore how non-literate systems of information storage were used in the Near East from the late Neolithic, and why they persisted into the first millennium BC. The world's earliest known written script, cuneiform, emerged as the bureaucratic tool of administration in the city-states of south Mesopotamia during the late-fourth millennium BC. Yet crucially, tokens continue to be used as an administrative tool, alongside bullae, seals and written texts into the first millennium BC in Mesopotamia. Did tokens merely replicate the information stored within cuneiform script for the illiterate masses? Were they physical guarantees or receipts to be handled, performing a mnemonic function in a way that cuneiform tablets could not? The relationship between and social implications of the dual use of written and non-literate administration and information storage devices will be explored via examination of the evidence from Mesopotamia. This will be interpreted in alongside examples of complex, non-written administrative systems from the ethnographic and historical record from various cultures, world regions and time periods.

TIMETABLE

FRIDAY 5ᵀᴴ FEBRUARY 2021

INTRODUCTION | **10:30-11:00am***

Opening remarks: **Lucy Bennison-Chapman** (Leiden) and **Willemijn Waal**
                        (Director of Netherlands Institute for the Near East (NINO), Leiden)
Introduction: **Lucy Bennison-Chapman**

SESSION 1: BACKGROUND | **11.00am**

Prof. Mithen (Reading)   "Symbolic Thought, Cognition, Prehistoric Mind: The relationships
                                between words, thought and cultural evolution"

11:45am Coffee and snacks

SESSION 2: THE LATE NEOLITHIC | **12:00pm**

Prof. Akkermans (Leiden)   "Dating the Sealing: Revisiting Tell Sabi Abyad and the Case for
                                    Property Control in Late Neolithic Upper Mesopotamia"
Prof. Campbell (Manchester)   "Accounting for Change? Symbols and information management
                                    in the later prehistory of northern Mesopotamia"
Dr. Bennison-Chapman (Leiden)   "The Origins and Development of Non-Written Administrative
                                    Technologies in the Ancient Near East"

1:30pm Lunch
2.25pm Conference photo (delegates only)

SESSION 3: THE EARLY HISTORIC PERIOD | **2:30pm**

Dr. MacGinnis   "Token Accounting in the Assyrian Empire"
 (Cambridge/British Museum)
Dr. Waal (Leiden)   "The Role of Bullae within the Hittite Administration Revisited"
Prof. Woods *(Chicago)*   "New Perspectives on the Dawn of Writing in the Ancient Near East

4:00pm Virtual drinks

TIMETABLE

SATURDAY 6TH FEBRUARY 2021

SESSION 4: HISTORIC/ETHNOGRAPHIC PARALLELS | 12:30pm**

Dr. Haring (Leiden)　　　"Scribal and Non-scribal Modes of Visual Communication in Egypt (Deir el Medina)"

Mr. Medrano (St. Andrews)　　"The 'Paper Khipus' of the Early Colonial Andes"

1:40pm Coffee and snacks

Dr. Skambraks (Manheim)　　"Tally Sticks in Medieval Europe"

Prof. Monroe (UC Santa Cruz)　"The Dahomean Royal Palace Sphere"

3:00pm Coffee and break
3:45pm Virtual museum tour (Rijksmuseum van Oudheden)

SESSION 5: RESPONSE AND DISCUSSION | 4:10pm

All presenters. Chaired by **Prof. D. Baird** (Liverpool).

5:30pm Virtual drinks

* All times are Amsterdam, Netherlands which is Central European Standard Time (ECT/GMT+1).
**Please note the later start time on day two, to accommodate our USA-based delegates.

ABSTRACTS

Dating The Sealing: Revisiting Tell Sabi Abyad and the case for property control in Late Neolithic Upper Mesopotamia

Peter M.M.G. Akkermans
Faculty of Archaeology, Leiden University, The Netherlands

Some 25 years ago, hundreds of clay sealings as well as a series of stone stamp seals were found in excavation at Tell Sabi Abyad in Syria. Dating to the late seventh millennium cal BC, the find represents one of the largest assemblages of prehistoric sealings known in the Near East until now. Their occurrence in securely stratified contexts allowed for interpretations about their use in controlled storage events by pastoralists. This paper is primarily concerned with the date of introduction of the sealing practice at Tell Sabi Abyad and its embedding in the wider cultural setting of the time.

