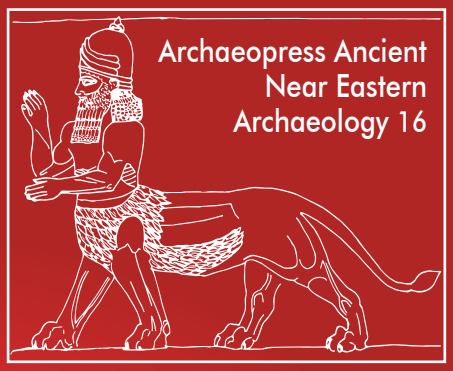
New Research on Old Collections in Southwest Asian Archaeology



Edited by
Mette Bangsborg Thuesen
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New Research on Old Collections in Southwest Asian Archaeology

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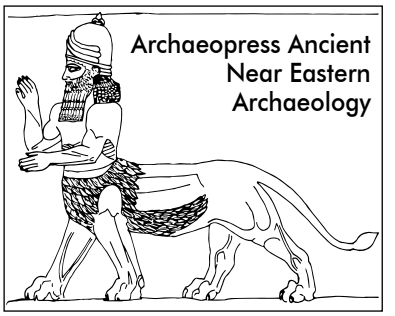

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Preface

St John Simpson

It gives me great pleasure to introduce this collection of papers arising from the workshop held in the British Museum from 31 July to 2 August 2023 on the subject of 'New Research on Old Collections in Southwest Asian Archaeology'. This was jointly organised by PhD researchers at the British Museum and Freie Universität Berlin, and the event highlighted in a Museum Newsletter (Bangsborg Thuesen and Rodzinka 2023) and an online blog (Bangsborg Thuesen 2023). The organisers were particularly anxious to address the question of sustainability in archaeology and how old collections held in museums and archives might offer viable alternatives to initiating or maintaining resource-hungry fieldwork projects abroad. These are questions which also underpinned the 13th ICAANE conference in Copenhagen in May 2023, and seem ever more important at a moment of increasingly fragile world politics and threats to the world economy.

Research is fundamental in developing society, even if archaeology and museums are a very small part of the global research community. We know why we do it, but how is governed by personal experiences and interests, as well as changing research agendas and funding priorities. The outbreak of COVID-19, the war in Ukraine and the second-term election of President Trump have demonstrated in the past five years alone how easily these can be challenged and threatened by governments or other factors completely outside our control.[1] Studying old collections bring other challenges. Not all are easily accessible or indeed readily traced. Museums are under constant pressure to make their collections accessible but their own priorities, resources and programmes do not always allow easy physical access, few are fully or intuitively searchable online, and there are costs for the researcher in terms of travel and accommodation which require considerable pre-planning and successful grant applications.

Old collections vary in size and reflect a combination of archaeological opportunity and antiquity laws, with the recovery and retention policies of different excavators and subsequent partage agreements strongly shaping what could be exported. The examples and case studies given below are from the British Museum but can equally apply to many other international museum collections, for which there is a growing

[1] In 2019 a bilateral agreement was signed between the Arts and Humanities Research Council in the UK and the Russian Foundation of Basic Research and fruitful discussions initiated on areas of joint research following a two-day workshop held in London on 21–22 October 2019 on the topic of 'British and Russian Identities and Cultures in a Comparative and Cross-cultural Perspective c. 1800–2000' (Simpson 2020). These ended abruptly with the full-scale Russian invasion of Ukraine on 24 February 2022.

amount of literature (e.g. Emberling and Petit 2018; Pedde 2015; Raja 2023; Van de Ven 2022). Some may include entire tomb groups or complete trench assemblages, as is the case with finds from the excavations by Kathleen Kenyon at Jericho (Ashmolean Museum, British Museum, Manchester Museum, and University College London), with most of the relevant archive held in Manchester Museum. Archival studies, an essential part of archaeological and provenance research, hold even more challenges. In other cases, the selection is more representative of the whole site. This is true for Lachish, Siraf and Tell es-Sa'idiyeh where almost all of the exported finds were deposited with the excavation archives: a detailed handlist (but without illustrations) was published for the Lachish collection,[2] and the Siraf collection catalogued and photographed for the Museum's Collection Online database while work continues on the archive (Simpson 2019). In the case of the author's excavations at Merv, the opportunity was given to export a large representative sample of pottery, duplicate small finds and samples, whereas complete objects, coins and most of the fired clay figurines were transferred to the National Museum in Ashgabat and the Mary Regional Museum, and other bulk finds buried at the site. The exported finds from the British Museum excavations at Nineveh directed by Reginald Campbell Thompson (1876–1941) from 1927/28 to 1930/31 were divided between the British Museum, Ashmolean Museum and Birmingham Museum and Art Gallery, whereas those from the British School of Archaeology in Iraq excavations at Nimrud were dispersed more widely, although a major proportion of the finds are registered within the British Museum. In the case of Ur, about half of the finds remained in Baghdad with the remainder allocated to Leonard Woolley (1880–1960) as the project director to divide fairly and evenly between the British Museum and Penn Museum as his two official sponsors. He was also awarded discretion to allocate small subsets to other sponsors, including the Ashmolean Museum, Birmingham Museum, Cambridge Museum of Archaeology and Anthropology, and private individuals named and acknowledged in the archives. Most finds were divided at the end of each season, with the initials 'L' and 'P' being used to indicate the intended final destinations of those not in Baghdad, but there were exceptions and, in a letter to Kenyon, Woolley strongly recommended that

> 'the fragments of stone vases, other than those selected for exhibition, should be held over for the time being; there is always the possibility, a fairly strong one, that we may recover another part of the same hoard, and the work of fitting together pieces found in different seasons will be made very difficult of those of this year are scattered between London and Philadelphia'.[3]

[2] Magrill 2006. This collection totals some 17,500 items transferred from the Institute of Archaeology, University of London [later UCL] in 1980. Prior to then, the ancient Levant collection mainly consisted of a tomb group from Jericho presented by Kathleen Kenyon and a sherd type series donated during the time of the Palestine Mandate, with the displays divided between a small Palestine Room on the ground floor and the Syrian Room upstairs (Tubb 2023).

[3] British Museum/Central Archive/Woolley papers: WY/1/1/96, letter dated 13 August 1923.

The proportions of object types divided between institutions sometimes also varied, thus Woolley commented that Baghdad took the most complete painted pottery from the cemetery at Tell al-Ubaid but 'we have a type series of plain pottery, half of the stone vases and of the beads, and the bulk of the copper implements and vessels', continuing that

> 'of the Diqdiqqah objects, I surrendered the bulk of the cylinder seals, which have small value for London or Philadelphia, and kept the whole series of terracottas, which are of far greater importance, and the beads, including some 500 gold beads'.[4]

In other cases, the collection may include only a small proportion of the complete assemblage, selected by the excavator to be what he or she considered to be a representative group. In the case of items excavated at sites in the Eski Mosul dam in Iraq, very little survives outside a small amount of complete objects in the Iraq Museum, as foreign teams were generally not permitted to export, there was no official designated storage facility and directors therefore obliged to discard their bulk finds at the end of the project. Selected finds were deposited in the Mosul Museum and Tel 'Afar museums but lost when those were destroyed by Daesh in 2015 (Shaheen 2015), and those deposited by Iraqi teams in a separate discreet storage location in Mosul also lost during that period of occupation. The exception is a small selection of 289 sherds from 14 sites excavated by the British Archaeological Expedition to Iraq, for which export was permitted, and which are now registered in the British Museum. This offers a unique snapshot of occupation history from a submerged section of the upper Tigris valley and illustrate changes of ceramic technology over eight millennia from the Hassuna to the Late Islamic periods.[5] Sherd assemblages like these are invaluable for direct comparison and a number have already been sampled for scientific analyses of clays and glazes. The author's work at Merv mentioned above offers another example as high-value finds, coins, inscriptions and complete objects were consigned to the museums in Turkmenistan, but as there was no desire to store fragments or samples long-term it was agreed that a selection of these could be exported, hence deposited and registered into the Museum collection.

Inevitably, the quality and quantity of the documentation associated with these objects varies greatly. In some cases, there may at best be a field number marked on

[4] British Museum/Central Archive/Woolley papers: WY 1/3/29, letter dated 8 March 1924.

[5] The collection consists of pottery from the following sites investigated as part of the contribution made by the British Archaeological Expedition to Iraq to the rescue project: Tell Abu Dhahir, Gir Matbakh, Kar Hasan, Seh Qubba, Shelgiyya and Siyana Ulya, excavated under the direction of Warwick Ball (2013,6029 collection); Grai Darki (1987,0412.63–81), Khirbet Deir Situn (1988,0515.99–240), Khirbet Khatuniyeh (1987,0412.1–62), Khirbet Qasrij (1984,0512.25–67), Qasrij Cliff (1984,0512.1–24) and Tell Deir Situn (1987,0412.82-101), excavated by John Curtis; Kharabeh Village, excavated by Trevor Watkins (1988,0515.1–10); Babneet Village and Qara Dere, excavated by the author under the direction of Michael Roaf (1988,0515,11–98), and exported with permission from Baghdad by Warwick Ball, John Curtis and St John Simpson respectively.

the object: here the type and colour of ink offer clues, as the French excavators at Susa and the Germans at Assur, Babylon and Ctesiphon invariably used red ink, whereas for some reason the British used black. In other cases, findspots are marked on the objects in pencil, presumably jotted at the very moment of discovery, and other collections or dealers can be recognised by their own types of adhering paper label but here there is only the label to give a clue as to the source. In contrast, the excavated pieces may be associated with linear metres of archive, but this in itself usually requires lengthy study in order to secure any additional stratigraphic information. Moreover, objects, archives and libraries are rarely kept in proximity and access to each may require different procedures and places of study. The results of Sir Aurel Stein's (1862–1943) fieldwork in Iran offer a good example of this as the finds are in the British Museum, the field notebooks in the Bodleian Libraries in Oxford (MSS. Stein 1-458), and the photographs in the British Library.[6]

It is here that the study of old collections can throw light on the quality of object retrieval (and thus indirectly on the quality of excavation) simply by means of assessing object size and type and comparing with other collections. In the case of 19th century excavations in Iraq, there are complete and semi-complete vessels but the remainder are decorated sherds, mostly from Assyria, including the first example of what was later termed Ninevite 5, Assyrian glazed wares, imported Eastern Sigillata, and pottery of the Seleucid, Parthian, Sasanian and Islamic periods. This is clear evidence of a selection process based on picking distinctive types: although their chronology was then unknown (although doubtless the excavators recognised the similarity of the Sigillata to that found at Romano-British sites), it demonstrates a desire to retain examples of ancient craftsmanship beyond the simple removal of sculptures, confirmed by the retention of fragments of ancient glass and even more modest finds.

Aurel Stein's pioneering surveys across southern Iran between 1932 and 1936 were aimed at exploring connections with India, and as part of this he excavated test trenches at sites he believed were promising. The sherds and selected small finds were divided between Harvard and London, as agreed by Tehran: a large proportion of the latter collection from his third and fourth expeditions consists of some 9,000 sherds of painted pottery from 5th millennium BC (Bakun) sites in southern Iran. In these cases, average sherd size is some 4 cm, consistent with the level of recovery to be expected from sieving and implying very careful attention to finds recovery, an observation supported by the high proportion of lithic debitage to finished tools

[6] These were successfully combined in an AHRC-funded PhD re-analysis by Helen Taylor of the Bakun pottery. The written archive of Stein's aerial survey of Roman and other sites in northern Iraq is also held in the Bodleian Library, but other papers dispersed as his measured plan of the site of Eski Mosul is in the archive of the Royal Geographical Society (mr Jordan S.1) and others, including his plan of Singara, are held in the Department of the Middle East in the Museum where they were bound into a large volume of other archival plans and published maps.

from the same sites.[7] In contrast, averaging measurements taken of the sherds in the (mostly Halaf painted) assemblage selection in the Museum – a sample of 386 in all – from Mallowan's single season of excavations in the upper levels of Tepe Reshwa (better known as Arpachiyah) in 1933 gives a mean of 5.9 cm, implying a more selective recovery process, with a greater potential compromise of results of any quantitative study of motif type (Mallowan and Rose 1935; cf. Hijara 1980; 1997; Melville 2005; Spataro and Fletcher 2010).[8] In both cases, there is an overwhelming preponderance towards decorated pottery, as this was the means then considered key to understanding relative chronologies, but appreciating how common this was within the overall pottery assemblages requires comparison with more recent excavations (Miki 2022). That said, one sherd from Samarra belongs to dark-faced cooking ware with a pot mark incised on the exterior,[9] and a high proportion of the painted open bowls from that site have ancient use-wear along the outer rims and partial sooting on one or more surfaces in a few cases. It should be noted that nine sherds in this Samarra assemblage are partially or heavily overfired,[10] proving that they were locally made (and the frequency with which kilns have been found at prehistoric village sites implies that this was probably customary; Simpson 1997), and macroscopically the petrofabrics of the entire group appear much more homogeneous than that of Arpachiyah where other studies have already drawn attention to the variety of petrofabrics present (Davidson and McKerrell 1980; Spataro and Fletcher 2010).

Another point to note is the evidence for ancient repairs across these different assemblages, with evidence for drilled perforations on six sherds and bitumen applied to old breaks as a form of adhesive on another six pieces at Arpachiyah,[11] with similar repairs on two sherds from Samarra,[12] two more on Hassuna and Halaf sherds from Tell Hassuna,[13] and a further 23 – thus 0.25% of the total – in the Stein assemblages from Fars (although none of these have any traces of bitumen mastic). Although the sample size is limited, almost all are painted wares and in each case the perforations are unidirectionally drilled from the outside, thus at the expense of the design but minimising the area of the aperture on the interior and reducing the possibility of seepability of liquid contents. Similar evidence is said to have been common at Tell Sabi Abyad, leading to the suggestion that they 'may have signalled that the object was old and valuable enough to merit restoration' (Dooijes and Nieuwenhuyse 2007: 11). The different regional patterns of repair imply different practices of curation

[7] This material is long overdue detailed study and comparison with assemblages from subsequent excavations.
[8] A substantial collection of his pottery was also deposited by Mallowan at the Institute of Archaeology (now UCL) for teaching purposes.
[9] BM 1924,0416.175.
[10] BM 1924,0416.20, 29, 51, 63, 75–76, 129–130, 180.
[11] BM 1934,0211.131, 142, 161, 245, 252, 264 (bitumen only), 13, 40, 234, 241, 284 (repair holes only), 300 (bitumen and repair hole).
[12] BM 1924,0416.84 (splashes of bitumen over the rim), 214 (bitumen repair).
[13] BM 1962,0725.9, 1962,0725.22.

in antiquity between Mesopotamia and the Iranian plateau. This perhaps reflects greater sentimental value for particular (and perhaps imported) pots at Arpachiyah, or the temporary unavailability of substitutes at Samarra in the winter months as pre-industrial pottery production was small-scale and seasonal with limited scope or need to stockpile out of season. To what extent this is a feature particularly of these late prehistoric communities, when painted pottery was more time-consuming to make and the designs embued with encoded meaning, would be instructive to test by closer comparison with fully quantified assemblages from more recent excavations of later periods when pottery becomes more utilitarian and generally of lower status.

Moving to other periods and another category of object, it might be added that evidence for bitumen repairs is often found on Elamite fired clay figurines from Susa. This is a feature of the assemblages both in the Musée du Louvre and the British Museum, in the latter case from excavations carried out both by W.K. Loftus and R. Ghirshman.[14] The figurines all belong to mould-pressed types representing a female figure with their hands cupping their breasts and wearing nothing but an elaborate necklace, bracelets and anklets, clearly cultic items rather than simple toys. Figurines are easy to break, and usually snap at the weak points of the neck, ankles or waist as replication experiments have demonstrated (Wandowicz 2023), and one of the excavators of Mohenjo-daro remarked that 'if accidentally broken, these figurines would naturally have lost their sacred nature as the abode of a deity' and thus discarded (Mackay *et al.* 1976: 259). However, the frequency with which those from Susa were repaired seems relatively high compared with those in Mesopotamian assemblages. This again implies different curation practices at work, even though the exact function and place of use of these figurines remain a matter of discussion.

Returning to Ur, there is a wealth of complete, but largely plain, pottery in the Museum's collection from Woolley's excavations there from 1922 to 1934. Woolley himself was fascinated by pottery from an early age. This explains why his publications – from Carchemish to Ur and Tell Atchana – reflect this (Woolley 1914; 1934a; Woolley and Barnett 1952: 227–37, pls 66–69 (Carchemish); Woolley 1934b: 387–91 (third millennium BC); 1955: 23–29, pls 58–64 (Jemdet Nasr/Ubaid); Woolley 1965: 97–100, pls 38–46 (Kassite, Late Assyrian); Woolley and Mallowan 1962: 88–100, pls 38–59 (Neo-Babylonian, Achaemenid); 1976: 186–93, pls 95, 101–13 (Old Babylonian), and his desire to create robust chronological typologies and proportions of different wares led to a pioneering approach to quantification by level at Atchana (Woolley, Gadd and Barnett 1955: 306). He was also a staunch supporter of a proposal to create a systematic typology of Mesopotamian pottery across all the foreign expeditions then working in Iraq, although this was not achieved. The Museum has a large number of complete pots from his nine seasons of excavations at Ur, plus a smaller amount of sherds from his deep sounding and other specific contexts, and a further sherd

[14] BM 1853,1219.21, 23–41, 43–44, 83–86, 1420a, 1428–1434, 1437, 1439 / 91822–91833, 120448 (Loftus collection), 2022,6018.3–4 (Ghirshman collection, presented by his former architect, Ian Weatherhead).

assemblage from Atchana, the latter being the subject of several studies triggered by A. Yener's more recent excavations there (eg. Bergoffen 2005; Sconzo 2013). The fact that the individual findspots of the complete vessels from Ur were not recorded has meant that this assemblage has received less attention. Yet the work by Luca Volpi (2020) shows that there is great potential when integrating their typologies into the excavation records, and a comparative study of vessel typologies, use-wear and vessel capacities would undoubtedly offer important new information.

Questions over the reliability, representativeness or ethical concerns of old data lead some researchers to eschew the study of old collections in favour of new fieldwork. However, the latter add to the problem of responsible storage and long-term access as mountains of paper are replaced by gigabytes of data held hostage by computer software, server capacity and means of electronic transfer. The new data are more vulnerable than the old, and it is hardly likely that all current projects will publish their results in full or in ways which allow for re-analysis in the foreseeable future. Few countries now permit any export of archaeological materials, except occasionally as samples for scientific analysis and even then often on a temporary basis. Local and national museums cannot cope and re-burial of bulk finds at the sites they came from is, therefore, pursued as a policy in some cases, as in Iraq. However, the author's experience from there shows that even this does not allow even medium-term retrieval and study, as water, salts and rodents speed the breakdown of the contents of even sealed containers. Recent events in Khartoum show that the shipping containers used to store the bulk finds and equipment belonging to different projects are equally vulnerable at times of conflict and looting (Ahmed 2025).

So what are the answers? The first is that there is no simple solution. To stop undertaking new fieldwork is to deny the possibility of new discoveries, the development of new techniques, testing of new research questions, or the ability to survey and excavate sites or landscapes at risk from development and climate change. Moreover, these projects open new avenues for training, testing classroom-based teaching in the field, sharing approaches and results with other teams, and developing a sense of community archaeology by communicating this work in-country with local stakeholders, whether they be politicians, archaeologists, students or the public. New excavations also raise questions over the dating, function or provenance of objects in old collections, and this is where there becomes a synergy and virtual circle between the new and the old. The author's work at Kobeba is a good example of this as it has triggered new research on the existing collection, not only in the Museum but also related collections in the Musée du Louvre. It has also demonstrated occasional conscious recycling and curation of objects in antiquity (including an Isin/Larsa-period toy rattle from an early Islamic context and a 1st millennium BC Lamashtu amulet from a much later refuse deposit), and helped challenge traditional assumptions over the distinction between Jemdet Nasr and Early Dynastic I pottery with major implications for the interpretation of surface survey data (Simpson 2022;

2023). Making the results accessible within Iraq was another goal of that project, achieved partly through TV and social media posts and a lecture tour in 2025, but also through the production and free dissemination of colourful Arabic leaflets discussing the project, key research outputs and the importance of cultural heritage (Simpson, in press).

The safeguarding, documentation, display and interpretation of collections are fundamental parts of museums. At times of conflict, curators have been forced to hide and/or move collections, sharing little and acting quickly, as in Iran at the moment of writing. Effective disaster planning and information-sharing among professionals has led to many remarkable stories emerging long afterwards in countries such as Afghanistan (Ambers *et al*. 2014), Iraq (Schuster and Polk 2005) and Syria (Abdulkarim 2023), as high-value pieces were concealed for years in the face of accusations of looting by officials or other agencies, and others remained untouched. Documenting, digitising and creating secure external backups of such inventories is a priority, although ethical questions remain over the wider accessibility and intellectual ownership of the information or the long-term viability and maintenance of databases built with foreign and leased software packages.

All museums have some form of backlog but generally have managed them quietly and steadily within departments. However, the Museum was almost overwhelmed in the 19th century as crates of sculptures, pottery and natural history specimens arrived, initially storing the sculptures excavated by Sir Charles Newton (1816–1894) from the mausoleum of Halicarnassus, Branchidae and Cnidus, followed by others from Cyrene, in glass sheds erected along the east and west colonnades on either side of the main entrance to the Museum.[15] Moreover, this was a period when a flood of books entered the collection as Antonio Panizzi (1797–1879), the Principal Librarian (as the Museum Director was then known), ensured that a copy of every publication be deposited in the Museum as a result of the 1842 Copyright Act. Documentation and cataloguing are core curatorial activities but easily de-prioritised under pressures or distractions of exhibitions, research projects or changing museum priorities, and working directly with objects in collections has generally declined with reliance instead on existing computerised inventories or online resources.

The future of research is in collaboration, bridging disciplines, crossing borders and maintaining political neutrality: the bridge of culture is the one which should never be burnt. The integration of old collections into new research projects connects international partners, museums and university research with the powerful potential outreach to a much bigger audience that the museums enjoy. Bringing students into study rooms and galleries helps engage both sides, but through display and media we can reach a much bigger world, and continue to surprise, challenge, educate and delight all of our public in equal measure.

[15] *BM Return 1860*: 13; *BM Return 1862*: 15.

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Chapter 1:
Introduction

Mette Bangsborg Thuesen & Giulia Russo

This book is the result of the workshop titled *New Research on Old Collections in Southwest Asian Archaeology* which took place from 31 July to 2 August 2023 at the British Museum in the Middle East Department. The aim was to gather PhD researchers from various research institutions in Germany, Belgium, and the United Kingdom to share ideas and perspectives on the challenges of working with old collections stored in museums and archival materials. The workshop covered a wide range of case studies, from pottery-making practices in Chalcolithic Syria, to Bronze Age clay figurines from Ur and Sasanian pottery from old excavations in Iran, and from life-biographies of Mesopotamian statues to Late Antique and early medieval brass-making. These were presented through different scientific approaches and anthropological lenses.

Throughout ten different presentations, the participants highlighted the potential of these legacy collections and what can be gained from (re-)investigating them. In fact, many of the studies focused on overlooked objects that, for decades, have been left un(der)studied in museums' stores. A central theme of the workshop was sustainability in archaeological research in South-West and Central Asia. The speakers convincingly demonstrated that reassessing legacy collections is not just complementary to research on freshly collected materials or an alternative to new and resource-demanding fieldwork projects, but a significant field of research in its own right.