The Origins and Development of Non-Written Administrative Technologies in the Ancient Near East: The example of late Neolithic Tell Sabi Abyad

Lucy E. Bennison-Chapman
Netherlands Institute for the Near East (NINO), eiden University, Netherlands

During the Neolithic, small geometric-shaped *clay objects* appear across the Near East. It is commonly assumed that from their inception c.10,000 BC, that *clay objects* acted as mnemonic accounting 'tokens', invented specifically for this purpose, with the meaning held in their shape and size recognised across the region for millennia. Recent research demonstrates these commonly held pre-conceptions are largely unsubstantiated for much of the Neolithic period. It is not until the late Neolithic c.6,000 BC onwards, that evidence for the use of clay objects within the administrative sphere of small village economies appears. The sixth millennium BC in upper Mesopotamia sees increasing evidence of the use of clay objects as administrative tools. Tell Sabi Abyad (north Syria) offers early, and extensive evidence of this trend. This paper presents data from three discrete zones of settlement at late Neolithic Tell Sabi Abyad. The evidence of tokens, sealings, stamp seals, storage and ritual activity is strikingly similar at each. This critical time period predates the advent of writing by more than two thousand years, yet these complex villages demonstrate advanced agricultural economies, sophisticated craft production and the beginnings of specialisation. This highlights the need for and potential uses of tokens as accounting tools.

Scribal and Non-scribal Modes of Visual Communication in Egypt (Deir el Medina)

Ben Haring
Leiden University, Netherlands

Bookkeeping, in modern western society, is usually in the form of highly complex written records, in which the linguistic notation of names, words and clauses is combined with prescribed layouts such as columns and grids, and (most importantly) with numbers. By combining writing and other ways of visual communication, such graphic arrangements indicate that writing itself is not considered a sufficient means for the creation of financial records, and one may wonder if it ever was.

When approaching this question it is extremely useful to investigate graphic and material systems employed in administrative record-keeping, such as three-dimensional tokens, or graphic but non-written signs and codes. Such systems existed before writing, but they persisted also in literate societies, and were even used for the same purposes as those of writing.

Ancient Egyptian bookkeeping, at first sight, seems to have taken place entirely within the domain of writing, with extensive records on papyrus as the most obvious products of high-level administration, and brief written messages and accounts on ceramic and stone ostraca reaching down to almost insignificant events in daily life. Yet Ancient Egyptian administrative systems have also left records of a different nature, in which writing had a very limited role, or even no role at all.

One prominent type of relevant non-written records is one employing identity marks referring to individuals or groups of these. Throughout pharonic history, such marking systems have been employed for administrative purposes. The New Kingdom (c. 1550-1070 BCE) has even left us numerous records on ostraca in which such marks play a key role. The arrangements of marks, and especially their combination with numbers and other types of graphic information, betray the increasing influence of writing on a system that had little to do with writing at the outset. Or did it?

Accounting for change? Symbols and information management in the later prehistory of northern Mesopotamia

Stuart Campbell
University of Manchester, UK

When sealing practices and the use of tokens emerge in the late Neolithic of northern Mesopotamia, I would argue that they should be seen in the wider contemporary context of accelerating symbolic complexity, information storage and non-verbal communication. While this is particularly visible in the investment in the spectacular range of decorated pottery from the late 7th millennium cal BC onwards, it may well also have been reflected in a range of less well attested decorative technologies such as textiles, basketry and bodily adornment as well as new ways of articulating relationships and marking place. Seals and sealings might be seen as having as much to do with identity management and relationship curation as with commodity control.

This is also a landscape that probably also saw a significant increasing in social encounters and interaction – to borrow a phrase that has been used in the context of early urban centres, an increase in energized crowding, albeit at a much lower level of intensity. The response to a changing world that saw increased investment in symbolism, along with storage and communication, doesn't necessarily reflect a continuity with later practices millennia later. There is danger of retrospective explanation in our archaeological reasoning that links observations at particular points in the archaeological record with an over-arching evolutionary narrative. Instead, explanations need to be sought within the late Neolithic of northern Mesopotamia, as a context in which innovative practices could flourish. This behaviour, like the material culture it generated, didn't form a single system but probably had several local variants. In the longer term, those practices had the potential to create new affordances that might later be exploited in ways that might, or might not be, similar but were almost certainly distinct.