On the final day of the workshop, we gathered for a round-table discussion in which each participant was asked to write down what they define as "sustainable" research. We collected these notes on a board to identify common threads and discuss each line of thought. Some participants highlighted how museums and field projects can do more to reuse existing technical equipment and materials, rather than rushing into implementing the newest digital technology without thoroughly considering its necessity and relevance. For instance, is it necessary to create 3D models of every newly excavated feature, with no clear plan for its intended use? A significant amount of effort is currently devoted to creating online databases and repositories; however, are we doing enough to plan for the long-term maintenance of these platforms and to effectively accommodate user feedback? In relation to excavations, we also discussed the need for greater awareness of the plastic we consume. Although it is impossible to avoid plastic in some instances, more can be done to find alternative solutions. In some survey projects, collected finds are kept in textile bags, while plastic bags are

Figure 1. Group photo of workshop participants in front of the board with terms defining sustainability

reserved for those finds intended for permanent storage. In this instance, the use of plastic is reduced, although it is acknowledged that textile bags are not ideal for long-term storage as the material does not offer adequate protection against pests.

Significantly, the gathered notes emphasised how the topic of sustainability in archaeology extends beyond recycling old data and using environmentally friendly materials. Many workshop participants highlighted the importance of inclusion and the need to ensure that collections and research are accessible to a broader audience, not just a select few. This aligns with the principles of community archaeology, which seeks to involve local stakeholders and non-professionals in disseminating fieldwork results—a critical approach we argue should be central to all current and future projects, if our discipline (and museums) are to remain relevant. As we, as westerners, deal with colonial heritage, we need to be better at asking local stakeholders and communities what is needed instead of assuming needs. One colleague excavating in Iraq provided the example that they had proposed publishing their excavation reports in Arabic. However, the local antiquity service responded that they were rather hoping for pamphlets about the ancient settlement that could be distributed in the neighboring communities. Tackling a colonial heritage also means acknowledging the inherent hierarchy it created and which still persists today. Students and researchers, especially those from the artifacts' countries of origin or the Global South, may face

significant financial burdens when accessing museum collections, not to mention the unpredictability of whether they will be granted a visa. Museums must address this issue critically and proactively, ensuring that they provide researchers with the means to access their collections.

All these elements are connected to another keyword that recurred on the board: accessibility. This involves, for example, producing archaeological knowledge in the languages of the countries of origin of the objects or where fieldwork is conducted, i.e., Arabic, Farsi, Turkish, and Kurdish. To the presenters, accessibility also meant making museum and university collections accessible to students for object-based learning. Accessibility begins with transparency about what is kept in a museum's stores. While museums are increasingly digitising collections, how many museums can say that their complete collections are fully registered and digitised, thereby making them accessible? A general observation was that registered and digitised materials tend to reflect curators' expertise and research interests, inevitably creating an imbalance in the quality and quantity of documented collections. This leaves parts of collections understudied and/or unknown to external researchers and general audiences. As also mentioned by Giulia Russo (in this volume), an online repository listing all collections from Southwest Asia scattered across different museums and university collections may be a solution for establishing an overview of what each museum possesses, to track scattered assemblages, and to allow students, early career researchers, and established scholars alike to develop research on collections which takes into account as large and complete datasets as possible.

These points only scratched the surface of the topic, and for that reason, a majority of the participants deemed it necessary to continue the discussion. This led to the formation of the "Network for Sustainable Archaeological Practices" (NetSAP) in early 2024, an initiative that aims to critically discuss and expand on the topics that emerged at the workshop, also by organising webinars and workshops in collaboration with specialists on these topics. Through these events, we aim to provide a platform for discussions and dialogue around sustainable and ethical practices in archaeological research. With this book, we want to underline, as other scholars have done before us, that un(der)studied collections are a loss to our communities. A significant amount of resources and energy has been invested in conducting fieldwork abroad in order to produce collections and archives. While failing to document and publish collections can be viewed as a form of bad professional practice and moral neglect, we must also recognise that systemic pressures—such as short-term contracts, limited funding, and the inherent overproduction of material in archaeological fieldwork—constrain what archaeologists and curators can realistically accomplish. At the same time, we want to emphasise that every professional working in this field has individual responsibility and accountability toward the archaeological collections they produce and curate. While appreciating the crucial role of professionals in caring for collections, we must also be mindful that well-intentioned practices can sometimes limit equitable access

to collections, making it more difficult for early-career researchers and others to participate fully in archaeological research. The line between good intentions and gatekeeping is rather fine, if not blurred. We maintain that this tension between ethical (individual as well as collective) responsibility and structural limitations must be acknowledged if we are to address sustainability in archaeology in a meaningful way—one that can produce the change we so much wish for.

By explicitly focusing on sustainability, this volume aims to contribute fresh ideas on how archaeologists can engage with legacy collections—not as discarded remnants or depleted resources, but as dynamic, renewable sources of knowledge. The volume is organised into two sections, featuring six papers in total. The first section explores the production and use-life of objects in museum collections, with papers focusing on Mesopotamian statuary (Imane Achouche), clay figurines (Enrica Inversi), and glass bangles (Charlotte Nash-Pye). Achouche investigates traces of deliberate destruction on Mesopotamian statues in Antiquity and reflects on their ideological reasoning by drawing on inscriptions and textual evidence. Inversi demonstrates how figurines from Woolley's excavations at Ur can offer new insights into daily practices and the lives of children at a site that is generally perceived by scholars as well-known and thoroughly studied. Nash-Pye shows how advances in scientific analysis, particularly compositional techniques, can help identify sites of glass production and trace interregional exchange of personal ornamentation. In the second section, Mette Bangsborg Thuesen and Georg Cyrus present results from their reassessment of old documentation. Bangsborg Thuesen discusses a group of late Sasanian and early Islamic pottery from Takht-e Suleiman, highlighting its significance for understanding regional ceramic traditions. Cyrus investigates stratigraphic data from Godin Tepe to reinterpret the nature of squatter occupations at the site through a sequence-of-events analysis. In the final paper of this section, Russo reflects on the theme of sustainability in the context of archival and collection practices.

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Section I:
Understanding the production and use-life of objects in museum collections

Chapter 2:
Writing the biography of artefacts retired in museums. A methodological approach to the study of Mesopotamian statuary

Imane Achouche[1]

Abstract

This contribution explores the ways in which Mesopotamian statuary and associated ritual practices have been understood by modern research. In this sense, several standard interpretative approaches are explored and subsequently scrutinized in the light of four case studies. Firstly, translation difficulties, sometimes influenced by a certain *a priori* of the message conveyed. This question will be addressed through the treatment of inscriptions added to Mesopotamian artefacts by Šûtrûk-Nahůnte I, in the 12th century BC. Secondly, the difficulties of finding a balance between the symbolic and the concrete aspects, while reading texts describing rituals. This will be analyzed through a set of texts testifying to redistribution of offerings to a wide range of individuals, after having offered the latter to the deities. Third, the primacy of certain hypotheses, such as the deliberate mutilation of statues rather than simple accidental breakage, in situations where the evidence is weak. From the disk of Enḫeduana to the statues of worshippers of the 3rd millennium BC, I shall question what clues are available to us to identify voluntary or accidental destruction. Fourth, the value of studying a corpus as a whole and the risks involved in selecting elements. Here I will return to the case of artefacts moved by Šûtrûk-Nahůnte I. These research questions appeared within the framework of my PhD dissertation and are intended to highlight limits rather than to provide infallible solutions.

Key words: Mesopotamia; Statuary; Methodology; Interdisciplinarity; Recontextualization.

> Par ailleurs, les statues parlaient-elles vraiment ou est-ce plutôt un fantasme d'archéologue ?[2] (Rivière 2016: 479)

The rediscovery[3] of Mesopotamia largely involved the valorization of artefacts that left a lasting impression. The unearthing of statues contributed to the development of interest in the study of antiquity in the region, but while building momentum for

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[2] 'Furthermore, did the statues really speak or is this more of an archaeologist's fantasy?' (author's translation).

[3] This is not the subject of this article, but in a nutshell, I would like to stress the importance of taking a step back from the notion of 'discovery' in archaeology. Defined as the fact of finding someone or something, in Mesopotamian studies it is generally associated with the end of the 18th century AD and travelers from Western Europe. However, Mesopotamia has never been forgotten, and a great deal of historiographical work has yet to be carried out in Arabic sources. For more on this subject, see Alshehaby 2020; Awad 1949, 1952; Bahrani 2011; Janssen 1995; Tamur 2022.

the study of Mesopotamia, it also brought about many interpretative biases.[4] Indeed, once it is torn from its context and exhibited in museums, an artefact conveys the message its new host institution assigned to it. Jean Evans explained this process in detail in the second chapter of her book *The Lives of Sumerian Sculpture*. Function and installation of these newly discovered statues in the early 1900s are influenced by the conception of statuary at the time of the exhibition, *a fortiori* very tinged with Christianity and Primitivism (Evans 2012: 46–76). In 1926, Eckard Unger already made this critical observation regarding the rooms exhibiting Mesopotamian art, with, for example, his comment on the Louvre Museum in the early 20th century: 'Auch das Museum des Louvre in Paris ist noch altmodisch, namentlich weil hier assyrische Kolossalreliefs zusammen mit sumerischen Statuen, die 2000 Jahre älter sind, aufgestellt sind, so daß eins das andere beeinträchtigt.'[5] (1926: 5).

Contemporary museography often strives to recreate exhibition settings as close as possible to those in which the artefacts were originally used. However, regardless of the approach, these artefacts tend to be regarded as inanimate objects, sometimes even defined as 'works of art', and combined in assemblages that can obscure their original significance or nature (Bahrani *et al.* 2011; Blocher 2019: 94; Delli Castelli 2023; Evans 2012; Merriman 1993; Pearce 1997). Moreover, the opposite extreme can appear in our analyses: research discusses pagan, polytheistic societies, where worship and politics were one and the same. It is therefore important to avoid interpretations that may overstate the role of ritual and are not sufficiently nuanced.[6] The development of a monolithic explanation – which would be based on an animist functioning of the antic cult (Delli Castelli 2025: 35, 199) – runs the risk of making the data say more than they can deliver. In addition to the distance in time and the limited quality and quantity of what survives in the archaeological record, we are also influenced by the specific worldview of our own society.

By contributing to this volume, I would like to address some of the biases that arise in the study of the cult of divine statues. As ritual practices have attracted interest

[4] One of the problematic analyses was the study of statuary in relation to physical anthropology and the search for similarities between populations and three-dimensional representations, in a context of human hierarchization (Evans 2012: 31–41).

[5] 'The Louvre Museum in Paris is also outmoded particularly because Assyrian colossal reliefs are exhibited together with Sumerian statues which are 2000 years older so that the one compromises the other.' [translation from Tamur 2022: 177].

[6] Certainly, Mesopotamia, like most ancient societies, had cultic practices at the heart of its organization. However, it is the understanding of the nuances of this functioning that appears to be difficult, because it is very far from our current habits. Herman Vanstiphout (Porter 2009b: 202–203), for example, insists on the difference between what is currently considered 'sacred or divine' and what was in antiquity. Kim Benzel gives an example with her analysis of the materials used to represent the divine, which are both considered to have an inherent value that she qualifies as 'magical', while stressing that their economic and practical value should not be overlooked (2015: 89–90). Claudia Suter, through the observation of regalia, evokes the deliberately blurred boundary in certain contexts, between the royal and divine spheres (2007: 140–141). Finally, Jean Bottéro's (1987: 246–270; 1998) works always insisted on the earthly world as the terrain of the divine, which sums up this dichotomy well.

since the origins of our disciplines, they are also among the very topics that need to be carefully reconsidered.

Theory meets practice

In the name of the rituality of ancient societies, there can be an excessive reading of everything through the prism of ritual. In this respect, the case of divine representations is very telling. In Mesopotamia, it was possible to make the invisible present, to make the gods 'alive', the images serving as a medium of connection between people and their divinities (Aruz 2009: 69; Boden 1998: 95; Bottéro *et al.* 1989; Walker *et al.* 2001). Even if this value attributed to divine images is well-documented, one should still refrain from venturing into too far-fetched interpretative speculations. It is important to focus on the data and to try to limit the influence of our preconceptions (Levi-Strauss 1958: 307–308; Linstead 1993: 102; Winter 1999: 250–251).

What made the divine statues 'alive', was the vitality that was given to them by imbuing them with 'life' through rites, by maintaining their special status, by integrating them into the 'life' of society, and so on (Chaniotis 2017: 97). Nevertheless, we must be wary of an overly literal reading of the idea of 'lives of statues'. In order to better understand this concept, it is useful to consider the practices related to the production and maintenance of said statues. For example, according to a text[7] unearthed in the house of a member of the Aššur (Iraq) cult elite, which contained instructions for irreparable divine images, the damaged statue had to be returned to the god Ea[8] by throwing it into a river. However, it is difficult to imagine an object of precious material value thrown into the water. Furthermore, at present, for the majority of us, these concepts are extremely difficult to apprehend (Delli Castelli 2023: 33). As Ghislain Casas points out in relation to Western anthropological theories about the diversity of beliefs:

> 'L'idée qu'un objet puisse être animé ne nous est plus familière et nous ne pouvons que l'envisager comme une croyance superstitieuse. C'est pourquoi l'anthropologie moderne ne peut que se heurter à des questions insolubles concernant le rapport de la croyance et de l'efficacité des rites.'[9] (Casas 2014: 678).

Considering our documentation as a whole and applying an interdisciplinary practice in our field is one way of overcoming these limitations. This is a term that

[7] TuL 27 [on A.418], Neo-Assyrian inscription (*c.* 934–609), on a clay tablet (12×25 cm), discovered in 1908 in Aššur (Ebeling 1931: 108–120; Walker and Dick 2001: 227–246).
[8] One of the great Mesopotamian gods, organizer of the Universe and the Earth. God of water, fertility of the fields, wisdom, purification, medicine and magic.
[9] 'The idea that an object can be animated is no longer familiar to us, and we can only regard it as a superstitious belief. This is why modern anthropology is inevitably confronted with insoluble questions concerning the relationship between belief and the efficacy of rites.' (author's translation).

is often used but appears to be laborious to implement.[10] In the sense given here, the point of an interdisciplinary methodology is not to give more value to one source at the expense of another. This does not mean that no distinction should be made between the sources, but rather that each has an equal place in our field (Bahrani 1995: 373; Bottéro 1987: 60–70). Therefore, without denying our inheritance from specific disciplines and schools of thought, it seems important to smooth out the boundaries between the stages of the *chaîne opératoire scientifique*.[11] This implies that archaeologists benefit from familiarizing themselves with the texts, and philologists benefit from familiarizing themselves with the context and medium of the texts. The underlying aim is therefore to overcome a dynamic of reliance and move towards a dynamic of exchange. We concur with Cory D. Crawford's conclusion that the subdivision in teaching between disciplines[12] leads to limited views:

> '(...) the very division into categories of image and/or/versus text runs the risk of reifying ontological boundaries not necessarily operative or impermeable in ancient Mesopotamia.' (Crawford 2014: 242).

At the same time, text, image, and artefact will often taunt us by providing us with information that cannot be reconciled, or even contradicts itself. Through four case studies, I will try to illustrate these difficulties. First, the importance of using precise vocabulary, translations, and term equivalences. Secondly, the benefits of taking a step back from overly literal readings of ritual texts within the framework of research and of placing them in a more concrete context. Thirdly, the importance of moving away from overly specific analyses of one aspect of objects so as to gain a more wholesome understanding of their context. Fourth, the value of studying corpuses as sets and of systematically studying the elements of which they are composed. All of this is done in the awareness that these are considerations whose aim is to limit the pitfalls of interpretation, while being aware that they are not entirely avoidable and that absolute truth cannot be achieved (Linstead 1993: 99–100).

Before proceeding to a detailed discussion of the aspects outlined above, I should point out that these proposals are based on my ongoing PhD. Every time I noticed biases in the study of the 'life and death' of Mesopotamian statues (e.g., state of

[10] Interdisciplinarity can be complex to define, especially in its nuances with multidisciplinary, transdisciplinary, *etc.* The definition adopted here is that of Lionel Dupuy (2021: 2): '(...) L'interdisciplinarité croise les démarches scientifiques de chaque discipline en vue d'étudier le même objet, mais dans une perspective plus globale. Certes, le chercheur demeure centré sur un objet d'étude en particulier et en partant d'une discipline bien précise, mais sa distance critique est bien plus pertinente, ayant intégré initialement les problématiques des autres disciplines mises à contribution.' Author's translation: '(...) Interdisciplinarity combines the scientific approaches of each discipline to study the same topic, but from a more global perspective. Admittedly, the researcher remains focused on a particular object of study, using a specific discipline as a starting point, but his or her critical distance is much more relevant, having initially integrated the issues of the other disciplines involved.'

[11] With this expression, we want to refer to the incremental process of knowledge creation and mobilization.

[12] Certainly, also a reality in other disciplines, but here it is expressed in the light of the fact that the societies we study are particularly concerned with producing images and text combined.

conservation, quality of archaeological documentation, *etc.*), I questioned my own method of analyzing this class of objects. What follows is my attempt at addressing these points.

Play on words

The value of using a precise vocabulary in our translations is primary and one knows how a single mistranslated word can change the whole meaning of a text. A good example is that of the inscription related to the well-known case of Šůtrůk-Nahůnte I's[13] artefacts displacement to Susa (Iran). He had at least 15 statues (Achouche 2024: 11) and probably 40 *kudurrus/narûs* (Seidl 1998) transported from Babylonia to Susa and added his inscription on some[14] of them. One of these Elamite (= Hatamtite)[15] inscriptions,[16] added on the stela of Narām-Sîn,[17] provides details of great importance. It states that Šůtrůk-Nahůnte I moved the stela, which is something that appears in all the inscriptions he added. The difference is that this specific inscription also contains a term which could mean that he 'protected' the stela.[18] Because of this, hypotheses can be made about the value and function of the objects that have been removed. It can also be assumed that the removal of these objects was a response to a need and not simply a desire to harm an enemy (Amiet 1976: 128; Harper *et al.* 1992: 161; Thomason 2005: 107; Westenholz 2012: 98). However, an alternative translation suggests 'to take away' rather than 'to protect' (Bahrani 1995: 14; König 1965: 76). It appears that the use, in some research, of the translation 'protected' may be intended to support a narrative that absolves the sovereign of practices considered controversial (Bahrani

[13] Ruler of Elam (= Hatamti), 12th century BC.

[14] As for the statues, it is roughly one in two. One explanation for this absence may be the state of preservation of the artefacts. Indeed, most of the statues are not complete and may have displayed an Elamite (= Hatamtite) inscription in an area that has now been lost. As for the other types of artefacts, a comprehensive study remains to be carried out to identify who transported them and what actions were carried out on them. In a previous paper (Achouche 2024), I tried to initiate this study by listing the statues deported by Šůtrůk-Nahůnte I, as well as the presence or absence of one of his inscription and/or an earlier inscription. Thanks to a research mission carried out in the storerooms of the Louvre Museum, I am now able to complete this study: the remains of a deliberately erased inscription – which to my knowledge has not been previously identified – can be seen on Sb 59 and Sb 163, while Sb 60 may be in the same situation, but no cuneiform signs are still legible. I would like to thank Mahmoud Alassi, François Bridey, and the team at the Liévin's storerooms for giving me this opportunity.

[15] Hatamtite is the name proposed to replace Elamite. Elamite is *etic*, as it is derived from Mesopotamian terminology, while Hatamtite is likely to be closer to an *emic* conception (Desset 2017; 2021: 2).

[16] EKI 22 [on Sb 4; CDLI = P215544] (König 1965: 76).

[17] Sb 4; Limestone stela (200×105 cm) from Sippar (Iraq) bearing a very fragmentary Akkadian inscription by Narām-Sîn (Akkadian ruler, 23rd century BC), discovered in 1898 in Susa (de Morgan *et al.* 1900: 144–158).

[18] In fact, in the inscription, three verbs refer to the relocation of the stela: *hu-ma-h* = ich nahm an mich (Hinz *et al.*1987: 693); *ku-ut-hi* = ich habe mitgeführt (Hinz *et al.* 1987: 568); *te-en-gi-h* = ich sandte, verbrachte, holte (Hinz *et al.* 1987: 305). In the translations, it is the second 'ku-ut-hi' that has been transformed into protect from a Pierre Amiet's suggestion (1976) as identified by Zainab Bahrani (1995: 371, n. 14). Indeed, Vincent Scheil, who proposed the first translation, suggested 'find' (French: 'trouver'), a formula slightly different from the one currently accepted, but which has nothing to do with 'protect' (Scheil 1901: 40–42). This word is interpreted as a verb, although its meaning is complex to determine, and it is difficult to say whether it simply implies a movement or whether it actually refers to an idea of preservation (Personal communication with Laurent Colonna d'Istria and François Desset [December 2024]).

1995: 371–372). Additionally, the Elamite (= Hatamtite) language, isolated and extinct, remains difficult to access. Indeed, even the transliterations vary (Hinz *et al.* 1987: 549, 569; König 1965: 76). This also explains the difficulties that surround this particular translation. Finally, the meaning is still unclear, as we will see later.

Regarding the value of vocabulary, it is also pertinent to note that its significance in modern research is enormous. Indeed, using the word 'deportation' already implies a negative connotation. In this example, we know that whatever value one wishes to give to the actions of Šůtrůk-Nahůnte I, he carried them out and wanted to offer his god these testimonies of his military victories. However, in other attestations of the movement of artefacts, the use of the term 'deportation' influences our reading, just as if, conversely, the word 'rescue' was used – e.g., the many comings and goings of Marduk who, depending on the circumstances, is considered to have been 'kidnapped' or 'rescued'.[19] In another example, Susanne Paulus has demonstrated that Ontaš-Napireša's[20] practice of moving artefacts is interpreted differently depending on the translation adopted.[21] This earlier ruler also moved at least one statue and the translation of the inscription he added in Akkadian is translated with the verb[22] 'stole' or 'take', the second one having a much less negative connotation (Paulus 2013: 440). The interpretation is therefore diametrically opposed between a transported present (Vallat 1999) and a deported booty (Paulus 2013). It is undoubtedly important to emphasize nuances, such as when François Bridey refers to two very different practices when he writes of 'Making Susa "the museum" of the repatriated masterpieces of Choga Zanbil' as opposed to 'those looted from Mesopotamia' (Bridey 2018: 559). One is a repatriation, a collector's will, the other is a booty, it has a warlike vocation. It is therefore important to remain attentive to our lexicons, as well as to those of the sources we are studying.