Token Accounting in the Assyrian Empire

John MacGinnis
British Museum & University of Cambridge, UK

This paper examines the use of clay tokens in Assyria in the late second and first half of the first millennium BC. While the role played by tokens in the administrative regimes of early Mesopotamia has been much studied, the part played by tokens in later Mesopotamian history has received much less attention. Even awareness of their existence was limited, in part due to the fact that certain aspects of existing evidence had been neglected. But new discoveries from excavations of Assyrian levels, especially at the site of Ziyaret Tepe (the ancient Assyrian provincial capital of Tušhan) in southeastern Turkey, have thrown the issue firmly back into the limelight. This paper reviews this evidence and considers how the use of tokens interacted with cuneiform record-keeping in the administrative systems of the Assyrian Empire.

The 'Paper Khipus' of the Early Colonial Andes

Manuel Medrano
University of St Andrews, UK

Among the most distinctive aspects of the early-colonial Andes was the recording of numerical information in multiple media—in written documents by the Spanish, and in khipus (knotted-string devices) by former Inka subjects. This "khipu-paper colonial interface," as Frank Salomon has called it, was perhaps most visible from the 1550s in the colonial audiencias (high courts), in which Andean claimants seeking compensatory damages from the estates of their former encomenderos presented khipu-based oral testimony. In such cases, evidentiary khipus, once "read" aloud by native cord keepers, were translated and entered into writing by scribes as so-called paper khipus. Acknowledging the highly mediated conditions of their original production, the author's digitization and syntactic annotation of the surviving transcriptions raises the possibility of corpus-level linguistic inquiries into khipu-based legal testimony. Following a brief survey of khipu use in the early-colonial Andes, including its gradual replacement by alphabetic writing as the official means of Andean recordkeeping, I consider the evolution of part-of-speech usage in a corpus of paper khipus, with particular focus on verb diversity. It is argued that transcribed verbs offer a glimpse into the transformations in khipu recording practices that accompanied the introduction of Spanish monetary tribute and written administrative records. Paper khipus emerge as more than structured legal transcripts, embodying the alphabetic collision of the early-colonial Andes.

Symbolic Thought, Cognition, Prehistoric Mind: The relationships between words, thought and cultural evolution

Steven Mithen

University of Reading, UK

To understand the profound cultural, social and economic developments of the Neolithic in the Near East, we must view these in the long term perspective of the evolution of human mind and language. What cognitive and linguistic capacities were required for the Neolithic transition? How did the new lifestyles and material cultural influence the further development thought and communication? How should we conceive of the prehistoric mind within the Neolithic world? To address these issues I will review evidence for the evolution of cognitive and linguistic capacities in *Homo*, promoting the view that compositional language evolved from a complex vocal and gestural communication system by the invention of words at around 100,000 years ago. I will then focus on the relationships between words and thought within the cultural developments during the Late Pleistocene and Early Holocene, with particular reference to the creation and sharing of new concepts that provided the foundations for the Neolithic. Such concepts encompassed the role of clay objects and incised marks as means of extending cognitive capacities by the use of material culture.
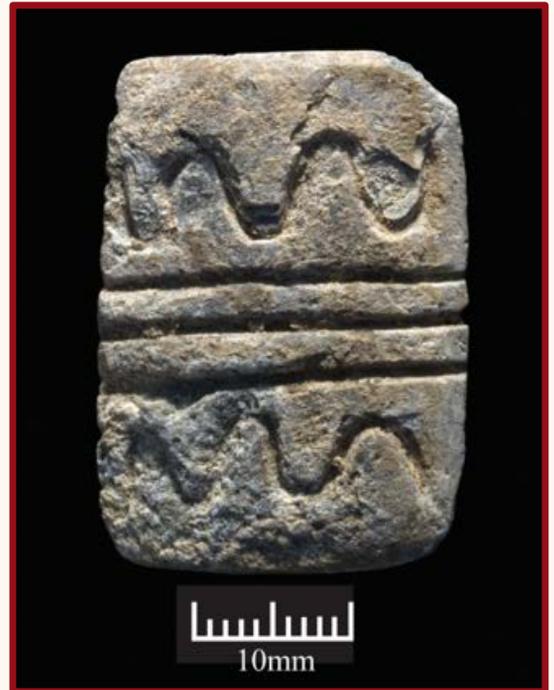
The Dahomean Royal Palace Sphere: Administrative tactics in a West African African state of the Atlantic era