Knowing the rite

As we know, texts can be misleading, because they can be intended to fool the reader or because they can be misunderstood. A mixture of these two factors may be recognized in the example of ritual texts where codes are blurred (Crawford 2014: 241–242; Suter 2014: 547). Therefore, in studying these texts, we might fall into two pitfalls: to take everything literally, or to question everything. This type of trap can also be found in contexts other than those of ritual sources; for example, the numbers

[19] On the 'Prophecy of Marduk' and the movement of (the statue of) the god Marduk, see Dalley (1997) and accompanying bibliography.
[20] Ruler of Elam (= Hatamti), 14th century BC.
[21] MDP 10 (Scheil 1908: 85-86, pl. 10); Lower part of diorite statue (31 cm) bearing an Akkadian inscription by Ontaš-Napireša (formerly read as Untaš-Napiriša), discovered in 1908 in Susa (Sb 63).
[22] *ḫabātum* = to rob, to take away by force (Oppenheim 1956: 9). Antoine Cavigneaux considers that the translation 'to steal' is imprecise, among other things because *ḫabātum* implies a violence which is not necessarily present in the concept of stealing. He proposes 'to plunder', 'to capture' (French: 'piller', 'capturer') (Cavigneaux 2017: 13).

used in texts could be questioned. In an Assyrian source citing 32 statues,[23] it is questionable whether this is a numerical symbolic value rather than a number to be taken literally. This issue has already been raised for the Pharaonic Era in Egypt with the conclusion that there is no good solution to apprehend these numerical values (Langer 2021: 97–98).

In connection with divine statuary, many texts evoking ritual practices inform us about divine meals, without hiding the fact that those meals were redistributed to humans, after having been theoretically consumed by the gods. Examples of redistribution texts[24] are clearly attested between the end of the 2nd millennium BC and the first half of the 1st millennium BC (McEwan 1983: 187). A very telling tablet[25] describes that the offerings of Ištar and Nanna at Uruk were redistributed to the elite of the cult personnel (Beaulieu 2003: 26–27, 167, 250; Joannès 2000: 335–336; Langdon 1923: 25–27; McEwan 1983: 187).[26] Moreover, this case even highlights that persons out of the cultic personnel could benefit from these redistributions (baker, boatman, singer). While it can be considered that those professions were also related to the temples, ritual texts from Emar (Syria) are very explicit about the fact that the general population had access to some of these distributions.[27] This same city has yielded texts testifying to the fact that members of the elite or cult personnel consumed some food offerings during worship and in front of the deities.[28] All of this provides a relatively complex picture, and Emar's examples arguably provide more questions than obvious answers about how this feeding of the gods was set in general. However, this panorama makes it possible to nuance a hypothesis based on what is documented in ancient Greece, where texts testify to the fact that it was from the smells of food that the gods fed themselves (Vernant 2002: 18). In fact, in the Mesopotamian context, while the textual documentation provides information

[23] RINAP Ashurbanipal 9 [on AO 19939] (Novotny *et al.* 2018: 179–209); 'Prism F', the most complete (33×17 cm), bearing an Akkadian inscription by Aššurbanipal (ruler of Assyria, 7th century BC), was acquired by the Louvre Museum in 1948 and is likely from Nineveh (Iraq).

[24] For the most part, these are administrative and accounting documents listing the individuals concerned during the redistribution and the details of the shares allocated to each: OECT 1 [CDLI = P384832] (Beaulieu 2003: 26–27, 167, 250; Langdon 1923: 25–27); GCCI 1 238 [CDLI = P294367] (Beaulieu 1990); NBC 11 205 [CDLI = P301890] (Sigrist 1977); 4 NT 230 [CDLI = P512090] (Farber *et al.* 2018). There are also documents related to the cult: Msk 731027+ [CDLI = P271297] (Arnaud 1986: 326–337); Msk 731031 [CDLI = P271302] (Arnaud 1986: 395–397); Msk 74280a+ [CDLI = P272026] (Arnaud 1986: 420–425). A particular case, which informs us indirectly about these redistributions, is a text concerning a disagreement around the said partition: YBC 9280 [CDLI = P310002] (Beaulieu 2003: 27, 251).

[25] OECT 1 [on Ash. 1922.256; CDLI = P384832] (Beaulieu 2003: 26–27, 167, 250; Langdon 1923: 25–27; McEwan 1983). Inscription from the time of Nabu-apla-idina (*c.* 890–855), attested by a Neo-Babylonian (*c.* 626–539) copy on a clay tablet (16,2×8,6 cm), acquired by the Ashmolean Museum in 1922 and likely from Uruk (Iraq).

[26] Based on the organization of this tablet, Beaulieu (1990) proposes that GCCI 1 238, which has a similar order of offerings, deals with the same subject of redistribution to the temple staff.

[27] Msk 74292a+ [CDLI = P272058] (Arnaud 1986: 350–366); Msk 74297c [CDLI = P272089] (Arnaud 1986: 371); Msk? (Arnaud 1986: 387–390).

[28] Msk 74298b+ [CDLI = P272095] (Arnaud 1986: 426–428); Msk 74280a [CDLI = P272026] (Arnaud 1986: 420–425); Msk? (Arnaud 1986: 387–390); Msk 74287a+ (Arnaud 1986: 379–384); Msk 74292a+ [CDLI = P272042] (Arnaud 1986: 350–370); Msk 74303a [CDLI = P272106] (Arnaud 1986: 338–346); Msk 731027 [CDLI = P271297] (Arnaud 1986: 326–337).

about the concept of feeding the gods through eating and drinking, there seems to be no evidence that these practices were specifically combined with the sense of smell.

Beware of mutilations

> 'Un des problèmes fondamentaux est donc de trouver et de définir des critères infaillibles pour distinguer une mutilation fortuite d'une destruction faite intentionnellement. À ce propos, il faudrait réétudier toute la statuaire de l'Ancienne Mésopotamie pour y observer des traces incontestables, pour en extraire des preuves concluantes, par exemple des hachures, des fentes, des éraflements et autres dommages indiquant quelque instrument de destruction.'[29] (Brandes 1980: 29).

Nearly half a century ago, Mark Brandes suggested that the study of traces of breakage on statues deserved more attention. At present, although technologies have greatly evolved, no concrete protocol applied to Mesopotamian materials has been put into practice in this regard. However, particularly in excavation reports, descriptions of mutilated objects, including many statues, continue to flourish; there is no shortage of synonyms to describe the alleged iconoclastic actions observed. What is missing, however, are the reasonings behind such an interpretation. On the one hand, the archaeological context can sometimes provide sufficient evidence for an interpretation in terms of iconoclasm before we carefully examine the objects themselves. For example, let us consider the hundreds of fragments of statuettes unearthed in Mari (Syria) between the 1930s and the 1950s in the temples of Ištar (Parrot 1956), Nini-Zaza and Ištarat (Parrot 1967), or the more recent – and therefore better documented – discovery of 14 fragments of mutilated statuettes at the same site (Figure 1; see Butterlin *et al.* 2014).

On the other hand, in many other cases, it is much more difficult to immediately distinguish between deliberate destruction and accidental breakage.[30] This is especially true of small objects, such as the many worshippers' statues known from Mesopotamia, which measure less than fifty centimeters. They are both fragile and easily destroyed by the slightest accident. It is, therefore, impossible, from observation of the fractures alone, to tell whether the marks are those of an accidental or intentional push. In the case of larger statues, the elements that are most likely to have been deliberately targeted for symbolic reasons (nose, head, headdress, accessories held in the hands, *etc*.) (May 2012: 18; Nylander 1980: 330–331; Porter 2009a: 214–215; Potts 2024: 278–282) are also the most protruding features and

[29] 'One of the fundamental problems is therefore to find and define reliable criteria for distinguishing accidental mutilation from intentional destruction. In this respect, it would be necessary to re-examine all the statuary of Ancient Mesopotamia in order to observe indisputable traces, to extract conclusive evidence, for example hatches, cracks, scratches and other damage indicating some instrument of destruction.' (author's translation).

[30] Personal communication with Jean-Claude Bessac (June 2022).

Figure 1. Examples of sets of mutilated statuettes unearthed at Mari. Top left: Temple of Ishtar (1934) © Mission Archéologique de Mari – Archives André Parrot. Top right: Temple of Ninizaza (1952) © Mission Archéologique de Mari – Archives André Parrot. Middle and bottom: Temple « Seigneur du Pays » (2009); TH 09.05; TH 9.10 © Mission Archéologique de Mari – Pascal Butterlin.

the first to break by accident. Therefore, it is important to keep the interpretative doors open rather than trying to decide definitively in such cases where the data is ambivalent.

Let us take the case of the disk of Enḫeduana.[31,32] As to the origin of the traces that it bears and as to the reason for its very fragmentary state, the levels of caution vary widely (Mzali 2026: RIME 2.1.1.16). The substantial and invasive nature of the restoration is nearly always remarked, and it was even suggested that its round reconstruction is doubtful (Suter 2007: 324). However, the approach to the causes of its poor state of preservation is less homogeneous. In the first publications, it was claimed that the destruction was deliberate since the traces of pick were very visible, according to the authors (Legrain 1944: 52; Woolley 1955: 49). In recent studies, when it is considered to be a deliberate defacement, the interpretation goes a step further by considering that the destruction in question must have been subsequent to the Old Babylonian period, since a copy[33] of the text on this disk was made at that time (Aruz 2003: 200–201; Frayne 1993: 35–36). Others question this idea, considering that the inscription on the disk is not sufficiently preserved to ensure that the Old Babylonian tablet is indeed a copy[34] (Winter 1987: 192). In some cases, it is argued that survival of Enḫeduana's figure is to be considered detrimental to the idea of mutilation (McHale-Moore 2000: 70). However, one could also draw the opposite conclusion, considering that this figure and its name in the text may have been deliberately preserved, while the rest was targeted.

Regardless of the different interpretations, a common point of these theories is the lack of focus on the archaeological and historical context, which prevents us from asking questions such as who, when, how and why? Finally, concluding whether or not there is intentional damage is perhaps the least important information that can be obtained from the analysis of traces on an artefact. Obviously, it can be useful in providing information about the nature of the damage and the type of representation that was targeted, if we are able to identify it (e.g., deliberate removal of parts of inscriptions, visible traces of intentional mutilations, spreading of fragments over several rooms). However, what remains essential is to determine whether there would have been any reason for the destruction, whether it was deliberate, and if the context[35] of the findings suggests so. If this is the case, this data can be part of an informed solution to the question of the origin of the breaks.

[31] I am grateful to Sonia Mzali for giving me the lead on this case and for the bibliographical references.
[32] CBS 16665; Limestone disk (ø 25 cm) from Ur (Iraq) bearing a very fragmentary Sumerian inscription (RIME 2.1.1.16; CDLI = P226450) of Enḫeduana (priestess, 23rd century BC) and a ritual scene depicting four individuals, of whom Enḫeduana is considered to be the biggest one. It was discovered in 1926 in Ur (Woolley *et al.* 1976: 55–56).
[33] IM 85457 (RIME 3/2.1.5.3; CDLI = P226450); Clay tablet (9.5×6 cm) bearing an Akkadian inscription from the time of Ibbi-Sîn (Ur III ruler, 21st century BC), discovered in 1926 in Ur.
[34] Unlike many tablets, copies of inscriptions on objects during the Old Babylonian period, this copy does not have a colophon indicating where the inscription was copied from.
[35] Contextual studies also provide information about the period of the damages, whether accidental or deliberate. This dating obviously considers modern damage, such as that caused by excavation

One swallow doesn't make a summer

Another important element is to study sets of artefacts. Returning to our bias towards the symbolic and the concrete, there is a risk of looking more closely at cases that best support our reading of statues and their function in a given context. As St John Simpson (2020: 141, 144) wrote about the destroyed Assyrian bas-reliefs, only specific cases are studied but there is a lack of interest in their general state of preservation and the implications of the latter. The objective is, with statuary, to understand practices at the scale of corpus and not of isolated objects that, as such, can provide a biased version.

> 'We should therefore take the approach of crime scene investigators and reconstruct the sequence of events which caused the damage and created the evidence before us, keeping in mind what we are missing, and try to explain what we see.' (Simpson 2020: 141).

Returning to Šůtrůk-Nahůnte I's actions, the fact that the stela of Narām-Sîn, the code of Ḫammurabi and the statue of Maništušu are cited overwhelmingly among the removed artefacts, paints a distorted picture. Indeed, it gives the impression that this ensemble was unique to the inhabitants of Susa. However, a vast quantity of artefacts was displaced at the same time, most probably in the same context (Achouche 2024: 122, table 1; Eppihimer 2010; Potts 2016: 226, table 7.9). In addition to the number these varied according to types (stelas, statues – and maybe *kudurrus/narûs*[36]), provenience (Sippar,[37] Ešnunna,[38] Akkad,[39] Karintaš[40]) and period (c. 23rd to 12th century BC).

For instance, the value of the stela of Narām-Sîn is often discussed from Šůtrůk-Nahůnte I's point of view. Those analyses offer interesting insights regarding the importance of the Akkadian sovereign, who was mentioned many times in the millennium following his reign – a similar situation to that of his ancestor Sargon of Akkad (Eppihimer 2014). However, bearing in mind the much larger collection of artefacts that Šůtrůk-Nahůnte I carried away, it may be worth expanding on these conclusions. One of the arguments in favor of the value given to the stela would be that the name of the Akkadian ruler was not erased unlike others (Feldman 2009: 44). However, the fact that Šůtrůk-Nahůnte I was the one who had the inscriptions erased on the other monuments is not certain (Harper *et al.* 1992: 161). Secondly, Narām-Sîn's inscription is in poor condition and it is doubtful whether the parts of the inscription

techniques.

[36] Many Babylonian *kudurrus/narûs* have been found in Susa. Their presence there has been the subject of several theories. What stands out is that they bear no Šůtrůk-Nahůnte I's inscription, except Sb 14 in the name of Meli-Šipak. This is the reason for the theory that it is maybe not a *kudurrus/narûs*, despite its iconography (Seidl 1989: 31–32).

[37] EKI 22 [on Sb 4; CDLI = P215544] (König 1965: 76).

[38] EKI 24b [on Sb 49] (König 1965: 77; Scheil 1908: 1–3); EKI 24c [on Sb 56, 57, 58, 59 and 60] (König 1965: 77–78).

[39] EKI 24a [on Sb 47] (König 1965: 77; Scheil 1908: 3).

[40] EKI 23 [on Sb 14] (König 1965: 77; Scheil 1902: 163–165; Seidl 1989: 31–32).

that have been preserved were preserved voluntarily (Kupper 1971: 100). I would argue that it could just as easily be an unmeticulous erasure, since the remaining text cells are the ones at the extremities. In the end, the stela underwent a similar treatment to that of the majority of artefacts, namely erasing the original inscription and adding the Elamite (= Hatamtite) one. Attributing the stela to its original owner is the norm in all the inscriptions added in Elamite (= Hatamtite) by Šůtrůk-Nahůnte I. Even when the name was not known, a space was left blank (a *vacat*) to add the name later or to insist on its absence, in inscriptions with a structure very similar from one artefact to the next. Likewise, the dedication to the god Inšušinak is found on most objects displaced by Šůtrůk-Nahůnte I. A peculiarity of the stela, however, is the presence of a variation in the inscription with a term hard to translate (see *supra*). The other inscriptions added by Šůtrůk-Nahůnte I, although quite repetitive from one object to another, do not include it. This difference may be, indeed, related to a particular value attached to the stela, with the desire to stress its 'preservation'. However, it could also be a variation of the inscription, based on the type of artefact. Indeed, the stela's inscription is compared to those on other objects, which are statues. It means that they differ in type, rareness and size. To sum up, the main conclusions regarding the stela of Narām-Sîn may be broadly applied to the whole corpus relocated to Susa.[41] First, the owner's identity was valued, perhaps as a symbol of ancient rulers' glory. Second, the symbolic value of offering the Akkadian artefacts to the Susian god allowed Šůtrůk-Nahůnte I to insist on his victory. Nevertheless, the stela is indeed a unique object and may have been considered as such[42] – but this could be unrelated to its Akkadian origins, as Maništušu's statue bears an inscription similar to the most common ones.

Finally, it seems that two contradictory positions emerge.[43] The first will opt that Šůtrůk-Nahůnte I took good care of the artefacts and protected them. Even without the uncertain translation about the artefacts' protection, it is possible to consider that these abductions were intended to emphasize the value of the ancient rulers and to appropriate their power. The second option sees the treatment of these artefacts in line with those of the enemies deported, abused, deprived of all agency, taken away to be annihilated and to emphasize their defeat. Is it possible to find a middle ground – a conclusion that addresses the survival of the name alongside the erasure of the inscription? Such a conclusion would show that deportation, while affirming the object's value, coexists with damage, which serves as a means of imposing control

[41] This is generally done with Akkadian deported objects. It is related to the fact that we ourselves put Akkad on a pedestal and probably attribute a certain uniqueness to this period. It has indeed been proven that the first empire and 'glorious' past was often remembered (Eppihimer 2014), but that does not mean that the rest of the productions were not considered.

[42] The fact that this stela may have set the codes for other representations – or, at least, part of a group of compositions that established standards for later periods – is one of the things that makes it valuable. These would include the rock-reliefs with which the inhabitants of Susa may already have been familiar (Strommenger 1963; Suter 2010: 335).

[43] Very visible in the proceedings published by Natalie May (2012), in which Joan G. Westenholz (2012) evokes protection and studies these artefacts according to this theory, while Nathaniel Levtow (2012) speaks of violence and hypothesizes in the light of this theory.

over it. In this reading, the dedication to the god Inšušinak can function both as a way of preserving these objects and as a method of appropriating them. It is to be reckoned that at the time, several views came together, and the value attached to a practice was more complex than the single motivation that current research is likely to define.

Conclusions

Getting to the end of this overview, it is relevant to dwell a little on the term 'retired' used in the title of this paper. By this, I meant to make the parallel with human existence, and the same applies to the use of words such as 'life' and 'death' in the bibliography of artefacts paradigm.[44] These references to human existence allow us to propose a useful segmentation. Object biographies have been theorized for a long time. It emerged concurrently with the development of theories on the agency and power of art in anthropology, leading to the study of objects' consumption, re-use, reception and so on.[45] The notion of biography thus emphasizes recontextualization. In 2009, in *Knowledge as Cultural Biography: Lives of Mesopotamian Monuments*, Marian Feldman stressed the importance of recontextualization in the process of understanding an artefact. In 2004, in *Itinéraire biographique d'une bouteille de cidre* Thierry Bonnot evoked the social life of objects, which is inseparable from that of individuals. In the case of Mesopotamian statues, I consider them to have been 'retired' to museums, because there they experience a 'life' completely outside the main characteristics of their original context. They take on a whole new function: aesthetic, educational, *etc*. Once again, an illustration from the work of Jean Evans (2012) provides a vivid demonstration of this singular function of the museum. Museography is inspired by what is familiar and already documented, and what is seen in museums inevitably affects our mental reconstruction. But this does not only affect the artefacts exhibited in museums, but also – perhaps in a subtler way – the conceptions on which a society is based, the precise dynamics of groups, the complexity of interactions, and so on. However, this theory can serve to remind us that the 'life' we attribute to the objects we study today is only what we are able to reconstruct for them because of our biases and expectations, and that their ancient 'life' will always be somewhat elusive.

[44] To convey an idea, a methodology and a precise approach to artefacts, this vocabulary of 'lives' and 'deaths' is very effective. But I realize how dangerous the analogy with human existence is, the more I mobilize it. Words are important, no doubt about that, and so are analogies. And sometimes, by giving more consideration to the 'lives' of those statues than to real lives, the audience or the readership reacts to my thesis' subject in a problematic way. Without questioning the value of heritage and the violence of culturocide, I want to insist on the distance to be taken with the 'biography' terminology of my study. To explore this further, see Terrasse 2015.

[45] The concept of object biography was first proposed by Igor Kopytoff (1986). However, the primary parallel drawn with the slave as a commodity – limiting the scope of slavery implications – makes its application to objects unfortunate. The editor of the book in which he published, Arjun Appadurai (1986), also fuels reflections on the life of objects. Ten years later, Alfred Gell (1998) definitively established the habit of observing objects as social agents, through the concept of agency.

The best way to progress despite this observation is certainly to first accept those limits and embrace them for what they are. This means keeping in mind that our methodologies are heirs to decades of changing discourses within our disciplines and that they need to be both completed and deconstructed at the same time (Hamilakis 1999; Hamilakis *et al.* 1999). First, some of the theories at the origin of our disciplines are extremely problematic and have inevitably left their mark on our current practices.[46] Secondly, our technical vocabulary, typologies, and classifications do not necessarily have any reality in the societies we study but are only tools useful for our own understanding.[47] Third, the subdivision into subdisciplines itself is a construction aimed at making research more structured, but our conclusions should strive to be interdisciplinary.[48] Indeed, the simplest artefact comes from a context studied by archaeology, bears an inscription studied by philology and has a form studied by art history, as well as a place in society studied by anthropology, *etc*. Finally, keeping in mind that adaptations, changes, solutions, appear through exchanges and trial and error, it is therefore crucial to remain attentive to proposals and ideas across disciplines.[49]

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List of abbreviations

Museums:

A. Istanbul Museum

AO Antiquités Orientales (Louvre collections)

[46] To explore this further, see Antonaccio 2005; Bahrani 2006; Bahrani *et al.* 2011; Hicks 2020; Tamur 2023.
[47] To explore this further, see Evans 2012; Grataloup 2011: 69; Langin-Hooper 2014: 460.
[48] To explore this further, see Crawford 2014; Demoule 2012.
[49] To explore this further, see Brown *et al.* 2014; Jotheri 2021; Tamur 2023.

Ash.	Ashmolean Museum
IM	Iraq Museum
Sb	Suse (Louvre collections)

Collections of inscriptions:

CDLI	Cuneiform Digital Library Initiative (http://cdli.ucla.edu/)
EKI	König, F.W. 1965. *Die elamischen Königsinschriften*
GCCI	Dougherty, R. 1923-1933. *Archives from Erech: Time of Nebuchadrezzar and Nabonidus.* Vol. 1
Msk	Texts from Meskene
NBC	Nies Babylonian Collection (Yale)
NT	Texts from Nippur
OECT/OECI	Langdon, S. 1923. Oxford Editions of Cuneiform Text/Inscription
TuL	Ebeling, E. 1931. *Tod und Leben nach den Vorstellungen der Babylonier. Vol. 1*
YBC	Yale Babylonian Collection

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Chapter 3:
A multidisciplinary approach to the study of zoomorphic figurines from Ur

Enrica Inversi

Abstract

The excavations at Ur conducted by C. L. Woolley in the 1920s yielded a large number of terracottas. Among these, many clay figurines came from the site of Diqdiqqah, whose stratigraphy was considerably disturbed and documentation fragmented. Despite the publication of several volumes on Ur excavations and the numerous field reports that were accurately noted by Woolley, there is still data that needs further investigation.[1] Given the state of conservation of the figurines and the complexity of the context in which they were found, I suggest the use of a multidisciplinary approach to fill the current gaps in our knowledge of animal figurines and their production and use. Moreover, the existence of such gaps also shows how a well-studied site such as Ur can still prompt new research and support the exploring and reshaping of new and old narratives. The paper will present some preliminary considerations emerging from the suggested methodologies and propose that the elements derived from the different approaches can contribute to a better understanding of the figurines and support their classification.

Key words: Terracotta figurines, Ur, Old Babylonian, Diqdiqqah, zoomorphic figurines, Woolley.

The excavations at Ur conducted by Sir C. Leonard Woolley in the 1920s yielded a large number of terracottas, and among these many clay figurines were found at the site of Diqdiqqah, a suburb located about one and a half kilometres from Ur. The figurines found in the area of Diqddiqah were much more abundant than the ones found at Ur (Woolley and Mallowan 1976: 85) and amid the many findings, a fair number of zoomorphic figurines were also recovered. Most of them date to the Old Babylonian period (2003–1595 BCE), while several others were dated to earlier periods (Woolley and Mallowan 1976: 82).

A formal excavation at Diqdiqqah started during the 1923-1924 season in order to prevent workers from collecting objects found on their way to Ur (Woolley and Mallowan 1976: 82). Many clay figurines were surface findings that workers would pick and bring to Woolley, who initially allowed the practice. As a result, it was often impossible to determine the contexts in which the figurines were found. Therefore, they were rarely recorded in Woolley's and Leon Legrain's field cards.[2]

[1] Freie Universität Berlin and The British Museum

[2] Leon Legrain was an epigraphist who worked with Woolley on the 1925-1926 excavation seasons at Ur. He also helped process small finds and filled in catalogue cards which are kept at the Penn Museum, Philadelphia.

The information noted in Woolley's diaries was generally detailed, and in most cases he made an effort to record as much data as possible (Battini 2021: 135). However, for the majority of figurines found at Ur, the information is scarcer than for other objects, and Woolley's descriptions in his field diaries do not seem to dedicate much space to them. Moreover, figurines' findspots were not always recorded, making it difficult to understand their spatial distribution.

Despite the publication of several volumes on Ur excavations and the numerous field reports that were accurately noted by Woolley, only a small number of figurines were published, leaving out a good wealth of data that still needs further investigation (Battini 2021: 135) in order to have a better understanding of the use and function of clay animal figurines.

In this paper, I will focus on the collection of zoomorphic figurines from Ur kept at the British Museum and offer a brief overview of the different methodological approaches that can be used to further investigate this class of objects. I will present some preliminary observations based on my ongoing doctoral research and discuss the application of a multidisciplinary approach. As previously mentioned, the context for most of the animal figurines from Ur remains unclear, and this contributes to making their investigation more challenging. The issue that arises from working with objects that lack stratigraphic clarity requires a combination of multiple approaches and sources to mutually corroborate the strength of evidence (Wylie and Chapman 2015: 8). The aim is to demonstrate that a site that has been 'fully explored,' can still produce new questions and – ideally – new answers. I will start by describing the corpus and the classification issues that characterise part of the figurines, then illustrate how a combination of technological trace analysis, fingerprints analysis, and a review of written sources can help shed light on their production and use. An additional section is then dedicated to the interpretative issues emerging from the study of zoomorphic figurines and how the use of methodologies borrowed from ethnography can support the exploration of this further aspect. Lastly, the conclusions section weaves together the different threads and reiterates the role of a multidisciplinary approach to elicit answers from new research on existing collections.

The corpus

The collection of animal figurines from Ur is mainly split between the British Museum in London and the Penn Museum in Philadelphia. However, it is not possible to exclude with certainty whether a small number of such objects are also stored in other museums or in private collections.[3] Between the two Museums, a total of 307 objects have been catalogued as animal figurines.[4] There are 45 additional figurines

[3] This list also excludes those kept at the Iraq National Museum and whose number is currently unknown.

[4] Data taken from The British Museum's online database (https://www.britishmuseum.org/collection), Penn Museum's online database (https://www.penn.museum/collections/), Ur Project website (http://

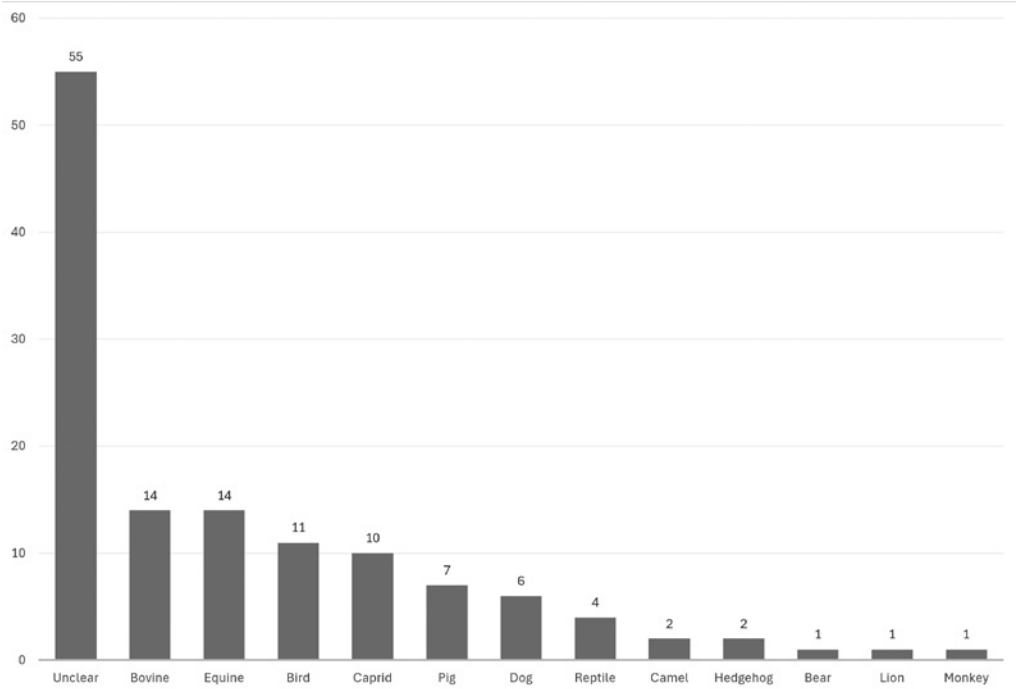

Figure 1. Chart showing the distribution of the represented species. Data taken from The British Museum's database, Ur Project website and direct observation of the material.

from both collections that could not be clearly classified as either human or animal; therefore, they have not been included in this analysis.

The British Museum holds a total of 128 animal figurines most of which are incomplete. They were mainly excavated by Woolley, but there are also twelve figurines found during earlier excavations conducted in 1919 by H. R. Hall, and two zoomorphic ones that come from the excavations of George Taylor in 1853–1854. The animals represented show some level of variability in terms of species depicted, with bovines and equids being the most portrayed (Figure 1). The majority of figurines date to the Old Babylonian period (2003–1595 BC), while a few are dated to the Ubaid period (5900–4000 BC), and a few later ones have been classified as Neo-Babylonian (625–539 BC).[5] Moreover, there are about six incomplete figurines representing humans and animals together that belong to the 'horse and rider' type whose dating is uncertain; however, these have not been included here since they are not exclusively zoomorphic.

www.ur-online.org/) and direct observation of the material. An additional search was carried out on The British Museum's internal database which is not accessible by the public. The search term used on all these databases was 'figurine'. The results were then filtered by site (Ur) on The British Museum's (internal) and Penn Museum's databases. Websites viewed on 13/11/24.

[5] The dating of the objects presented here follows Woolley's.

Due to the scarcity of contextual information and to the fragmented state of the figurines, it is often difficult to state whether some animals were more represented than others in different periods and to identify taxonomic differences. A typological approach based on the observation and recording of morphological and stylistic features has been used to categorise recurring traits and support the identification of species.

There are about 55 animal figurines that I have defined as 'unclear' (see Figures 2 to 5). This category includes those figurines that either for their state of conservation or their absence of characterising features cannot be clearly assigned to specific types of animals.

For example, object 1931,1010.483 (Figure 3) has been classified as a cow[6] while object 1924,0920.400 (Figure 4) as a bird;[7] however, both figurines do not show clear features distinctive of cows and birds. About 67% of the figurines are broken and some are crudely modelled making it in some cases difficult to differentiate between human and animal features and leading to wrong classifications. Some objects have a question mark in the museum database's descriptions, which is how Woolley had reported them in his field cards, being himself unable to clearly identify the species (Figure 6). This is especially the case with a few figurines that Woolley defined as 'archaic' mainly referring to the periods preceding the Early Dynastic one (2900 to 2350 BC), although a clear definition of this term was never provided in his publications.

Figure 2. Object number 1931,1010.485 © The Trustees of the British Museum.

Figure 3. Object number 1931,1010.483. © The Trustees of the British Museum.

[6] Source: https://www.britishmuseum.org/collection/object/W_1931-1010-483, viewed on 22/11/2024).
[7] Source: https://www.britishmuseum.org/collection/object/W_1924-0920-400, viewed on 22/11/2024).

Figure 4. Object number 1924,0920.400. © The Trustees of the British Museum.

Figure 5. Object number 1931,1010.502. © The Trustees of the British Museum.

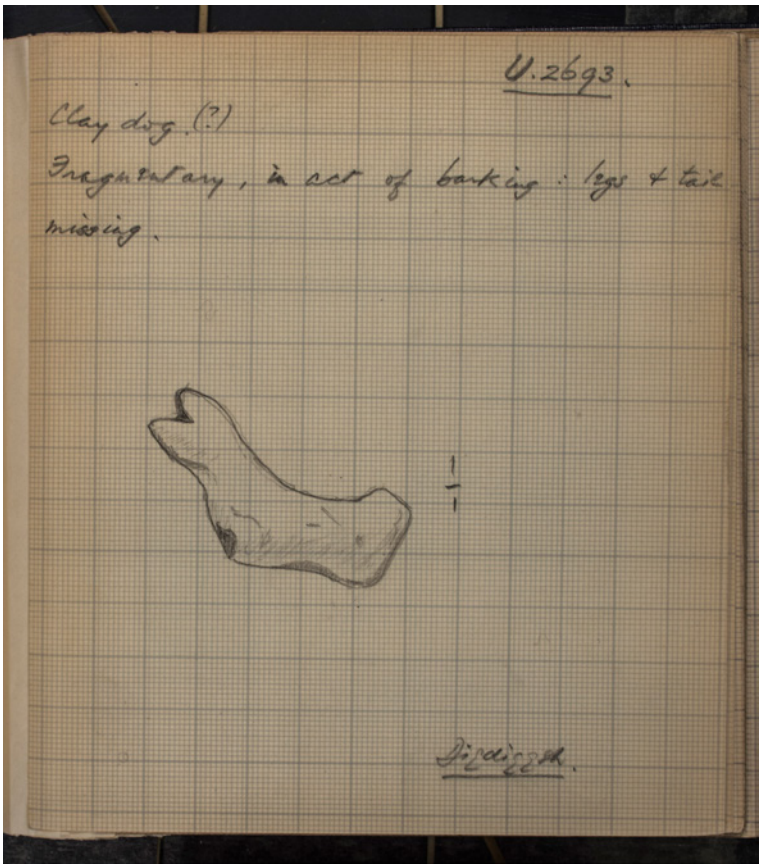

Figure 6. Extract from Woolley's field diary with example of use of question mark for unclear species. © The Trustees of the British Museum.

Figure 7. a) Extract from Woolley's field diary. b) Object number 1935,0113.71 © The Trustees of the British Museum.

Lastly, the classification issues encountered led me to crosscheck what was reported in the Ur publications with the archive records, which highlighted some discrepancies. For example, for object 1927,0527.244, the field card reports that it was found below 'surface 7 EH', which corresponds to an area within the walls of the Neo-Babylonian temenos where the initials 'EH' stand for E-Hur-sag, that is 'Shulgi's palace'. Woolley also mentions its U. number (excavation number), both of which are missing in the Ur excavations volumes. Another interesting example is figurine 1935,0113.71 (Figure 7a-b) which is recorded in Woolley's diaries as a possible ram despite being very similar to other examples that were classified as rattles in the form of pigs or hedgehogs.[8]

An attempt to solve some of the discrepancies has been carried out in recent years by the Ur Project, although more work remains to be done to correct and supplement Woolley's publications (Zettler 2021: 30-31). Moreover, despite the huge effort made to digitise and reorganise all the material, also in light of new research and interpretations, little attention has been paid to clay figurines.

Technological traces and fingerprints

The assessment of the different techniques employed to create figurines can help gain a better understanding of the production process of such objects. This requires

[8] It is important to note that variations in handwriting are observable within certain field notes, suggesting that they may not have been exclusively written by Woolley.

an analysis of the traces of manufacturing left on the object by those involved in its creation and the reconstruction of the *chaîne opératoire* (Cresswell 1976: 26); that is, the makers' actions and techniques and their technological knowledge (Forte and Miniaci 2023: 2). In addition to manufacturing traces, clay figurines also often preserve their makers' fingerprints. These can offer further information on the objects' makers by providing an estimate of their age (Forte and Miniaci 2023: 9) and can also help shed light on the involvement of children in the production of such objects. Another important aspect to take into consideration is that figurine production continues even in later periods, and this is central in understanding how trends, techniques, and symbolic meanings change over time. Nonetheless, it should also be noted that manufacturing traces and fingerprints can also hide and confound information by overlapping and erasing each other.

A first macroscopic observation of the animal figurines found that most of them were hand modelled with the majority of them showing traces of wear and firing with very few figurines left unbaked. Most of them are unrefined with some showing tool marks, mainly left by the use of sticks, to create incised lines and circular impressions. There are three figurines that feature holes through their nostrils, and they all represent different species. One of them (1935,0113.84, Figure 8) also has holes on the lower part of the body which were most likely used to hold wheels.

The assessment of the British Museum material has also highlighted the use of different techniques employed to make the figurines and additional details such as the application of pellet eyes and incised lines to depict hair and feathers.

Figure 8. Object number 1935,0113.84
© The Trustees of the British Museum.

The technique mostly used to shape these figurines seems to have been pinching, and some of them show very clear fingerprints; for example, objects 1927,0527.244 (Figure 9) and 1928,1009.490 (Figure 10) show overlapping fingerprints on different parts of the body. This is a very important element as it can give us information not only on the age of the makers, but also on the number of steps involved in the production of figurines. To estimate the age of the makers, I have been using the KAmod equation suggested by Králík and Novotný (2003)[9] which employs the mean distance in millimetres between fingerprint ridges (known as mean epidermal ridge breadth or MRB) to determine the age in months of who made the object and also accounts for the shrinkage of clay due to drying. For example, a preliminary analysis of the fingerprints observed on 1927,0527.244 has found that the individual who modelled the figurine was a child (either a boy or a girl) about eight years old.

The macroscopic observation of animal figurines also includes the assessment of breakages and repairs. There are several broken examples that show similar breakage points, and this is especially the case with equids; however, it is not possible at the current stage of this research to define whether some breakages are intentional or the result of depositional processes. Breakages may have also originated from the inherent fragility of thinner parts, such as legs and heads, or as a result of specific firing techniques. Furthermore, only one of the zoomorphic figurines (a ram's head) from the corpus of The British Museum shows traces of bitumen along what appear to be the breakage points. However, this is the result of preliminary observations which require further investigation. Despite being quite rare, a few more anthropomorphic figurines from the same site present traces of bitumen. Should this be confirmed, a plausible interpretation could be that zoomorphic figurines were considered as less valuable objects (at least symbolically) and, therefore, not worth repairing. As argued for other contexts (Karvonen-Kannas 1995: 30), '[the] repair of terracottas must be

Figure 9. Object number 1927,0527.244 © The Trustees of the British Museum.

Figure 10. Object number 1928,1009.490 © The Trustees of the British Museum.

[9] The KAmod equation is $y = 614 \cdot 1.08108 \cdot x - 112$, where y = age in months, x = MRB in mm, and 1.08108 = estimated 7.5% shrinkage rate (Králík and Novotný 2003: 17).

regarded as a sign of their appreciation,' and even when the repair was done crudely and the aesthetic appearance of the object was somewhat altered, the act of repairing itself may signal the significance of such figurines.

Written sources

The use of figurines is well attested mainly in Neo-Assyrian cuneiform texts that focus on anti-witchcraft rituals (Verderame 2013). However, these primarily describe the use of anthropomorphic figurines which are usually associated with 'sympathetic, exorcistic and protective rituals' rather than with cult images (Darby 2014: 96).

For the Old Babylonian period (2003–1595 BC), the data on the ritual use of figurines is scarce and only a few texts are available, while a larger wealth of details emerges from the late second millennium and first millennium texts (Abusch 2012: 377). Neo-Assyrian sources provide further data on this type of use and allow us to better assess the importance of these rituals over time since they are often copies of older texts (Verderame 2013: 301-302).

Particularly interesting is a set of texts that deal with the ritual *Maqlû* (Schwemer 2017: 2), as these give more details on the type of figurines and images involved in the process of fighting evil caused by witchcraft. Furthermore, in these texts, we can find a more detailed description of the type of material needed for the creation of figurines (such as clay), as well as a term to describe such objects (*ṣalmu*). Yet, this term does not give a clear idea of the type of figurine involved and so may refer to different types of figures (Darby 2014: 83).

From these texts, we also know that clay was not the only material used to produce them and that they could also be made of tallow, wax and cedar wood. This suggests that a larger number of figurines were produced but with more perishable materials than clay. Two important elements also emerge from analysing these types of texts: the figurines made of clay would have names written on them (Verderame 2013: 303), and in addition to that, they would also need to be destroyed either through burning or dissolving in water (Verderame 2013: 309). Another series of texts, 'The hand of ghosts' (Darby 2014: 85), provides more details on how to make a figurine and recommends burying them instead of burning them, as described in the *Maqlû* series. Compared to the latter, 'The hand of ghosts' texts present more detailed instructions. However, they also lack specific details about the figurine's design (Darby 2014: 86).

As previously mentioned, zoomorphic figurines do not seem to be part of such rituals, but we do have information on the use of inscribed clay dog figurines used for ritual purposes: either for the protection of houses or associated with the healing goddess Gula (Postgate 1994). Descriptions of donations received by Gula and her dogs (Tsouparopoulou 2020: 3-4), highlighting the importance of these animals for the cult, are found in the Puzriš-Dagan texts, a series of administrative texts of the

Ur III period. Dog figurines could also be uninscribed (Ornan 2004: 14) and made of other materials, such as bronze. They were often found buried underneath floors of buildings (Nakamura 2004: 12) as well as in temples dedicated to the goddess, as in the case of the 'dog temple' in Isin where many of such figurines were recovered during excavations. Several examples of this type of figurines were also recovered at Ur in the Gi-par-ku site where they were found underneath rooms' floors and close to walls and doors (Woolley 1965: 93-94).

Interpretation issues

In general, the study of zoomorphic figurines has not received the same attention that anthropomorphic ones have enjoyed. Woolley did not dedicate much attention to them, but he did acknowledge that some of them might have been used for different purposes. Moreover, most of the animal figurines from Ur are fragmented and this has made any attempt to understand their use and define taxonomy more challenging.

One of the reasons for the little interest in animal figurines, is that their production has often been associated with unrefined creative and intellectual abilities linked to simple and scarcely planned productions (Forte and Miniaci 2023: 20). Zoomorphic figurines were in many cases produced with raw materials of lower quality and in a rough and approximate manner which have led scholars to 'mostly connect these objects with the lower layers of society' (Forte and Miniaci 2023: 2). Additionally, the association of these figurines with children, either as toys or as produced by them, can be considered as a further contributing factor in the lack of interest shown by scholars towards these objects (Forte and Miniaci 2023: 2). Only in the last couple of decades, archaeologists have started to pay more attention to the so-called *invisible subjects* (Cuozzo and Guidi 2013: 21). The invisibility of children and their agency within the archaeological context is in fact linked to the invisibility of other identities such as women's (Moore and Scott 1997). These identities are often overlooked and made invisible through the use of interpretative frameworks that focus their attention on the adult male. A different approach that does not keep these subjects invisible would also imply accepting that play and fun had an important role in Mesopotamian culture and viewing children as active agents in producing it.

However, the scarcity of research dedicated to zoomorphic figurines and their state of conservation are not the only factors at play in determining their interpretative issues. As stated by David Wengrow (2003: 149), there are considerable differences between societies in how they classify and represent animals. It can be argued that our classification of animal figurines into different typologies and species is the result of different elements including the way we represent those animals. In some contexts, for example, cattle figurines might have had the function of 'vehicles of magic [...] to ensure well-being,' but also that of toys, and in some cases, both functions were assigned to the same object in its lifetime (Voigt 2000: 267).

Zoomorphic figurines are present in many different sites and contexts with some species being more frequently depicted than others, and a possible approach to their interpretation could be to consider the importance of certain animals for the economy of that site. These animals would be consequently represented more frequently than others (Pruß 2019: 50). Nonetheless, there is evidence of sites where animals such as goats and sheep were at the base of the local economy, but the animals most frequently represented in figurines were bovines (Wengrow 2003: 147). Therefore, an alternative interpretation based on the symbolic importance of certain species for a society should also be considered.

The use of ethnographic analogy can support the generation of new interpretative hypotheses by providing a better understanding of phenomena or relationships between phenomena. According to Hrnčíř and Květina (2023: 229), it has been applied more frequently in recent times, especially in the field of prehistoric archaeology, albeit its use is still quite rare. One of the advantages of this approach is that it gives access to rich qualitative descriptions that provide details on how cultural norms, beliefs and skills are taught and learned in human societies (Ember and Cunnar 2015: 95), data that is not always available in archaeology. Ethnographic analogy can therefore support the formulation of hypotheses and ideas but also be used as a source of evidence in local and specific cases (Currie 2016: 93). Nonetheless, as argued by Clark (2017: 24), there are limitations to this approach due to the need for comparable contexts where relevant similarities and differences between different time periods can be observed.

Another important element to take into account when considering new interpretations is that figurines are miniatures and as such they invite the user to be part of a miniaturised world where the tactile experience is intertwined with emotional connection and a sense of intimacy (Langin-Hooper 2020: 15). *Miniaturization theory* is 'an object-centered, affect-based approach particularly utilized in the field of anthropology' (Langin-Hooper 2020: 8) which considers figurines as informants whose properties provide us with evidence of their social worlds. An approach based on the miniaturization theory sees figurines not as simple objects determined by their use, but as 'culturally situated practices' whose purpose is plural and changes over time (Langin-Hooper 2020: 17). Through this lens, figurines appear as entangled in a net of social relationships, norms, negotiations, identities, desires and bodies which one can start exploring by recognising their ability to act and be in relationship with humans in many different ways.

Conclusions

This preliminary assessment of the zoomorphic figurines from Ur has shown that working on 'Old Collections' may offer new perspectives, generate new results and help reshape existing narratives as well as proving the importance of fully investigating a site. A review of existing literature and archive material, as well as

carefully examining information provided by Museum databases, has also proved to be quite useful in highlighting discrepancies and rethinking classification standards.

The research, despite being in its early stages, has already emphasised the diversity of characteristics exhibited by this class of objects and their potential to offer insights into some of the cultural aspects of the society that produced figurines.

The analysis of the different techniques employed to produce figurines, together with the study of fingerprints, can also help gain a better understanding of the actors involved in the production of such objects and how trends changed over time. Similarly, the wide distribution of figurines in different areas may also indicate their multifunctional use. We do not have much information on all the contexts in which the animal figurines were found, but the few known findspots support this idea.

The scarcity of information in written sources is information that we cannot ignore, as it can help us, for example, explore the distinction between anthropomorphic and zoomorphic figurines. As we have seen with a range of cuneiform texts, the majority of figurines used for ritual purposes were anthropomorphic with a few known exceptions such as dog figurines, which might have also had a ritual use.

The analysis of technological traces on the objects has also proved instrumental in creating different categories for this class of objects. For example, taking into consideration why an object has been fired or not, repaired or pierced, is crucial to better understand its function. Another way to approach the study of zoomorphic figurines could also be to consider them as part of a technological process which is also a social process. This approach could be very useful in moving beyond a materialistic vs spiritual dualism and considering the relationship established between human and object. All these elements, when carefully considered, can further support the (re-)classification of figurines.