J. Cameron Monroe
UC Santa Cruz, USA

The Dahomean royal palace sphere during the tumultuous era of the trans-Atlantic slave trade, extending the power and reach of the Fon royal dynasty in ways never before attempted on the Slave Coast of West Africa. Whereas kingdoms of the 17th century established political and economic control over their respective territories largely through the implementation of a variety of ceremonial rites and ritual obligations, this paper examines sharp distinctions that characterized the administrative tactics Dahomey deployed to centralize state power in the 18th and 19th centuries. On one hand, Dahomey developed a powerful bureaucratic apparatus, one centered at the royal palace that maintained an increasingly heavy hand in broader political and economic affairs of the region. I argue that these institutions, contra Polanyi, were designed largely to provide the royal family and its agents the power to profit from the mercantile and agricultural activities of a wide range of Dahomean social groups across the kingdom. As domestic and Atlantic commercial sectors expanded and shifted over the course of the eighteenth and nineteenth centuries, however, Dahomean political institutions transformed dramatically to exploit new economic opportunities. The bureaucracy thus demonstrated flexibility and adaptability in the face of potential economic and political collapse. Despite these advances, the royal dynasty struggled, throughout the eighteenth and nineteenth centuries, to integrate and curtail the aggrandizing tendencies of rival nobles, merchant elites, bureaucrats, and ritual leaders. The royal palace sphere was, therefore, a contested zone of political interaction, one that almost collapsed on multiple occasions. This paper will discuss the historical evidence for these bureaucratic strategies and their limits in Dahomey, as well as the limited archaeological evidence illustrating Dahomean bureaucratic expansion over the course of the Atlantic era.
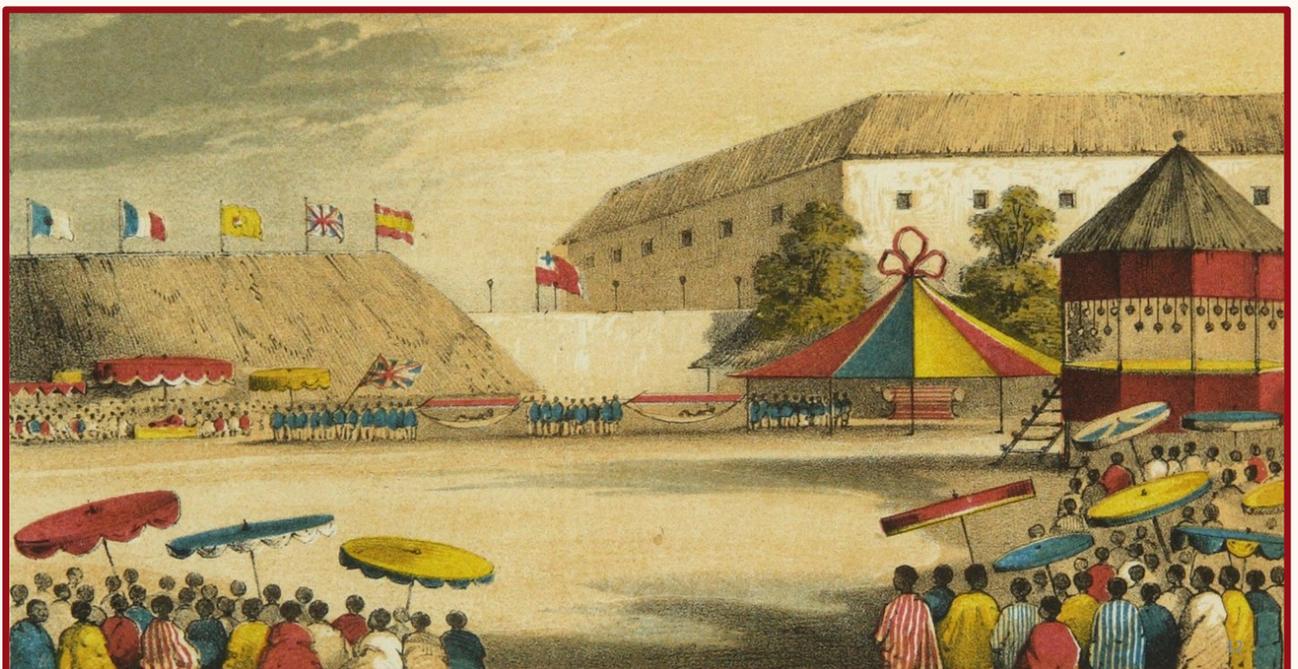
Tally Sticks in Medieval Europe