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Chapter 4:
Gaining clarity from old glass: Some surprising results from heritage collections at the British Museum

Charlotte Nash-Pye

Abstract

Advancements in analytical equipment capabilities and published datasets provide opportunities, not only for newly excavated collections, but also for reassessment of heritage glass collections held in international museums that are an invaluable and often untapped resource. Gaining new insights from these old collections is offering greater understanding of glass production, trade and culture. The benefits of such an undertaking have recently been demonstrated by the compositional analysis of Islamic glass bangle collections held in the British Museum using LA-ICP-MS, providing a methodological blueprint for future research in this field. This paper reviews the main insights gathered from successful case studies by using such an approach and provides a framework for the analysis of other glass collections.

Key words: Historic glass analysis; Islamic glass; Glass bangles; Middle East studies; Indian Ocean trade

The last few years have been an exciting period for academic advances in the analysis of glass and the understanding of geochemical compositions, which allow us to reconstruct periods of production and places of manufacture. Further understanding of the production techniques and *chaîne opératoire* are also helping clarify and distinguish between the trade in components, such as plant ash, raw glass ingots and cullet, finished objects and recycling practices across various periods and cultures. Progress has particularly been made in the transition period from Byzantine to early Islamic glass compositions in the eastern Mediterranean. Reconstructions of these early Islamic period plant ash compositions are being further developed and added to from across the Islamic world, including glass production from later medieval and Ottoman periods. My own study has focused on Islamic glass bangles of the medieval to Ottoman periods as part of an AHRC-funded Collaborative Doctoral Award PhD at the University of Kent and the British Museum. These are found widely distributed across the Islamic world, but relatively little is known about them compared with glass beads or vessels. However, their unique chemical compositions unlock wide distribution patterns and offer insights into trade, cultural transfer and female identity during these understudied periods.[1] Combining traditional archaeological approaches with scientific techniques has revealed manufacturing techniques, typological styles and unique glass compositions.

[1] All archaeological, photographic, ethnographic and historical research indicate glass bangles were intrinsically entwined with aspects of female identity, such as marital status, as they continue to be today across South Asia.

The Siraf collection in the Department of the Middle East at the British Museum was the starting point for investigating Islamic glass bangles from the Persian Gulf region. These derive from the official division of finds discovered during the 1966-1973 excavations directed by Dr David Whitehouse on behalf of the British Institute of Persian Studies with co-operation from the Archaeological Service of Iran. The aim was to develop a master typology for future studies and assess the geochemical signatures to ascertain whether there is a connection between stylistic types and glass provenance, identifying possible origins of certain bangle designs and their distribution patterns. Another important group of bangles that is also held in the department at the British Museum comes from the production site of Kawd am-Saila in the Aden district of Yemen, donated in 1995 from an amateur surface collection assembled by Philip Cambridge, posted with the British RAF to Aden in 1965. Both collections have provided unique insights into Islamic glass compositions and bangle dissemination, providing promising potential for other historic glass collections.

Background

Typical Roman natron-based glasses from the eastern Mediterranean continued to be produced in that region into the 9th century, during the early Islamic period, while other Middle Eastern areas maintained a separate tradition of plant ash glassmaking. However, by the medieval period soda-rich plant ash had once again become the dominant fluxing agent throughout the Middle East and was heavily employed in Islamic glassmaking. Glass production during the Islamic period also appears to have become increasingly decentralised with more production locations and compositions across the Middle East (see Freestone 2002; Henderson 1999; Henderson *et al.* 2004). Considerable progress in distinguishing between historic glass compositions has been achieved through trace element fingerprinting. Schibille et al. (2019) successfully employed LA-ICP-MS to identify shifts in raw materials by analyzing elemental ratios in Egyptian glass weights and stamps (8th–11th century). This established a temporal model to date changes in early Islamic plant ash glasses across two regions, a method that has potential for later Islamic glass groups throughout the Middle East, even without known primary production sites.

By distinguishing regional silica signatures and plant ash subtypes, we can begin to build chronological control for compositions based on dating of excavated collections. Such an approach using LA-ICP-MS was successfully employed by Phelps (2018) to distinguish between early Islamic (8th-12th century) 'Eastern Mediterranean' plant ash glasses and those from further east, defined as 'Mesopotamian 1 and 2' groups. They were of similar compositions to previously designated 'Nishapur Group A and B' glasses (Brill 1995), which were likewise similar to compositions of earlier (pre-Islamic) 'Sasanian 2 and 1' glasses (Mirti *et al.* 2008; Mirti *et al.* 2009). Schibille *et al.* (2018) analysis of early Islamic (9th century) glass from Samarra (Iraq), termed 'Samarra 1 and 2' types, corresponds with the so-called 'Mesopotamian 2' categorisation,

Table 1. Terms used in this paper to describe major regional glass compositions, modern country names and glass group data sources of these categories.

Regional groupings in this paper	**Eastern Mediterranean:** Lebanon, Israel, Southern Syria	**Mesopotamian:** Iraq	**Western Khurasan:** Northeast Iran	**Eastern Khurasan:** Turkmenistan	**South Asian:** India	**Persian Gulf:** Southwest Iran	**South Arabian:** Yemen
Glass group names	Tyre (10th-11th C.) (Freestone 2002; Phelps 2016)	Samarra 1 (9th C.) (Schibille *et al.* 2018)	G1a-b (8th–11th C.) (Schibille *et al.* 2022)	Merv 1 (9th C.) (Meek *et al.* 2025)	m-Na-Al 2 (14th–19th C.) (Dussubieux *et al.* 2010)	Siraf A-B (9th C.) (Swan *et al.* 2017)	Kawd am-Saila (14th–16th C.) (unpublished Nash-Pye)
	Banias (11th–13th C.) (Freestone *et al.* 2000; Phelps 2016)	Samarra 2 (9th C.) (Schibille et al. 2018)	G2 (8th–11th C.) (Schibille *et al.* 2022)	Merv high alumina, (9th C.) (Meek *et al.* 2025)			
	al-Raqqa 1 (8th–11th C.) (Henderson *et al.* 2004)	Sasanian 2 (3rd–7th C.) (Mirti *et al.* 2008; 2009)	Sasanian 1a-b (3rd-7th C.) (Mirti *et al.* 2008; 2009)			Siraf bangles (14th–15th C.) (unpublished data Nash-Pye)	

revealing regional characteristics of glass originating from Mesopotamia. Schibille *et al.* (2022) have also since established that glass groups with similar characteristics to the so-called 'Mesopotamian 1' categorisation, termed 'G1-2 types', are identified in high quantities at many northeastern Iranian sites, almost certainly representing the region from which they originated (Table 1).

The historic Greater Khurasan Province is archaeologically established as a major industrial zone for early to medieval Islamic crafts, particularly metal-working (Komaroff 2000; Simpson 2022; Oudbashi *et al.* 2025). Its role as an active glass production region is, therefore, not surprising. This paper promotes the use of the 'Mesopotamian' (MS) glass categorisation to refer to glasses from the region in the geographical sense of the word, such as Iraq (see Drower *et al.* 2016), and 'Western Khurasan' (WK) to refer to glasses from northeast Iran (formally 'Mesopotamian 1'). 'Eastern Khurasan' is likewise used as the regional term for glasses from areas of Central Asia (CA), such as present-day Turkmenistan, Afghanistan, Uzbekistan and Tajikistan.[2]

Evidence suggests Islamic glasses from 'Mesopotamian' (northeast Syria and Iraq), 'Western Khurasan' (northeast Iran) and 'Eastern Khurasan' (Central Asia) production regions were disseminated along the northern caravan routes, especially from the 10th century onwards (Shortland *et al.* 2006). For example, 'Samarra 1' was made from a specially sourced quartz-pebbles or quartz-rich sand, producing a high-quality colourless vessel glass for 'luxury' export during the 9th–10th century to Nishapur (Iran), Fustat (Egypt), Ramla (Israel) and Raqqa (Syria) (Henderson *et al.* 2004; Henderson *et al.* 2016; Phelps 2018; Schibille *et al.* 2018; Wypyski 2015). This is particularly relevant when reviewing understudied regions, such as the Persian Gulf and Southern Arabia, as it is often assumed that South Asian bangles from India represent the majority of those disseminated across the western Indian Ocean.[3] Likewise, Hebron in Palestine is the best-known glass bangle production site and so often used as typological comparative and suspected source of many glass bangles across the Islamic Middle East (Spaer 1992), but when reviewed is often found to not be the source. Comparing such compositions with others from surrounding regions has certainly produced a more accurate approach to their identification, challenging such assumptions.

[2] Recent research from Merv (Turkmenistan) and Bukhara (Uzbekistan) also confirms long-held suspicions that high alumina (*c.* >4 wt%) is a particular characteristic of 'Eastern Khurasan' (Central Asian) regional plant ash glasses (Meek *et al.* 2025; Nash-Pye *et al.* 2025; Schibille 2022; Schibille *et al.* 2024).

[3] Most museums in the Gulf and Southern Arabian regions provenance their bangle collections to India but give no justification as to why, for example those on display at Qal'at Al-Bahrain Site Museum, the National Museum of Qatar and the Museum of the Frankincense Land on the Al Baleed Archaeological site, Salalah, Oman. As the Middle Eastern tradition of glass bangle wearing has now ceased, this assumption is probably due to the modern association with glass bangles and India.

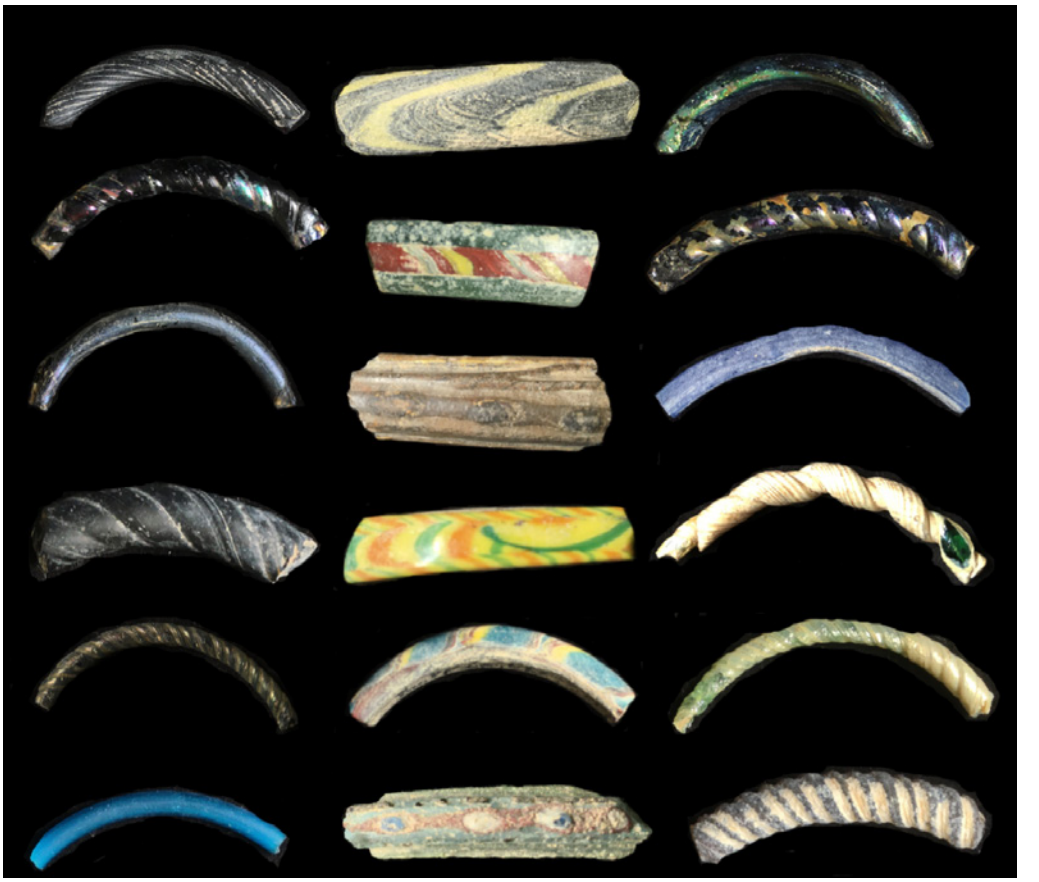

Figure 1. A selection of glass bangle fragments from Siraf, Iran (*c.* 14th-15th century). Photo C. Nash-Pye © The Trustees of the British Museum.

Siraf had been one of the most important ports of the early Islamic period in the Gulf region, actively participating in local trade between Basra and Sohar and interregional maritime trade across the wider western Indian Ocean, as well as facilitating maritime trade access via Shiraz for caravan routes (Agius 2007: 75). The site became the focus of extensive archaeological exploration in the 1960s-1970s and amongst the many objects held in the British Museum are over 1000 glass fragments from Siraf that have yet to be analysed, accounting for about 20% of the total collection (Whitehouse 1968; 1970; 2009). These include around 200 glass bangle fragments (Figure 1), which date to a later occupation period (*c.* 14th-15th century) to most of the glass vessel fragments (*c.* 9th-10th century), when the site had become known as Shilau, a rural pearling village of diminished status and wealth (Whitehouse 1968: 19).

Around 100 glass vessel fragments and a few glass bangle fragments from Siraf have previously been analysed at the Corning Museum using LA-ICP-MS by Swan *et al.* (2017).

The vessel glass and working debris dated mostly from the 9th to early 11th century (Swan *et al.* 2017). That study found that the majority was significantly different from previously known compositions, named 'Main Group' and characterised by elevated zirconium and chromium concentrations (Swan 2018; Swan *et al.* 2017: 112). The 'Main Group' was divided into two local subtypes, 'Siraf A and B', the first of which is higher in Sr and Cr than 'group B,' which has comparatively 'middling levels' (Swan *et al.* 2017: 105). 'Siraf A and B' glass was likely to have been locally produced at Siraf and has since been identified at contemporary Murwab (Qatar), Kush (UAE) and the Barbar well (Bahrain) (Swan 2018; Swan *et al.* 2017). According to Swan (2018: 280) this high-zirconium glass was even traded as far as Sri Lanka and Thailand. This 'Siraf' glass composition disappears in later occupation periods, once the industrial zone had ceased production (Swan *et al.* 2017).

Glass excavated at Siraf from the late 11th century onwards, which includes the bangles, have different compositions and are likely imports (Swan *et al.* 2017). These are primarily of a so-called 'Low Zirconium' composition (four fragments) but with lower manganese levels than early Islamic glass samples, thus termed by Swan *et al.* (2017) 'Low Manganese.' This is likely due to a chronological change in recipe rather than silica provenance. Although Swan *et al.* (2017) claim that the group has lower zirconium levels to other known glasses this was prior to the recent identification of northeast Iranian glasses, 'G1-G2' (see Schibille *et al.* 2022). Comparing these groups reveals that most of the 'Low Zirconium' group values are of a 'Western Khurasan' characteristic. However, the elevated chromium values are more like the so called 'G3/M' group,[4] indicating they may have more of a regional relationship to the Siraf glasses than the 'G1-2' types. Two fragments have extremely high zirconium and titanium concentrations, even more so than the earlier 'Siraf A' type, which may indicate regionally localised production in the Gulf region (termed 'Persian Gulf' glass). One fragment is of a 'v-Na-Al' composition, indicating a Central Asian ('Eastern Khurasan') origin and another of a 'm-Na-Al' composition, characteristic of 'South Asian' glasses (see Dussubieux *et al.* 2010; Nash-Pye *et al.* 2025).

Until recently, it had not been proven that a typological and geochemical analysis of Islamic glass bangles, which stylistically vary widely and are potentially traded over vast distances, could help reveal chronological, provenance or dissemination patterns. A full review of glass bangles from Siraf therefore represented a strong case study of such potential, and for establishing the value of investigating heritage collections. Another such collection in the British Museum that offered similar (or potentially greater) potential for academic insights is just over 100 glass bangle fragments collected as surface finds from Kawd am-Saila in Yemen (*c.* 14th-16th

[4] This is not a compositionally coherent group but likely several different glasses with some compositional similarities, the origins of which currently remain unknown and are highly debated.

Figure 2. Selection of glass bangle samples at the British Museum from Kawd am-Saila, very similar to those previously assessed by Monod (1978). Photo C. Nash-Pye © The Trustees of the British Museum.

century) (Figure 2).[5] Kawd am-Saila is the most prominently known and referenced glass bangle production workshop in Yemen, which is located in Aden, a district heavily associated with Islamic glass manufacturing (Lane and Serjeant 1948; Lankester and Harding 1964; Monod 1978).

Despite a large quantity of scholarly references of the site and evidence of local production, to the knowledge of this author, no compositional analysis has been published on Islamic glass from Yemen. Typologically distinct frit-coated bangle

[5] An additional four surface find samples from nearby al-Karf Road were donated to the British Museum in 2012 from field collections by Harold Ingrams in 1938, of the same frit-coated style produced at Kawd am-Saila.

designs observed at Kawd am-Saila have also been visually identified at numerous sites around the Red Sea, particularly along the east African coast (Kawatoko and Shindo 2010; Meyer 1992; Monod 1975; Shindo 2001; Whitcomb 1983). These areas had strong trade-links and may have been major markets for glass from Aden. Thus, the discovery of a collection from Kawd am-Saila at the British Museum posed a major opportunity to better help identify provenance and dissemination of Islamic glass bangles in other collections and potentially provide a new composition for regional glass provenancing.

Methodology

The Siraf and Kawd am-Saila collections first underwent a typological analysis, comparing the styles and colours to many published bangle collections from Anatolia, the Levant, Egypt, Yemen, India and elsewhere in the Gulf region.[6] Rather than a regionally specific system, this employed a more 'universal' typological system developed especially for the project that included designs from collections of various periods across the entire Middle East. Representative samples with good preservation were then selected for scientific analysis. Small fragments were mounted in resin blocks, which were first prepared and polished for preliminary scanning electron microscopy with energy dispersive X-ray spectroscopy (SEM-EDX) analysis at the British Museum laboratories in the Department of Scientific Research.[7] This methodology resulted in detection limits for most major metal oxides of around 0.1 wt%. The mounted samples were then sent to IRAMAT-CEB, Orléans (France) for further analysis using laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS), a micro-destructive technique that leaves minimal surface impact. In his characterisation of modern glass, Gratuze (2016) identifies a suite of up to 58 elements used in ancient glass analysis with LA-ICP-MS detection limits reaching as low as 0.01 parts per million (ppm), depending on the element.

The composition of archaeological glass reflects the geochemical nature of its raw materials, an assumption which requires taking a whole suite of elements related to the silica source into account, such as Al, Ti, Cr, Zr, Ba, La, Nd and Th. Plant ash subtypes can likewise often be separated by variation in Na_2O, MgO, K_2O, and P_2O_5 concentrations and MgO/CaO, K_2O/P_2O_5, Li/K_2O and Cs/K_2O ratios. Advancements of such analytical techniques and increases in published datasets have enabled reconstruction of the major features of regionalised glass, particularly based on silica characteristics. Mineral-based glasses are identified by low magnesia (<1.5 wt% MgO), while plant ash glasses typically contain >2.5 wt%, compositional groups first defined by Sayre and Smith (1961) and later identified as a flux-based distinction (Brill 1970;

[6] Including Boulogne and Hardy-Guilbert (2010); Kanyak and Köroğlu (2022); Meyer (1992); Monod (1975); Shindo (1996; 2001); Spaer (1992; 2001); Uçar (2020); Vincenz (2021); Whitcomb (1983); Zanon (2013) to name but a few.

[7] The samples were examined and analysed in the Hitachi S3700 variable pressure scanning SEM-EDX, Oxford Instruments INCA EDX analyser at the British Museum.

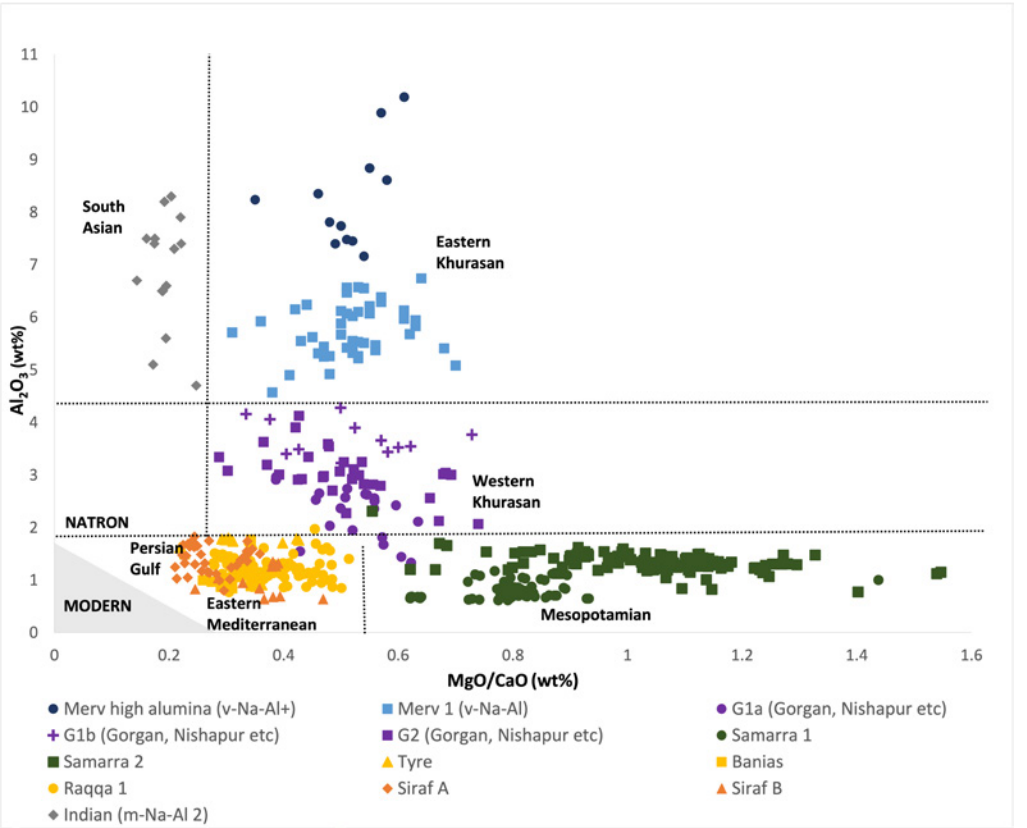

Figure 3. Major comparative compositional glass groupings representing regional provenance. Data: Tyre in Lebanon (10th–11th century) and Banias in Israel (11th–13th century) (Phelps 2016), al-Raqqa 1 in Syria (8th-11th century) (Henderson *et al.* 2004), conflated to represent the 'Eastern Mediterranean' region in yellow. Samarra 1 and 2 type glass from Iraq (9th century) (Schibille *et al.* 2018) conflated to represent the 'Mesopotamian region' in green. G1a, G1b and G2 glass (Schibille *et al.* 2022) from various sites in northeast Iran (8th-10th century Qom, 9th-10th century Nishapur, 9th-11th century Rayy, 11th-12th century Gorgan and 'Islamic period' Hamadan) conflated to represent 'Western Khurasan' glass in purple. Merv 1 and Merv high alumina type from the 9th century Turkmenistan represent the 'Eastern Khurasan' in blue (Meek *et al.* 2025; Schibille 2022); Siraf A and B type from Iran (9th century) (Swan *et al.* 2017) conflated to represent the 'Persian Gulf' glass in orange; m-Na-Al 2 from India (14th-19th century) (Dussubieux *et al.* 2010) representing 'South Asian' region in grey.