Tanja Skambraks
University of Mannheim, Germany

My paper will deal with tally sticks as an ubiquitous – but still understudied – tool of accounting and administration in medieval Europe. Researchers like Michael Clanchy, Ludolf Kuchenbuch and Moritz Wedell have emphasized both the potential and value of those objects not only for the social and economic history of the Middle Ages, but also for the intellectual history, history of numerical knowledge from an anthropological point of view.

Tallies were wooden sticks, mostly of hazel wood containing cuts and notches and thus documenting numerical information in different contexts, like debts, tax collection, trade and husbandry. Sometimes they also contain writings adding further information concerning dates, places and actors as well as reasons of payment.

My paper will focus on different contexts of use and functions in England and Europe. I will present examples of tallies as objects as well as written sources and pictures showing the use of tallies. I intend to finish my talk with some proposal regarding the interdisciplinary study of tally sticks as most valuable and ubiquitously used material objects for the analysis of debt relations and credit – this being my main research interest and background.

I will present the following contexts of use:

1. Tax collection by the English Exchequer (12th to 13th century), tallies from the National Archives (including Jewish tallies)

2. Medieval manorial administration and husbandry (13th century tracts on agricultural and household administration)

3. Use of tallies, examples from the continent (German court records, Sachsenspiegel, pictorial sources)

The Role of Bullae Within the Hittite Administration Revisited

Willemijn Waal
Leiden University, Netherlands

Compared to, e.g., the Aegean and Mesopotamia, very little is known about the administrative practices of Late Bronze Age Anatolia. Excavations at the Hittite capital Hattusa and its surroundings have yielded thousands of tablets and fragments, but they hardly include any daily administrative or bookkeeping records. Various explanations have been offered for this absence. Some scholars argue that most of the administrative practices did not involve writing, whereas others assume that the economic administration was recorded on wooden tablets that have not come down to us. A central element in this discussion are the numerous clay bullae impressed with stamp seals that have been discovered in Hattusa. Their function is debated; it has been proposed that they were attached to (lost) wooden documents, or bags of goods, or that they are silent witnesses of past transactions.

Interestingly, sealed bullae are not a new phenomenon in the Late Bronze Age, but they boast a long history in Anatolia. The practice of impressing lumps of clay with stamp seals can be traced back to the 4th millennium BCE and is remarkably consistent. The fact that these sealing practices remain unchanged may point to a continuation of the administrative procedures in which they played a role. This paper will readdress the use and function of the bullae within the Hittite administration from a diachronic perspective.

New Perspectives on the Dawn of Writing in the Ancient Near East: The study of proto-literate clay envelopes from Choga Mish, Iran, using state-of the-art Computed Tomography (CT) technology

Christopher Woods
University of Chicago, USA

Small, unassuming clay balls have come to play a central role in the debate over the origins of writing, having been made famous by Denise Schmandt-Besserat and her theory of the origins of writing. The balls, which range from the size of golf balls to baseballs, are better described as envelopes, as they are hollow and contain small clay artifacts commonly referred to as clay counters, or "tokens." The envelopes with their associated tokens have been excavated in Iran, Syria, and Iraq, and make their first appearance in the archeological record in the middle of the fourth millennium and so are contemporaneous with, or slightly earlier than, the first texts (c. 3200 BCE). There is a general consensus that the envelopes represented an early administrative device, which served as a means to monitor and control the flow of materials, various commodities, and labor. The tokens, which are contained within the envelopes, represent quantities and/or commodities of the proto-literate economies. Essentially, these devices served as receipts for various economic transactions.