Shortland et al. 2006). Although soda-rich plant ash was the dominant fluxing agent used in Islamic glassmaking by the medieval period, some mineral-based glasses, such as high-alumina *reh*-based glasses from South Asia (m-Na-Al), were also in circulation.

The compositional investigation of early Islamic collections in northeast Iran demonstrates it is possible to broadly categorise Islamic plant ash glasses into regions of production, even if primary production sites remain unknown (Schibille *et al.*

2022). Changes in flux are often good indicators of chronological changes in glass recipes and regional subtypes, either due to changes in the way they are used, gradual temporal change or changes in source. The silica source is a better means of defining regional production, as it is much more difficult to transport long distances than a flux and demonstrates less variation across prolonged periods of time. A similar concept can also be applied to 'South Asian' mineral glass categories, some of which (and particularly bangles) were also in circulation in parts of the Middle East at this time (see Dussubieux *et al.* 2010; Trivedi and Dussubieux 2022).

Currently known regional signatures for early Islamic glasses can be used to help identify the origins of later Islamic glasses, until the introduction of European glass recipes in the late Ottoman period affected these compositions. One chart that seems to effectively visualise regional groups of early Islamic glass types into regions well is Al_2O_3 compared with MgO/CaO (Figure 3), which can be used as an initial template to overlay and compare compositions of plant ash glasses analysed from the bangles in this study. Major regional groupings of plant ash glass have been defined based primarily on similar silica compositions, but also drawing on elements related to the plant ash component (Schibille 2022). Five regional production zones can be tentatively identified, which have been colour grouped for ease of use: 'Eastern Mediterranean', 'Mesopotamian', 'Western Khurasan', 'Eastern Khurasan' and 'South Asian'. This provides a guideline to help identify geochemical signatures in the glass fragments analysed that help to either associate them with a specific composition, general regional composition or identify them as a previously unknown glass composition. Against these established groupings we can compare the compositions of the Islamic glass bangles analysed from Siraf, Iran (*c.* 14th-15th century) and from Kawd am-Saila, Yemen (*c.* 14th-16th century) to ascertain if they represent known regional glass compositions or new ones.

Results and Discussion

Full typological and geochemical reviews will be published separately in detail for each of these collections. However, here we shall discuss the overall major findings and their implications for future research into heritage glass collections at museums. The majority of the glass bangles from Siraf were of a dark twisted (followed by a dark plain) style and only a few were of multicoloured marvered, protruding or coated designs. Most of the bangles fell into a compositional category most like the 'Western Khurasan' glasses, particularly 'G1a', but with more elevated chromium, like so-called 'G3/M' (Schibille *et al.* 2022). These are compositionally coherant with the 'Low Zirconium' group identified at Siraf by Swan *et al.* (2017). A working hypothesis is that elevated chromium deposits are found amongst the Zagros region, due to ancient volcanic activity, and thus is a characteristic that may be associated with the Mesopotamian Plains, northern coast of the Gulf region and Iranian Plateau. Based on otherwise general compositional similarities amongst silica elements of the 'G1-2'

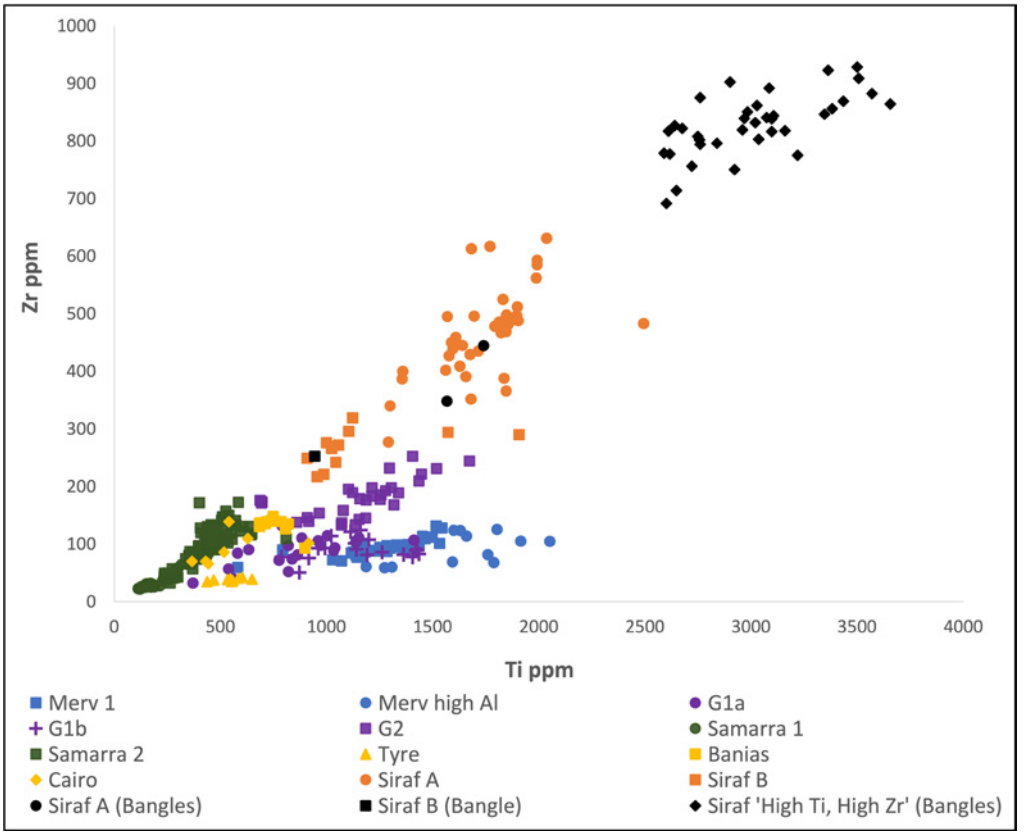

Figure 4. Major comparative compositional glass groupings, indicating the 'High Ti, High Zr' bangles have a closer composition to Siraf A and B types but are of a different unknown silica source. Data: Old Cairo in Egypt (c. 1350) (Henderson et al. 2016), Tyre in Lebanon (10th–11th century) and Banias in Israel (11th–13th century) (Phelps 2016), conflated to represent the 'Eastern Mediterranean' region in yellow. Samarra 1 and 2 type glass from Iraq (9th century) (Schibille *et al.* 2018) conflated to represent the 'Mesopotamian region' in green. G1a, G1b and G2 glass (Schibille *et al.* 2022) from various sites in northeast Iran (8th-10th century Qom, 9th-10th century Nishapur, 9th-11th century Rayy, 11th-12th century Gorgan and 'Islamic period' Hamadan) conflated to represent 'Western Khurasan' glass in purple. Merv 1 and Merv high alumina glass from the 9th century Turkmenistan represent the 'Eastern Khurasan' in blue (Meek *et al.* 2025; Schibille 2022); Siraf A and B type from Iran (9th century) (Swan *et al.* 2017) conflated to represent the 'Persian Gulf' glass in orange; Siraf 'High Ti, High Zr' group (unpublished data).

types, this may represent a yet to be defined southwestern Iranian glass. Chromium-rich sand and deposits in the Yazd province (north of Shiraz) are a possible candidate (Alipour 2017). Although most were dark, this composition contained the widest variety of colours and styles.

Another major glass bangle composition is similar to the two samples analysed by Swan *et al.* (2017) with extremely elevated titanium and zirconium concentrations, beyond even that of the Siraf A composition (Figure 4). Robertshaw *et al.* (2009) suggest that high zirconium could be an indication of silica with a significant amount of detrital (sedimentary) zircons, common from the erosion of continental cores of uplifted igneous rock. As the northern coast of the Persian Gulf sits over the boundary between the Arabian and Eurasian plates, this indicates a likely localised silica source. Bangles of this composition are all of a specific type of twisted bangles (dark with multiple-canes) and it is hypothesised that this group may have been produced in a nearby workshop with locally sourced silica. One such workshop was reported at Bida Khar (14 km north of Siraf) by Whitehouse (1968: 19) with glass waste and bangle fragments of this description, making it a good candidate.

A third plant ash composition is represented only by a few fragments, characterised by high alumina (v-Na-Al), like the single sample identified by Swan *et al.* (2017). As mentioned, this group is almost certainly of Central Asian origin and more specifically the rarer CA2 compositional subset, represented by a few samples from Merv 'high Al (b)' with elevated alumina (>6% wt Al_2O_3), exceptionally high Cr, Nb, Ta and Th and is of a silica source depleted in the heavy REEs (Meek *et al.* 2025). These characteristics are indicative of a significant contribution of feldspar in the silica. These are also represented by a specific typological style, primarily dark (or green) tight twisted single-cane designs. Finally, there was one single (but rather corroded) compositional outlier, which also represented a high alumina plant ash glass, but was not identified until the Kawd am-Saila collection from Yemen was analysed.

Unlike the extremely mixed collection from Siraf, representing a variety of regional compositions, the Kawd am-Saila collection represented an extremely homogenous group, both typologically and compositionally. This was to be expected from a production site collection, although it has been proven that some early Islamic production sites used both local glasses for everyday use and imported specialist glass for luxury items, such as at Raqqa (see Henderson *et al.* 2004). Nonetheless, as a specialist glass bangle workshop, Kawd am-Saila seemingly had no need for a variety of glasses and also specialised in applying a different method of external decoration for some of its designs. This is referred to as frit-coating, which employs powdered glass of limited colours with an emollient to add an additional coloured coating over the glass to cover, stripe, mock-marver, trail or add trail-prunts. Those produced at this site are primarily a powdery-looking yellow and/or red and are instantly recognisable designs that have been reported amongst collections along the Horn of Africa and Red Sea (Kawatoko and Shindo 2010; Meyer 1992; Monod 1975; Shindo 2001; Whitcomb 1983).

In addition to a distinct typology, the compositional analysis also identified that the Kawd am-Saila bangles were of a unique plant ash composition, characterised

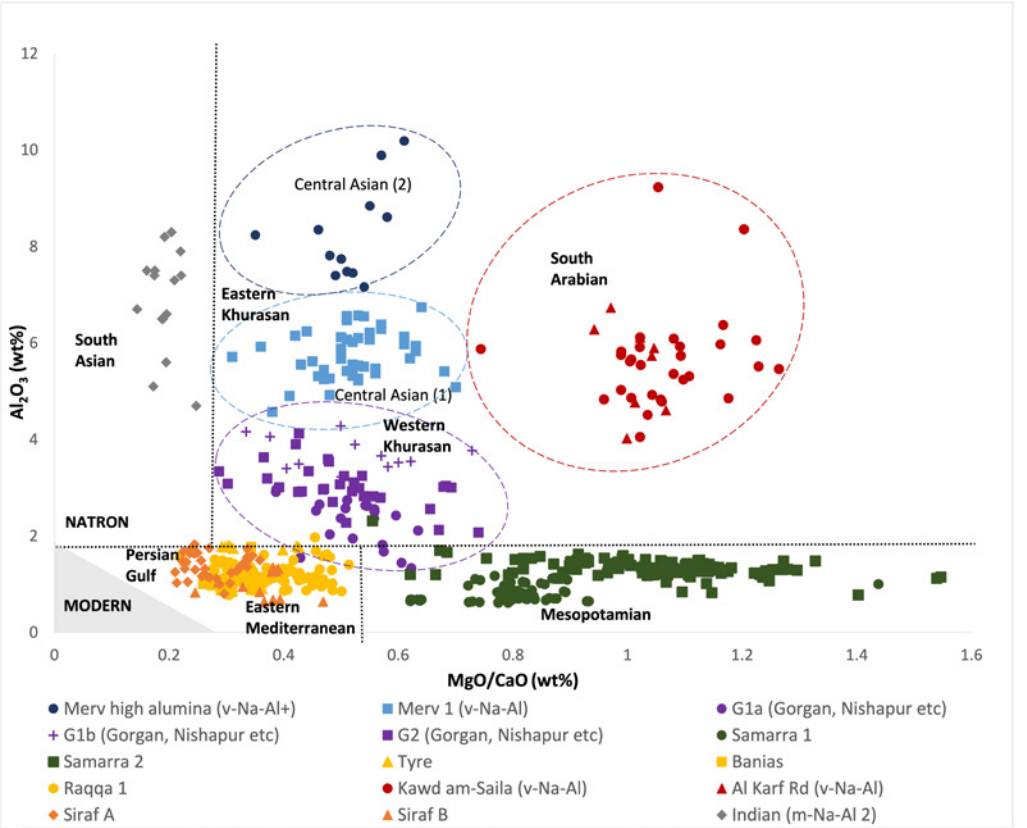

Figure 5. Major comparative compositional glass groupings representing regional provenance with the Kawd am-Saila (Yemen) composition added, representing a new regional grouping. Data: Tyre in Lebanon (10th–11th century) and Banias in Israel (11th–13th century) (Phelps 2016), al-Raqqa 1 in Syria (8th-11th century) (Henderson *et al.* 2004), conflated to represent the 'Eastern Mediterranean' region in yellow. Samarra 1 and 2 type glass from Iraq (9th century) (Schibille *et al.* 2018) conflated to represent the 'Mesopotamian region' in green. G1a, G1b and G2 glass (Schibille *et al.* 2022) from various sites in northeast Iran (8th-10th century Qom, 9th-10th century Nishapur, 9th-11th century Rayy, 11th-12th century Gorgan and 'Islamic period' Hamadan) conflated to represent 'Western Khurasan' glass in purple. Merv 1 and Merv high alumina type from the 9th century Turkmenistan represent the 'Eastern Khurasan' in blue (Meek *et al.* 2025; Schibille 2022); Siraf A and B type from Iran (9th century) (Swan *et al.* 2017) conflated to represent the 'Persian Gulf' glass in orange; m-Na-Al 2 from India (14th-19th century) (Dussubieux *et al.* 2010) representing 'South Asian' region in grey; Kawd am-Saila in Yemen (*c.* 14th-16th century) (unpublished data set).

by elevated (>4% wt) alumina (v-Na-Al) (Figure 5). This glass otherwise differs from those from Central Asia across both silica and flux components, the region most often associated with this feature. In addition, it was found that the corroded high alumina outlier sample from Siraf was a compositional match to glass from Kawd am-Saila and, on closer inspection, a trail-prunt design could be determined. This trend is also

observed amongst other contemporary glass bangle collections that have since been reviewed from the Gulf region by this author.

Conclusion

Recent typological and geochemical research into historic glass bangle collections at the British Museum have resulted in some surprising results, which may lead to a new perception of the value of old 'heritage' glass collections elsewhere. Rather than fully focusing resources into the analysis of newly excavated collections, reassessment of historic glass collections and data can offer equally as valuable insights, whether those collections were excavated, purchased or donated. From the Siraf collection we find a variety of compositions, indicating wide trade networks, but also information on a less well understood categorisation of Iranian glass and possibly improved identification of previously defined 'G3/M' and 'Low Zirconium' groups (Schibille *et al.* 2022; Swan *et al.* 2017). A hypothesis for the geographical origins of these groups within a subregional context, based on geochemical characteristics, is also applied to another glass bangle type with 'High Ti, High Zr', which may indicate a regionally localised silica source and production site. Further research into these high chromium glasses, including the 'Siraf A and B' types, may lead to an improved understanding and definition of characteristics associated with glasses from the southwest Iranian and Gulf region around the Zagros Mountains, perhaps representing a new regional glass categorisation termed here 'Persian Gulf.' Coherence between the composition of a few high alumina plant ash (v-Na-Al) fragments with Central Asian glass Merv 'High al (b)' (see Nash-Pye *et al.* 2025) and one high alumina (v-Na-Al) outlier that has since proven to be of a Kawd am-Saila composition, further represents their international reach.

The analysis of the bangle collection from the well-known production site of Kawd am-Saila has provided a new regional 'South Arabian' composition (termed 'KAS') to add to our regional groupings, against which future collections can be compared.[8] As part of the wider study, this research has gone on to identify at least one glass bangle fragment of this high alumina 'KAS' Yemeni composition amongst various contemporary (*c.* 14th-16th century) glass bangle assemblages analysed from elsewhere in the Gulf region, as well as a collection from Somaliland. Such insights offer further opportunities for the identification of Islamic glass compositions in the Middle East and research into the trade of Islamic glass bangles, particularly between the Aden district of Yemen and the Horn of Africa. Although only in its infancy, it is hoped that the success of this approach will encourage further cross-disciplinary research into the dissemination of Islamic glass bangles across the western Indian Ocean and scientific research into glass collections held in storage to gain new and exciting insights.

[8] South Arabia (also known as Greater Yemen), is a historical region that consists of the southern region of the Arabian Peninsula in West Asia, mainly centred in the modern Republic of Yemen.

This study has demonstrated how advancements in equipment capabilities, particularly LA-ICP-MS, and increasing published datasets have provided opportunities for reconstructing the regional glass compositions of Islamic glass. This offers great opportunities for new discoveries from not only newly excavated collections, but the many heritage glass collections held in museums, gaining new insights from these old collections. In the case of glass bangles, such research can offer far greater understanding of glass production, trade and the circulation of these small portable and culturally valuable objects of adornment, offering particular insight into often elusive aspects of female identity. This review of the main findings gathered from two successful case studies (the Siraf and Kawd am-Saila glass bangle collections held in the British Museum) from employing such an approach, demonstrates impactful benefits of such an undertaking.

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Section II:
Re-assessing old documentation and perspectives on archival and collection practices

Chapter 5:
Plain yet significant: The making of a new typology of unglazed pottery from Takht-e Suleiman

Mette Bangsborg Thuesen[1]

Abstract

This paper reflects on the process and methodological challenges behind the making of a pottery typology from Takht-e Suleiman, in northwestern Iran, based on material that was excavated from 1958 to 1978 by the German Archaeological Institute. The study presents a group of previously unpublished plain wares, initially appearing uninspiring, but through careful analysis offering valuable insights into the Sasanian and Early Islamic pottery traditions of northern Iran. Although the stratigraphic context for all sherds within this collection could not be established, it is stressed that even poorly documented and seemingly forgotten assemblages from past excavations can provide essential new data, helping to fill gaps in the archaeological record.

Key words: Sasanian pottery; Early Islamic pottery; Takht-e Suleiman; Sasanian archaeology

When I began my PhD in November 2019, my focus was to study settlement patterns in Late Antique Iran relying on recently excavated and surveyed pottery from North Khorasan. However, a few months into the project I was faced with lockdown and travel restrictions caused by the COVID-19 pandemic, which forced me to change my research project. Instead, I decided to look for Sasanian pottery collections in Europe. This brought my attention to some unpublished material from Takht-e Suleiman, stored at the *Museum für Islamische Kunst*[2] in the Pergamon Museum Berlin.

When I initially approached the curators at the museum and presented the idea to my supervisors it was met with some scepticism. The German excavations at this site were infamous for their largely architectural approach and neglect of stratigraphy, complicating any contextual analysis. Furthermore, the pottery in question primarily consisted of plain wares of simple forms that, without provenience, would be difficult to date. The utilitarian nature of Sasanian ceramic traditions has in general stirred little interest among the archaeological community specialising in Southwest Asian history, perhaps exactly due to their mundane nature. However, necessity is the mother of invention, and since I was in desperate need of material for my PhD, I decided to dig further into the stores of this collection.

[1] The British Museum.
[2] Museum of Islamic Art, Berlin.

The German excavations at Takht-e Suleiman (1958–1978)

Takht-e Suleiman is an archaeological site in western Azerbaijan in northwest Iran. It is situated about 45 km northeast of Takab on top of an oval outcrop set in a valley in the southern edge of the Balkhash Mountain range. This outcrop consists of a 60-meter-high sinter plateau created from the overflow of sediment from a calcareous well which also forms a thermal spring lake in the centre (Mousavi and Daryaee 2012: 1086; Naumann 1977: 12–13). Located 2200 m high above sea level, and next to this thermal lake, historical monuments are set in these extraordinary surroundings. Besides an Ilkhanid palace, these include the remains of a Zoroastrian sanctuary dating to the Sasanian period, whose spiritual and symbolic significance was probably enforced by the presence of both water and fire.

The early descriptions of the ancient ruins at Takht-e Suleiman derive from medieval and later travellers, including Sir Henry Rawlinson, who initially mistook the site for the Median capital, Ecbatana (Huff 2002; Rawlinson 1840: 46–47). In 1937, a small architectural survey was conducted by the American Institute of Iranian Art (Pope 1937). No systematic excavations followed until the 1950s, when an archaeological team from the German Archaeological Institute in Tehran and the Iranian Antiquity Service pursued fieldwork over several campaigns running from 1958–1966[3] and 1968–1978. Over these three decades of fieldwork, an occupational sequence that stretched from the Late Iron Age until the Medieval period was established. However, these excavations primarily focused on understanding the building phases and structure plans of the monumental architecture.

Between 2002 and 2008, the site was re-excavated by an Iranian team directed by Dr Yousef Moradi. These investigations primarily targeted the Islamic settlement phase and took place near the northern gate of the site, which revealed finds such as 824 clay bullae. Furthermore, an artisan's district from the Ilkhanid period was investigated, where a Sasanian water mill was uncovered (Moradi and Hintze 2020, 2022). In 2003, Takht-e Suleiman, along with other adjacent sites, was inscribed on the list of UNESCO World Heritage; the site is currently being maintained by the Iranian Cultural Heritage, Handicrafts and Tourism Organization (ICHTO). In the UNESCO nomination, the Sasanian monuments were emphasised as an outstanding example of a Zoroastrian sanctuary, and the architectural features' influence on later Islamic religious architecture was considered an important criterion among others (ICHO 2003).

When looking into the textual sources, several legends and myths surround the site of Takht-e Suleiman. The name itself means the "Throne of Solomon" and derives from around the 16th century as a religious reference to King Solomon (ICHO 2003).

[3] From 1958 to 1964 this was a joint campaign with Swedish archaeologists from Uppsala University under the leadership of Hans Henning von der Osten.