Building upon the work of Pierre Amiet, Schmandt-Besserat connected these early administrative devices directly to the origins of writing in the ancient Near East, arguing that both the numerical and logographic signs of cuneiform evolved out of the earlier token system. A major obstacle in testing this theory — and, moreover, in understanding these proto-literate accounting devices — has been our inability to easily inspect the contents of the vast majority of clay envelopes. According to a recent estimate, some 80 of the 130 or so excavated clay envelopes are intact. Since the 1960s scholars have x-rayed these envelopes and scanned them with computed tomography (CT) equipment. Typically, these techniques could not offer the resolution and clarity necessary to determine the exact number of tokens and whether they have markings or not — critical data for understanding their meaning. However, major advances in CT and digital imaging technology have been made in recent years and it is now possible to obtain the requisite resolution, fidelity, and much more. The Oriental Institute of the University of Chicago is currently collaborating with North Star Imaging of Rogers, MN, a leading manufacturer of state-of-the-art industrial CT systems, and Kinetic Vision of Cincinnati, OH, to scan and analyze the eighteen clay envelopes in our collection, all of

which the Oriental Institute excavated from Choga Mish, Iran in the 1960s and early 1970s. The value of the envelopes in the Oriental Institute's collections lies not only in the fact that they roughly double the corpus of envelopes for which the contents are known, but also in their well-documented archeological context, having been excavated using relatively modern scientific methods and recording techniques. In this presentation, I will discuss the particulars of our imaging project, the current state of our ongoing investigation, and our initial results.

SPEAKERS

Peter Akkermans is Professor of Near Eastern Archaeology at Leiden University, the Netherlands. He has been intensively involved in archaeological field projects in Germany, Bulgaria, Turkey, Syria and Jordan for over 35 years. He is director of the Tell Sabi Abyad project in Syria and the Jebel Qurma Archaeological Landscape Project in Jordan.

Professor **Douglas Baird** holds the Garstang Chair of Archaeology at the University of Liverpool. His main research foci include the development of early sedentary, agricultural and pastoral societies, the development of social complexity, and long-term settlement history, especially in the Near East. He has directed several major field projects, excavations at Chalcolithic and Early Bronze Age Tell esh Shuna North in Jordan, the Konya Plain Survey in Turkey, excavations at Epipalaeolithic and early Neolithic Pınarbaşı and Boncuklu on the Konya plain, and the Eastern Fertile Crescent project in northern Iraq, co-directed with Eleni Asouti involving excavations at Palegawra and Karim Shahir to date.
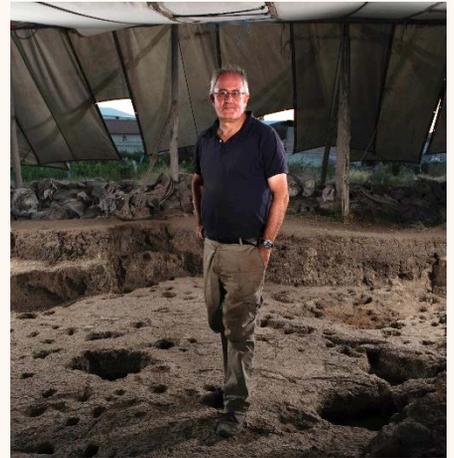
Lucy Bennison-Chapman is the inaugural Postdoctoral Fellow at the Netherlands Institute for the Near East (NINO), Leiden University. She was awarded a PhD in Archaeology from the University of Liverpool, UK and was a member of the Çatalhöyük Research Project (Turkey) from 2010-2018. Lucy also works at Neolithic Boncuklu Höyük in Turkey.