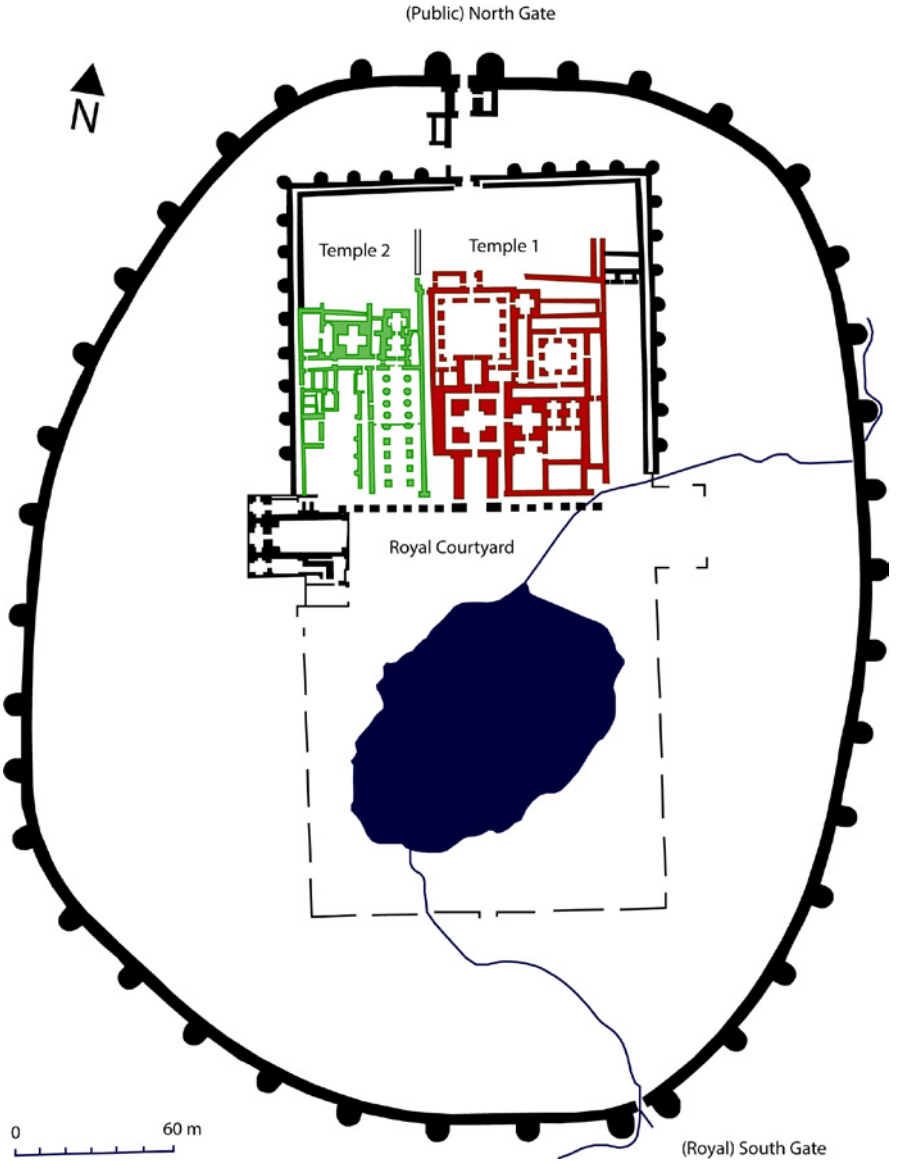


Figure 1. General plan of Takht-e Suleiman during the Sasanian period. Based on drawing by D. Huff (2008: 7).

An Armenian manuscript from the 4th century AD further associates the lake at Takht-e Suleiman with the legend of the birth of Zarathustra, which might have also affected the foundation of the place as a religious centre (ICHO 2003). Over time, Takht-e Suleiman was known by different toponyms: Early Islamic accounts refer to the site as Shiz and its Ilkhanid settlement was known as Saturiq. In the Sasanian

period, however, the monumental complex was called Ādur Gušnasp, the sanctuary of one of the three most sacred fires in the Zoroastrian faiths, which were believed to have been created by Ahura Mazda himself (Boyce 2011).

The excavations revealed that the Zoroastrian temple complex was built in the 5th century[4] and was constructed from mudbrick, with two protective walls and semi-circular bastions of baked bricks which provided an inner and outer gate. In the first half of the 6th century AD there seems to be a gradual replacement of mudbrick architecture with stone masonry. Coins and seals from the time of the rule of Kavād I (488–497 and 499–531 AD) were found above the earlier mudbrick structures that provided a terminus post quem for this. It was during this time that Ādur Gušnasp officially became a royal sanctuary, according to textual sources. The construction of the oval stone wall, which is six m thick and 13 m high and creates the outline of the site, was dated to this building phase. This outer wall was further reinforced with semi-circular towers and enclosed an area of ten ha (Figure 1). Within this space, three main areas of architectural activities were recognised: the main temple complex located in the northern part of the enclosure, where the sacred fire of Ādur Gušnasp was kept (Figure 1, Temple 1 and Temple 2); a second walled area towards the south that has been interpreted as a royal precinct, and flanked by two massive *ayvāns*[5] on its eastern and western sides (Figure 1, Royal Courtyard); and finally, in the peripheral areas of these main complexes, simple structures which probably functioned as public administrative buildings and shelters.

The outer wall had two identical vaulted entrances oriented towards the north and south, which appear to have been designated for different groups of people (marked in Figure 1 as the North Gate and South Gate). The northern entrance is assumed to have been the way frequented by pilgrims, while the southern entrance was likely reserved for the king and his entourage (Huff 2008). Outside the oval fortification, at the foot of the western hillside, there seems to have been a smaller settlement. According to Huff (2002), this rural population moved inside the enwalled area following the fall of the Sasanian Empire and as the Zoroastrian sanctuary had lost its religious importance. Huff suggests this slow demise started in 627 AD when Takht-e Suleiman was attacked by the Byzantine army, who destroyed the fire temple and plundered its treasures. The event also caused serious damage to the oval wall and its towers. Following the Arab conquest in the mid-7th century, evidence of settlement activities inside the walled area is limited, though Zoroastrian practices appear to have continued into the 8th and 9th centuries (Boyce 2011; Huff 2008).

[4] This was dated based on radiocarbon samples, and the finds of coins from the reign of Pērōz (459–484 AD) and Theodosius II (408–450 AD; Huff 1975: 166).
[5] Here defined as vaulted halls that are walled on three sides with a direct opening on the fourth (Grabar 2011).

The sampled pottery and methodology

The pottery assemblage I studied from Takht-e Suleiman appears to have been transported to Germany in multiple phases between the 1960s and 1975. Alongside this, other excavated finds—such as stucco fragments, coins, beads, and metal objects—were brought over and are now stored in the *Museum für Islamische Kunst*. A selection of these artefacts is accessible through the digital archive of the Berlin State Museums, but only the complete ceramic vessels are featured within this online catalogue.[6] In fact, the assemblage predominantly consists of fragments of plain wares with a small proportion of decorated sherds. They seem to have been randomly selected and brought to Berlin, possibly to form a small study collection (Ute Franke and Katharina Kuntz, personal communication). Initially, these finds were kept at the German Archaeological Institute in Dahlem, Berlin, before they were eventually moved to the museum. Here, the sherds appear to have been repacked. A search in the inventory logs, which are available online,[7] revealed that some of the objects entered the collection in the spring of 1969 and others in the autumn seasons of 1971 and 1975. However, not all inventory numbers could be located within these catalogues and their provenience remain unclear.

At the museum, the pottery is currently stored in multiple crates, divided according to glazed and common wares. The common wares are kept in 30 crates in total, which contain a mixture of sherds dating from the Late Iron Age until the Medieval period.[8]

After a first assessment of the crates and their content, I defined the main goals that drove the registration work of this material:

- To look through all 30 crates and identify potential Sasanian sherds, which could be sampled and registered in a Microsoft Access database developed for the project.
- To draw and photograph selected sherds for the making of a typo-chronology.
- To reconstruct the archaeological context for the sherds within the collection.

All my observations were recorded in a Microsoft Excel sheet, which was later transferred into an Access database. This Excel sheet was organised according to six main categories, each including subfields relevant to my PhD research (Figure 2). Not all these registration points are discussed in this article but are further elaborated upon within my dissertation (Bangsborg Thuesen 2025).

[6] Staatliche Museen zu Berlin, Preußischer Kulturbesizt, https://recherche.smb.museum/, viewed 19 September 2024.
[7] Staatliche Museen zu Berlin, Preußischer Kulturbesizt, https://www.smb.museum/en/museums-institutions/museum-fuer-islamische-kunst/collection-research/acquisition-and-accession-logs/, viewed 12 March 2025.
[8] The glazed wares were not included in my research, as these were studied by Katharina Kuntz for her forthcoming doctoral dissertation.

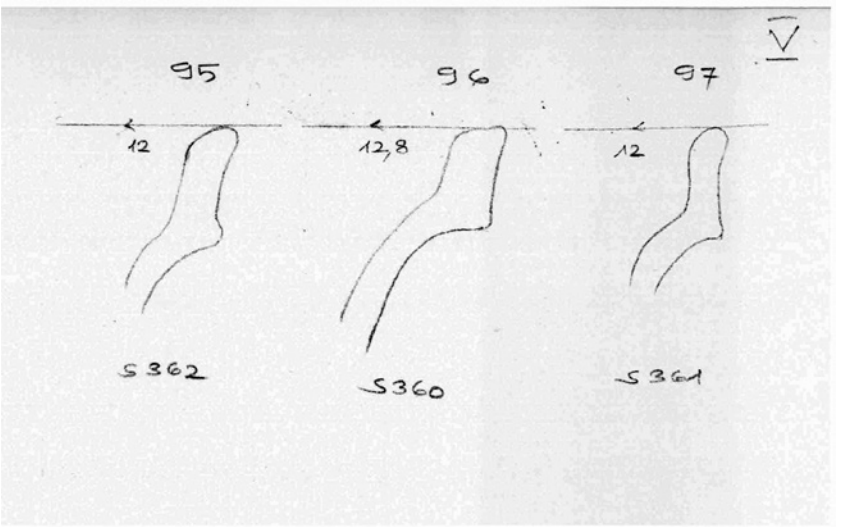
Contextual information	Sherd no., Site name, Localisation, Trench, Context no., Type of context, Internal phasing, Dating
Typology	Sherd category, Form, Shape type, Rim type, Neck type, Shoulder type, Previous shape codes, Type code, Diameter, Height, Wall thickness
Ware classification	Fabric, Type of temper, Size of temper, Temper frequency, Colour (out. surface), Colour (int. surface), Colour (core), Manufacturing, Ware code, Ware subgrouping
Surface treatment/ decoration	Surface treatment (out.), Surface treatment (int.), Decoration (out.), Decoration (int.), Application (out.), Application (int.)
Functional attributes	Functional interpretation, Type of Use-wear, Use-wear (out.), Use-wear (int.), Opacity score, Use-wear description
General notes	Description, Personal remarks, Drawing no., Photo no., Comparisons

Figure 2. Overview of registered variables.

Dating the sherds and typo-chronology

Given the chronologically mixed nature of the ceramic assemblage, my main approach was first to identify and separate those sherds possibly associated with the occupational phases related to the site's function as a temple complex. For this purpose, I looked into previous studies on the pottery from Takht-e Suleiman and relevant sites from western Iran dating to the Late Iron Age to the Early Islamic periods, which could provide some clues to the potential dating (examples include Alizadeh 2011; Danti 2004; Goff 1985; Gopnik 2000; Haerinck 1983; Keall and Keall 1981; Schnyder 1975). For the development of the typology, diagnostic sherds relevant to my study were then selected for drawing. These drawings were digitised with Adobe Illustrator and afterwards each sherd was grouped according to main forms and diagnostic features. A distinction was thereby made between bowls, jars, bottles, cooking pots, trays, lids, bases, handles, spouts, and decorated body sherds. Each shape within these form groups was then given a type code and cross-referenced with observations on fabric and manufacturing methods.

The first publication on the pottery from Takht-e Suleiman was a preliminary study by Rudolf Schnyder (1975) in *Archäologischer Anzeiger*. This covered the excavated



95 Randstück von Krug wie Nr. 93.
Ton: hellbraun gebrannt, Oberfläche gelblich
D (Mündung) 12 cm
Fundort: Schnitt am See V wie Nr. 94
Funddatum: 17. 7. 68

96 Randstück von Krug wie Nr. 93.
Ton: gelblich gebrannt
D (Mündung) 12,8 cm
Fundort: Schnitt am See V wie Nr. 94
Funddatum: 17. 7. 68

97 Randstück von Krug wie Nr. 93.
Ton: hellbraun gebrannt, Oberfläche gelblich
D (Mündung) 12 cm
Fundort: Schnitt am See V wie Nr. 94
Funddatum: 17. 7. 68

Figure 3. Example of Schnyder's notes. These drawings feature rim fragments from a type of bottle with upright rim occurring within Horizon V and VI that date to the Late Sasanian and Early Islamic periods. Credit: Archive Takht-i Soleyman, DAI Teheran.

pottery until the 1968 field campaign and was primarily based on material from deep soundings dug within rooms in the western temple complex, where the earlier settlement phases had been revealed. In this article, Schnyder introduced a typology covering the Achaemenid to the Ilkhanid periods. However, the presented types were only a fraction of the excavated assemblage, and in a later reassessment, he redefined the groups and incorporated a broader corpus of rim types. This is apparent from a collection of unpublished notes made by Schnyder, which was provided to me by the German Archaeological Institute. Within these notes, Schnyder established a new typology divided into ten pottery horizons based on stratified data. Apart

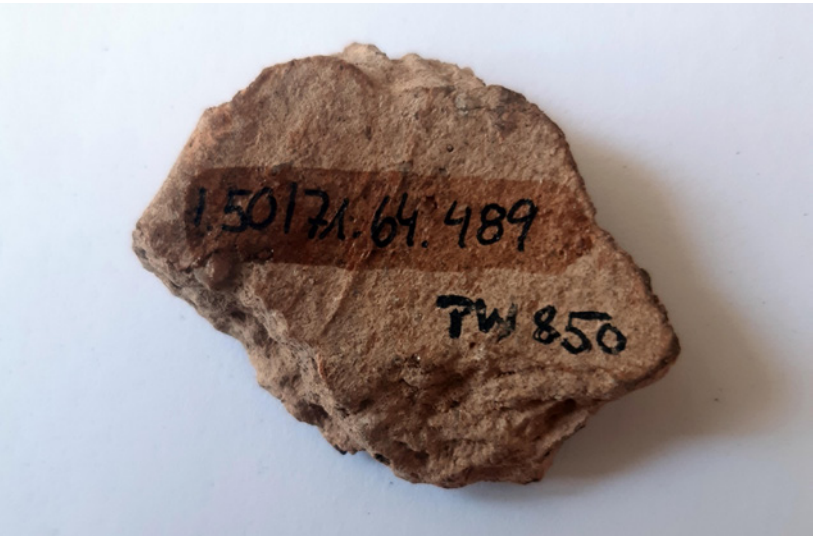


Figure 4. Example of body sherd with the original find code "PW 850" preserved, seen here below the object no. "1.50/71.64.489." Photo M. Bangsborg Thuesen

from a short description, each defined horizon featured a catalogue with diagnostic sherds. This served as the primary source for the dating of the pottery within the museum collection, which was then compared to more recently excavated material from Palang Gerd (Shoukouh Khosravi, personal communication), Qal'eh-i Yazdigird (Khosrowzadeh *et al.* 2018), Ultan Qalası (Alizadeh 2011), among other sites.

Reconstructing the archaeological contexts

Since there was no information on how the pottery had been selected for transport to Germany, reconstructing the archaeological context proved more difficult. Yet, closer examination revealed that the sherds themselves could provide some clues in this regard. Each sherd was identified by a unique object number assigned by the museum when they were registered in the collection. Additionally, I found out that some of the sherds also contained an older find number, which must have been given shortly after they were excavated. An example of this is provided in Figure 4, which shows a body sherd with two find codes written on it. While "1.50/71.64.489" refers to the registration number used in the museum's database, "PW 850" is the original find code given in the field.

At first, the abbreviation "PW" in front of the find number puzzled me, but when I looked through the published plan drawings of the excavation, I realised that these letters referred to the names of rooms within the temple complex. In some cases, it was even possible to cross-reference the sherds described by Schnyder within the notes

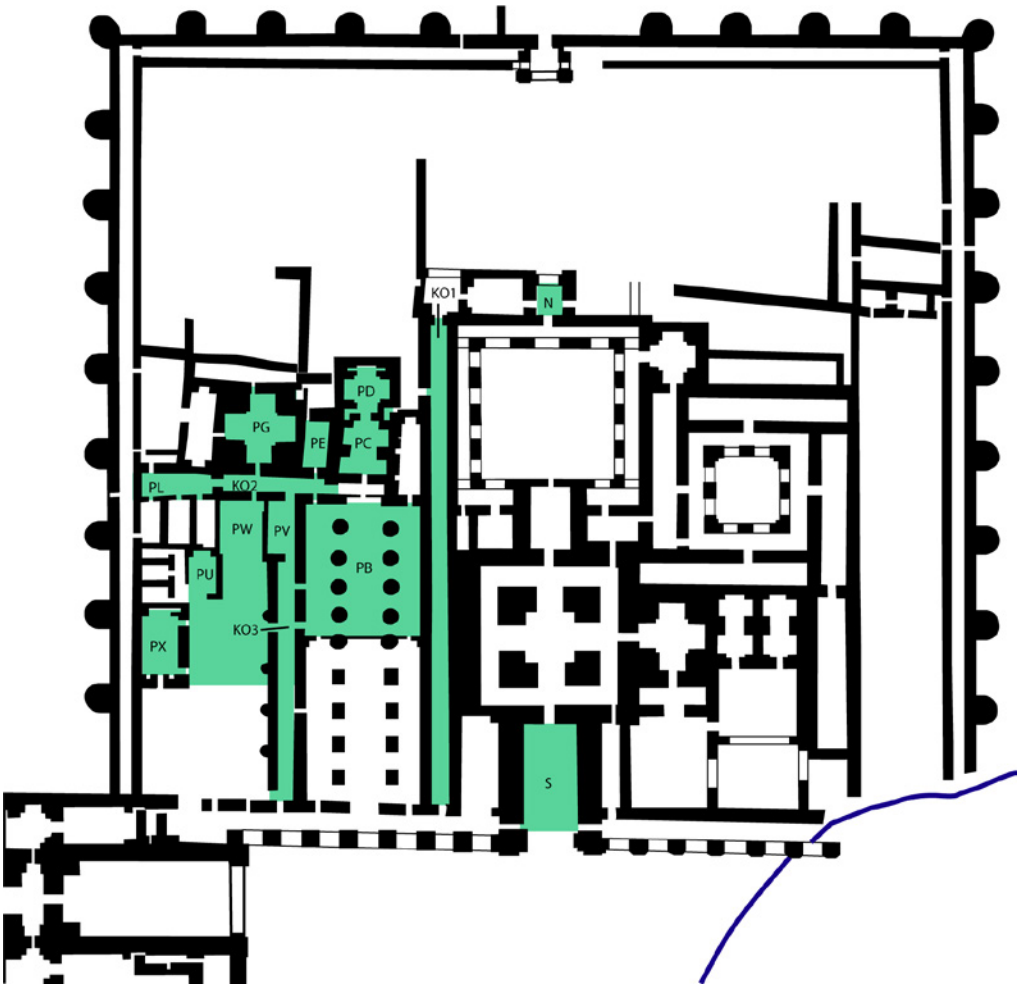


Figure 5. Find locations of sampled sherds marked in green. The map is based on drawing by D. Huff kept at the German Archaeological Institute.

which the German Archaeological Institute gave me. Some of the diagnostic sherds featured within this typology were identical to those in the museum collection. The find location and date of excavation were stated for each sherd Schnyder described, thereby providing more precise information about the excavated contexts for the pottery within the museum collection.

Based on the original find code, it was possible to reconstruct the find location for 273 sherds. Their distribution within the temple complex is illustrated in Figure 5. Although in most cases the stratigraphic relations could not be specified further, the evidence confirms that parts of the collection derive from the western temple complex and the northern and southern gates, and that these sherds were excavated during

Table 1. Overview of identified ware groups within the Takht-e Suleiman collection.

Ware TeS I	This ware consists of light red to light brown sherds, which is of predominantly medium to fine fabric. The pottery can be characterised as wheelmade earthenware, although applications such as handles and spouts appear to have been sculpted by hand. Occasionally the exterior surfaces of the vessel are burnished or smoothened.
Ware TeS II	This ware consists of hard fired, wheelmade earthenware of medium fabric, which appears to have been slipped with the same type of clay that were used for making the body of the vessel, giving it a distinctive yellowish colour.
Ware TeS III	This ware consists of red-coloured earthenware of medium to fine fabric with mineral temper. The pottery is wheelmade and sometime featuring a buff slip.
Ware TeS IV	The fabric can be characterised as coarse earthenware of reddish brown to dark grey colour with abundant poorly sorted crystalline grit inclusions. The pottery is either handmade or produced with slow-wheel. The majority of sherds from this group are discoloured and have traces of soot marks on their surfaces.

the 1966, 1968, and 1969 field seasons. This indicates that the studied assemblage predominantly comes from the areas of the temple complex that were restricted from the public, apart from those sherds excavated from the northern gate.

The late Sasanian and early Islamic pottery from Takht-e Suleiman

I have offered elsewhere (Bangsborg Thuesen 2025) a re-evaluation of what Schnyder defined as Horizons III to IV. This covers the beginning of monumental architecture at Takht-e Suleiman until the Early Islamic period when the sanctuary slowly came to an end, and the site appears to have changed its character to a purely residential occupation. In this article, I will focus on Horizon VI, which Schnyder originally interpreted as belonging to the settlement phase following the Byzantine destruction of the fire temple in 624 AD. The stratigraphic situation of this group is in most cases unclear. Schnyder's notes only inform us that the pottery defining this horizon derives from layers that were excavated in July 1966 and 1968. The contexts, as described by Schnyder, are marked by the excavated depth from the surface level or as room fills and debris from collapsed architecture.

In total, four types of wares were recognised among the sampled pottery and labelled ware groups TeS I-VI as presented in Table 1. This was based on a preliminary sorting I conducted, which was unfortunately limited due to the fact that it was only possible to assess one crate at a time and that it was not possible to cut a fresh section for analysing the temper. Since inclusions within the clay matrix could only be observed from old breaks, these were not considered a differentiating factor. The one exception was the coarse ware TeS IV, in which the inclusions were particularly prominent. Instead, the subgroups were defined based on manufacturing techniques and surface treatment.

Given the fact that the sampled group derived from a study collection and does not represent the full number of excavated sherds from Takht-e Suleiman, it is difficult to conduct any reliable statistical analysis on the proportional distribution of these ware groups. The available data, however, point to the ware TeS II as being chronologically significant for the late Sasanian and early Islamic pottery traditions at the site. Unlike the other ware groups, this distinctive yellow, self-slipped ware was not found in earlier dating horizons.

Looking into the pottery vessels characterising Horizon VI, these can mostly be defined as closed forms. In general, the high typological variability among particularly jars and bottles, as well as their widespread distribution within the spatial analysis indicated that provisions for the sanctuary were one of the main uses for pottery at this site (Bangsborg Thuesen 2025). Some overlap with bowls and bottles found in Horizon V can be discerned from Schnyder's notes, representing pottery with long-time spans. However, most of the identified sherds within Horizon VI represent single-horizon types (Figure 6 and Table 2). These primarily derive from wheelmade fine wares (TeS I-III) represented as jars with externally thickened rims, which can be characterised as squared, grooved, or bevelled (Figure 6: a-c, and e-f). Bottles with long cylindrical or flared necks and upright rims that sometimes have a grooved profile also appear within this group (Figure 6: d). Their necks are often decorated with incised or combed wavy lines, and the vessels likely represent skeuomorphs of silver pitchers that are known from the art market and supposedly comes from the Gilan region (Simpson 2022: 313-314). Analogies can also be drawn to Tureng Tepe Phase VII C, where similar types of bottles were excavated from a pit horizon, following a short hiatus after the use phase of the Chahartaq, dated to the 7th and 8th centuries AD (Boucharlat and Lecomte 1987: 126, Fig. 23: a). Coarsewares appear in the form of carinated bowls or globular pots, where the rim has also been externally folded (Figure 6: g-i). Decoration is relatively rare on sherds within the Takht-e Suleiman collection. Within the sampled group, it only occurs in the form of incised wavy and straight lines that run horizontally along the shoulders of the vessel, while impressed stylus marks can be observed on the top or the profile of the rim. However, one specific type of decoration, characterised as combed strokes, was only identified within Horizon VI and seems to be chronologically significant (Figure 7).[9]

Looking into the comparative literature, it is very difficult to find strong parallels due to the lack of published studies on Sasanian and Early Islamic pottery in northwest Iran. The pottery of the preceding horizon (V) shows similarities with that excavated in the Zoroastrian fire temple at Palang Gerd in Kermanshah, which was dated by the excavator to the 6th and 7th centuries AD,[10] as well as from Ultan Qalasi Phase 1,

[9] The closest parallel for this impressed decoration is found on a pitcher from Hasanlu Period I dating to the Ilkhanid period (Danti 2004: Fig. 18: 5). However, the type of impression varies slightly and as this vessel type is absent within the studied assemblage, the comparison may not be indicative of dating.