Stuart Campbell is a Professor of Near Eastern Archaeology at the University of Manchester, UK. His field research has, since 1983, taken place in a number of locations along the northern borders of Iraq and Syria and in south east Turkey. From 1995-2008 he directed excavations at the 20ha 7th and 6th millennium site of Domuztepe in south-east Turkey. In 2013, Stuart began a new phase of fieldwork with a return to southern Iraq, co-directing the Ur Region Archaeology Project, one of the very few working in the south of Iraq.

Ben Haring is Senior Lecturer in Egyptology at the Leiden University Institute of Area Studies. His research focuses on Ancient Egyptian administration, writing (from monumental hieroglyphic to documentary cursive), and other systems of notation, on which he published several monographs.

John MacGinnis is based in the Middle East Department at the British Museum, where he is Senior Curator and a Lead Archaeologist in the Iraq Emergency Heritage Management Training Scheme. He was previously Archaeological Advisor on the Citadel in Erbil, and prior to that for fifteen years the field director responsible for operations in the lower town at the site of Ziyaret Tepe in southeastern Turkey.

Manny Medrano is a PhD Candidate and Marshall Scholar in the Department of Social Anthropology at the University of St Andrews. His research focuses on the use of computational methods to further the decipherment of khipus—the knotted-string recording devices of the prehispanic Andes.

Steven Mithen is Professor of Early Prehistory at the University of Reading, UK. Following his PhD at Cambridge, he has taught and undertaken research at Reading since 1992, where he has also held the roles of Pro-Vice Chancellor for Research and Deputy Vice Chancellor. He has long-term field projects concerning the Mesolithic in Western Scotland and the Neolithic in southern Jordan, with interests concerning the evolution of human thought, music and language, hunter-gatherer lifeways and the emergence of farming communities.

J Cameron Monroe is Professor of Anthropology at the University of California, Santa Cruz. Professor Monroe's research in Bénin and Haiti explores state formation, sovereignty, and the political economy of landscape and the built environment in both West Africa and the Caribbean in the era of the trans-Atlantic slave trade.

Tanja Skambraks is Assistant Professor of Medieval History at the University of Mannheim. She just finished her second book on „Poor-relief, caritas and small scale credit in late medieval and early modern Italy: the Monti di Pietà" and is now working on a new project on medieval tally sticks. Her research interests include economic and social history in the longue durée, material culture, moral economy, rituals and every-day life. She studied Medieval History, English Literature and Culture as well as Communication Science at the TU Dresden and the University of Edinburgh.

Willemijn Waal (PhD 2010) is a Hittitologist/classicist. Her research interests include the origins and materiality of writing in Anatolia and the Aegean and the transmission of the alphabet to Greece. Currently, she is the Director of the Netherlands Institute for the Near East (NINO) and University Lecturer at Leiden University.

Christopher Woods is the John A. Wilson Professor and Director of the Oriental Institute, and member of the Department of Near Eastern Languages and Civilizations and the Program in the Ancient Mediterranean World at the University of Chicago. He received his BS from Yale University and his PhD in Assyriology from Harvard University and was a junior fellow in the Harvard Society of Fellows before joining the faculty of the University of Chicago. His research interests include Sumerian writing and language as well as early Mesopotamian religion, literature, mathematics, and administration

PARTICIPATION

How to join:
- This event is free and open to all.
- Delegates need to have registered in advance (see the event [website](#) for the link).
- Once registered, you will receive a confirmation email with joining information if a place is available.
- The event can be viewed via your web browser or the Zoom application.
- Click on the link to join.

  - **The event will open 5 minutes before the start time:**
    - **Fri 5th Feb   10:30am**
    - **Sat 6th Feb   12:30pm**

Webinar etiquette:
- Camera and microphone for all (non-presenting) delegates are disabled
- Please **name yourself** with your full name and institution once logged in
  - (To change your name after entering a Zoom meeting, click on the **"Participants"** button at the bottom of the Zoom window. Hover your mouse over **your** name in the "Participants" list on the right side of the Zoom window. Click on **"Rename"**. Type your full name and institution. Click on **"OK"**).

- Use the **chat** window for informal conversations before the talks begin, during coffee breaks and lunchtime.

- Use the **Q&A chat** only to ask questions for the speaker
  - Post these during and immediately after each talk.

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