[10] I would like to thank Shoukouh Khosravi for kindly providing me information about the pottery from this site. The occupational span of the structure where this material derives from was dated based on

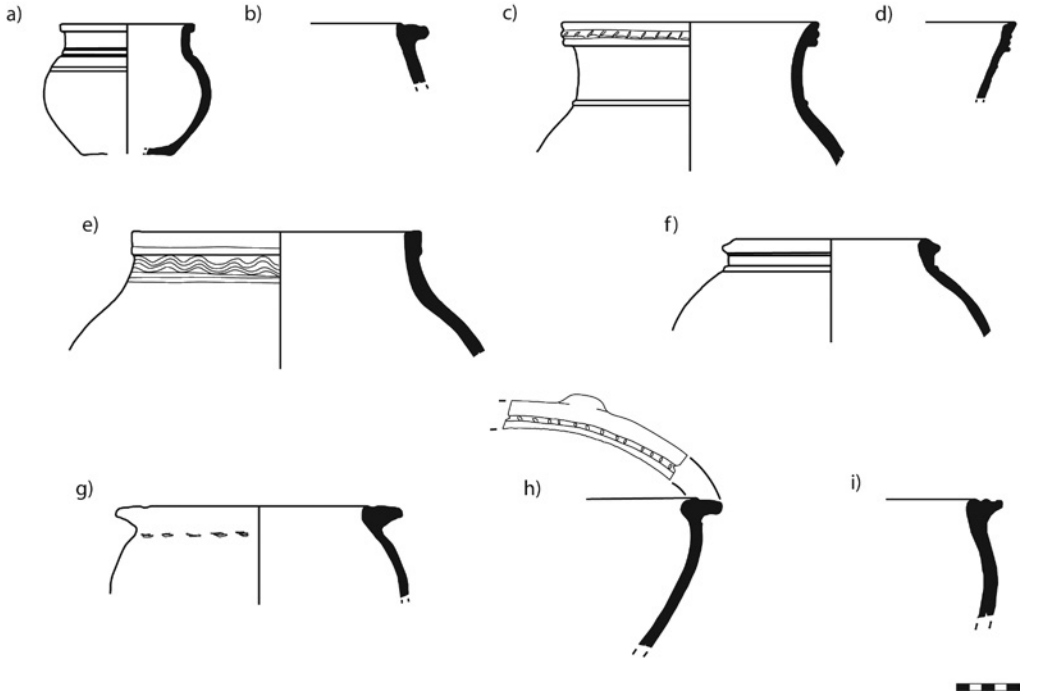


Figure 6. Forms exclusively associated with Horizon VI.

Table 2. Descriptions of the sherds presented in Figure 6.

Matrix	Object no.	Ware	Form	Decoration
a	1.50/71.64.1	TeS I	Jar with short, straight neck, and outward folded squared rim.	Multiple incised straight lines
b	TS 1068.2	TeS I	Globular jar with externally thickened rim with a grooved top.	Plain
c	1.13/69.42.26 66 SI 62	TeS II	Jar with straight neck and everted, externally thickened rim with a double grooved rim.	Impressed stylus marks
d	1.50/71.60.564	TeS II	Bottle with upright oriented rim with a grooved profile	Plain
e	1.13/69.47.b4	TeS III	Jar with inverted neck and externally thickened, rectangular rim.	Combed wavy and straight lines
f	1.13/69.47a8	TeS IV	Short-necked cooking pot with an externally bevelled rim.	Applied band
g	1.13/69.47.b9 66 SIIa 89	TeS IV	Globular cooking pot with an externally thickened rim with grooved top.	Combed strokes
h	1.13/69.47.b10 66 SIb 34	TeS IV	Carinated bowl with an externally flattened rim, which features an applied band on the top of the rim.	Applied band with impressed stylus marks
i	1.50/71.64.72 66 PG40	TeS IV	Globular cooking pot with an externally flattened rim with a double grooved top.	Plain

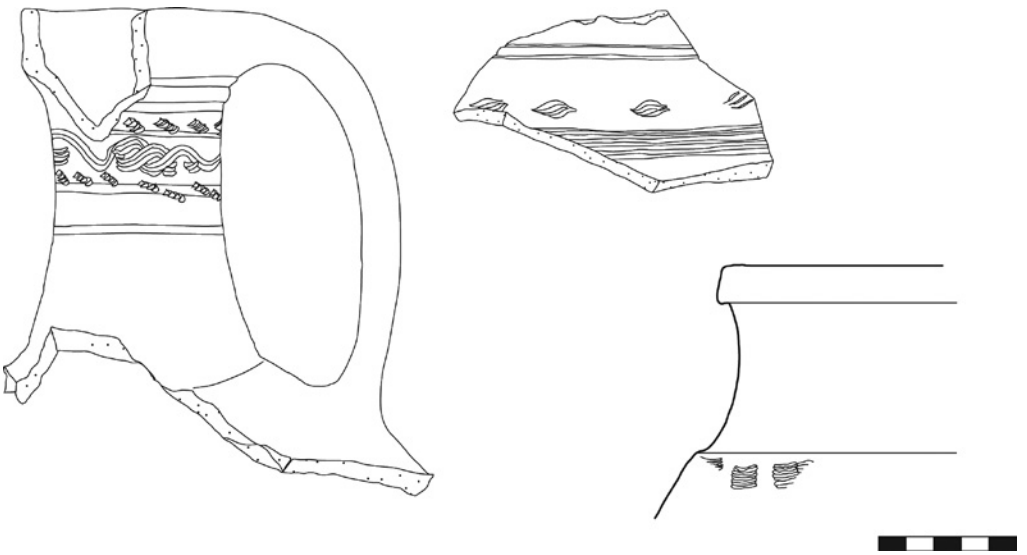


Figure 7. Vessels with combed strokes decoration.

which dates to the 5th to mid-6th centuries AD (Alizadeh 2011: 72). As some of these types were recovered from layers containing Late Sasanian bullae, I tentatively dated Horizon V to the 6th century with some forms extending as late as the 7th century. Although there is an overlap in forms between horizons V and VI, the latter has a higher proportion of single-phase types compared to shared types. Unfortunately, parallels for Horizon VI were almost absent among other studies on Late Sasanian pottery traditions and could only be found within the aforementioned pottery assemblage from Palang Gerd. This lack of strong analogies suggests that this horizon extends into the 8th century, and perhaps later. For the Early Islamic periods, finding comparative literature on ceramic traditions in western Iran proves particularly challenging. Pottery studies from this region tend to focus on glazed and/or slip-painted wares, which are more easily identifiable (Whitehouse 2011).[11] Thus, the pottery of this horizon provides valuable new data on plain wares from these periods. Although the contextual information is for now missing, the publication of this corpus is intended to provide material that can be reassessed in the future with new, well-stratified data from this region.

the recovery of stucco fragments, ostraca, and the overall assemblage of finds (Khosravi *et al.* 2018: 57).

[11] Notable exceptions include Danti's publication (2004) of the Ilkhanid assemblage from Hasanlu dated to the late 13th to early 14th, and Strauss's (1972) work on the pottery from the Medieval fortress at Bastam. Unfortunately, the stratigraphic evidence was so disturbed at Bastam that Strauss was unable to securely date the plain wares. Although 9th–10th century ceramics were present, their context was unclear—either originating from an earlier, removed occupation layer or introduced later as fill. In contrast, the glazed assemblage supported a continuous occupation from the 11th to 14th centuries (Strauss 1972: 1979).

Conclusions

Working on an old collection with little documentation forces one to use multiple sources in search for as much information as possible. Apart from the materials themselves, this includes published articles and excavation reports, unpublished field notes and preliminary studies. These need to be scrutinised, as even small footnotes provide interesting new information. For example, in his analysis of the faunal material from the 1969 field campaign–conducted on an exported sample in Germany–Rainer Kolb (1972: 8) noted that the ink on some of the labels accompanying the bones had faded. Interestingly, this may also explain why a large portion of the pottery in the museum collection lacks contextual information. The ink used on labels may have faded or disappeared when the pottery was repacked, particularly during the relocation of sherds from the German Archaeological Institute. Analysing all these sources may appear to be a tedious job; however, in my experience, it is no more time-consuming than dealing with recently excavated assemblages, which also require reading the full corpus of publications and field notes to properly understand a site's stratigraphy.

The reassessment of the excavated finds from Takht-e Suleiman is a work far from complete. Analysis of the glazed wares within the museum collection is currently being concluded by Katharina Kuntz[12] and since 2023 a new project[13] initiated by Ute Franke aims to fully publish the Ilkhanid summer palace erected on top of the ruins of the Zoroastrian temple complex. For my study, I limited the sample of pottery sherds to cover my timeframe of interest, but the collection further includes material that dates from the mid-1st millennium BC until the medieval periods which is at present unpublished. A dedicated study of the entire assemblage could provide valuable *comparanda* for the pottery traditions of northwestern Iran during this timeframe.

Although promising results were gathered from the study of the Takht-e Suleiman collection, admittedly some limits were encountered while working on this assemblage. Despite my efforts, it was not possible to reconstruct the archaeological contexts for the majority of sherds and the description of fabric was prevented by regulations on the destruction of museum objects. If the museum permits, the tentative grouping of wares presented within this paper could be re-examined by analysis of the chemical composition, for example, through XRF, within the frame of a future research project. Another prospect would be to assess the original field journals to provide a clearer idea of the stratigraphy and thereby clarify the context of the sherds within the collection. These journals are known to be present at the

[12] Parts of the results of the compositional analysis of the glazed pottery have already been published in Röhrs *et al.* (2022).
[13] The Ilkhanid Summer Palace at the Throne of Solomon (Takht-e Soleyman, Iran): Chinese-Persian Visual Worlds. <https://www.smb.museum/en/museums-institutions/museum-fuer-islamische-kunst/collection-research/research-cooperation/summer-palace-takht-e-soleyman/>, viewed 29 January 2025.

German Archaeological Institute in Dahlem Dorf, Berlin, yet remain to be digitized and made publicly available.

With this paper, I aimed to demonstrate that even poorly documented excavated material can bring valuable insights and is worth to be published. The new typology from Takht-e Suleiman provides an opportunity to define Sasanian and Early Islamic pottery traditions of northwestern Iran and presents a unique assemblage for exploring vessel usage within Zoroastrian temple complexes. Although the dating of the assemblage remains tentative, it is hoped that more dedicated research as well as more stratified material from other sites will refine our understanding. Until then, this assemblage can serve as a reference point for evaluating new material from the region.

In conclusion, I would like to emphasise that I only became aware of this collection by chance, through a colleague who knew of its existence and facilitated direct contact to the responsible curator. Many researchers may not have this opportunity, as museums are not always transparent or even aware of what is hidden in their stores. This keeps less well-known assemblages from being studied and results in a significant loss of potential data. Ensuring accessibility is, therefore, key to prevent this material from being forgotten.

Acknowledgements

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Chapter 6:
New approaches to old stratigraphy: The Sequence-of-Events analysis

Georg Cyrus[1]

Abstract:

It is often a complex task to reconstruct the stratigraphical situation of old excavations. Most of the time a Harris matrix is impossible to create due to incomplete data or documentation that was not designed for this purpose. Therefore, I propose a Sequence-of-Events approach in which a sequence of already interpreted events is presented in a flow chart. Its interpretative nature has the advantage of being more forgiving than a Harris matrix regarding missing data. To illustrate the usefulness of the Sequence-of-Events approach, I use the squatter occupation of Godin Tepe, for which I had only a very short, published report but many pages of field documentation. The potential of the Sequence-of-Events approach might differ based on the original documentation at hand, however, it always provides more information beyond what is found in the published reports and is therefore worth undertaking.

Key words: Sequence-of-Events analysis; Godin Tepe; Old excavation; Stratigraphy; Harris Matrix.

Museums were one of the main institutions that reproduced colonial practice by categorizing time and space (Steele 2005). Thus, the museum repositories we face today, when investigating old archaeological data, are deeply rooted in this legacy. These often-closed archives that are complicated to access are an extension of the asymmetrical relationship of the colonial world (Savoy 2021). The nearly pathological excavation and collection frenzy that lasts until today can even be compared to the inherent problem of infinite growth under capitalism (Bernbeck 2016). As a result, archives tend to hold forgotten collections, making it uncertain what we will find when we delve into them.

One type of material that may hold new insights is the original documentation of excavations. Many museums and universities have archives with drawings, field journals, and locus sheets. These may be published but are often only summarized in interim reports and monographs. Some projects remain unpublished, while others become the subject of further studies a long time after the archaeological excavation took place; examples include Tell Ahmar (Bunnens 2022), Godin Tepe (Gopnik and Rothman 2011), or Jebel Aruda (van Driel and van Driel-Murray 2023). However, this type of documentation represents the closest information to the original observations made during fieldwork. In archaeology, it is our primary data, as the excavated

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material is destroyed. As both steps from the excavation to the documentation and from the documentation to the publication are a reduction of information, the original documentation is the most information we have. It is, therefore, always worth critically reading the publication and going back to the original documentation.

Archives of excavations can hold many different kinds of objects, like pottery or small finds, that need specific methods and approaches to make sense of them. However, here I will focus on the in-field documentation, including texts, sketches, photos, and drawings. In my research, I mainly focus on identifying features rather than finds. Therefore, I used original documentation that was both digitized and analog. I used the Sequence-of-Event approach to assess this large amount of data, which I will mainly present here as a suggestion for organizing and interpreting information from this sometimes messy archival sphere. More specifically, I will show how I used this concept to investigate the Iron Age squatter occupation in Godin Tepe, which was part of my PhD research.

Godin Tepe was excavated from 1961 to 1973 under the supervision of T. Cuyler Young (Gopnik and Rothman 2011; Young 1969; Young and Levine 1974). It is a settlement mound in the Kangavar Valley, one of the many valleys in the Zagros that connect Mesopotamia with Central Asia. The site is located at the northern entrance to the valley in a strategic place to benefit from the trade connecting these regions (Gopnik and Rothman 2011: 1). Godin Tepe has multiple settlement phases from the late Neolithic until the Medieval period. While the early phases are excavated in a deep sounding, which also included a well-preserved Uruk-enclave, the most extensively excavated part is the Iron Age citadel and squatter occupation on top of the *tepe*. This squatter occupation, which was previously understudied, was my main target.

I investigated squatter occupations in northern Mesopotamia and the Zagros dating to the 6th century BC after big central powers like the Neo-Assyrian Empire disappeared (Cyrus 2025). Archaeologically speaking, however, it seems that this power vacuum was not filled immediately, as a trend of deurbanization is visible (Hauser 2017). In the same time period, the central Zagros was settled by a people that was called Medians by the Assyrians; the Medians allied with the Babylonians and eventually led to the downfall of the Assyrians. Although the Medians are described as a society that could mobilize immense military forces, they did not leave many archaeological traces. The phase after the fall of the Assyrian empire is even marked by an abandonment of Median citadels like the one in Godin Tepe (Gopnik and Rothman 2011: 314). The squatter occupation of Godin Tepe, therefore, is an important archaeological source to understand the way the Median society developed after the destruction of the Assyrian empire. While the squatter occupation was not extensively published, the original documentation was still in the archives, which I decided to investigate. For the investigation of the archive, however, I needed a proper method.

The Sequence-of-Event approach

The Sequence-of-Event approach is a flowchart in which every box represents one event brought into a time sequence (Figure 1). The idea of using flow charts as a visualization of the archaeological record is not new. The Harris matrix was a revolutionary method that allowed archaeologists to show the relationships of layers and architecture in one sequence (Harris 1997). This method was subsequently developed by other scholars. For example, Davies (1993) pointed out that standing structures and their renovations do not necessarily obey the laws of stratifications and therefore suggested a more holistic approach that also visualizes other sources of dating like building techniques or historical sources. This insight is important as many palaces and temples, which are the biggest part of the old excavated architecture, have complex building histories and several reuses. For example, in the squatter occupation of Nush-i Jan the creation of new doorways cutting into mudbrick structures needed to be dated not through stratigraphy, but through the historical investigation of the architecture (Stronach *et al.* 1978: 9). In the case of old excavations, often the documentation was not created with a Harris matrix in mind. Therefore, it is not possible to make an accurate matrix as this requires stratigraphical observations for every excavated feature.

Another shortcoming of the Harris matrix is that it shows the order of the features but not the duration of use, nor does it consider whether features were contemporary. This was investigated by Lucas (2016: 113) who studied Icelandic domestic architecture and conceptualized contemporaneity of architectural features. To judge contemporaneity, he grouped different features into different categories of permanence. For instance, floors are less permanent than walls because they are more regularly repaired and completely renewed. Lucas concluded that the Harris matrix's sequential perspective and his model's contemporaneity are opposites. However, I would argue that this is not necessarily the case, as both the sequential perspective and the contemporaneity perspective are not isolated. In order to judge that something is more permanent, one needs to understand the sequence; and to elaborate on the sequence, often interpretations of the contemporaneity play a role.

These two perspectives were combined in Klinkenberg's (2016: 39–41) Sequence-of-Events approach. He started, however, with a different problem: when he analyzed the deposits and architecture in the Middle Assyrian *Dunnu* in Tell Sabi Abyad, he needed a way to visualize the immense data available to him. The Middle Assyrian phase in Tell Sabi Abyad was separated into four different chronological phases which helped to produce a general model. However, this model was too wide to fit all the local and short events that were documented in every single room. A Harris matrix could not make this data feasible as too many features and layers were documented. Klinkenberg wanted a visualization tool that combined stratigraphical features and results from the activity area analysis conducted in detail at the site. Therefore,

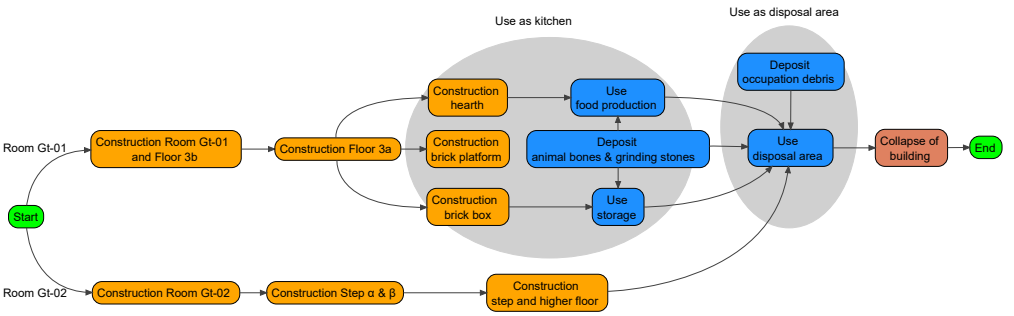


Figure 1. Sequence-of-Events during the squatter occupation at Godin Tepe, based on the northwestern tower.

inspired by the Harris matrix, he created, the Sequence-of-Events (Figure 1). The Sequence-of-Events represent grouped layers that can be interpreted as a single event and as an interpreted Harris matrix.

Exactly this interpretative approach makes the Sequence-of-Events more useful in the context of documentation from archives than the Harris matrix. Unlike the Harris matrix, the Sequence-of-Events does not rely on layers or surfaces but instead builds on already interpreted events. Identified layers and surfaces are grouped together for this purpose and then interpreted. In this case, the sequence of events is not a tool to *prove* stratigraphic sequences but rather to *interpret* a stratigraphy that was not properly documented. After events are interpreted from the documentation, they are brought into an ordered sequence using a flow chart. To establish the order of events a clear stratigraphy is not necessary; events can be identified in excavation diaries, in the interpretations of the excavator's sketches of profiles, and in context sheets. In short, the Sequence-of-Events is a visualization of different sources that helps make sense of them. On the one hand, this means that this sequence always stays interpretative and ambivalent. On the other hand, it is an effective method to estimate what is known and what is unknown.

Apart from the pure visualization of documents, the Sequence-of-Events is also a tool for interpreting the available data. Contemporaneity of rooms can be visualized through parallel vertical rows (Figure 1). Everything in the same column was potentially used at the same time. Features that link all these different rooms in the flow chart can be marked by events, such as the collapse of a roof. The duration of use can be visualized through the length of the row, and the dynamic use within each room can be shown through the sequence of changing events. In my case, every Sequence-of-Events begins with establishing the beginning of the squatter occupation and ends with the collapse of the structure, thus creating a biography of this structure that can be filled with data.

For Klinkenberg (2016: 39–40), the Sequence-of-Events approach is a visualization of archaeological household sequences. As such, it is better suited to document installations and deposits than architecture. However, the method can easily be advanced as other features can also be described as events that are not necessarily connected to household activities. In my study, I mainly added constructions, renovations, and reconstructions of buildings, as the case study (the squatter occupation) represents a very dynamic type of architecture. Destruction and sedimentation events can also be added. All these processes can be described with the open term "event." Hypothetically, even events known from written sources, like renovation orders issued by kings or property sale contracts, can be included if they have a material correlation in the archaeological record.

For the interpretation of old documentation from archives, I used the original naming of the features in order to describe the events, such as "Construction of floor 3a" or "Construction step α & β." To make the visualization easier and more understandable, I classified events into three categories, distinguished by the color of the flow chart box: constructions are orange, deposits are blue, and collapses are red. Under the term "construction" I include all events that lead to the making of a household feature; this may be a wall, but also a pit. Deposits can be further subdivided into primary and secondary refuse and interpreted on this basis. Collapses are all deposits that result from the destruction or collapse of a building structure; this can be a room infill, a fallen wall, or even traces of widespread burning of a house.

To organize the data, I used a Microsoft Access database where I recorded all the features I could identify in the original documentation. In this, I used the original description, my interpretation, and a reference to this original description in the documentation, so as to be able to trace the development of my ideas. My main method of sorting these features was based on location, for example, by trench or room. This, however, can vary depending on the information in the original documentation. Often, these features had insufficient stratigraphic information, which made it difficult to create a convincing stratigraphy, but it was still possible to put them into a more general sequence. In the end, I compiled for each room a list of features that could be used for the interpretation. This database was the foundation for the Sequence-of-Events, which I applied to the study of the squatter occupations at Godin Tepe.

The original documentation of Godin Tepe

In the first season of excavation at Godin Tepe, a step trench was excavated and 40 strata as well as seven phases were defined (Young 1969: 3, 11–13, 23); these established the framework for all subsequent excavations at the mound (Gopnik and Rothman 2011: 13). During the first three years, archaeologists changed the excavation method every campaign until they found a working system for the remaining seasons. This system was based on the excavation method of Mortimer Wheeler, which focused

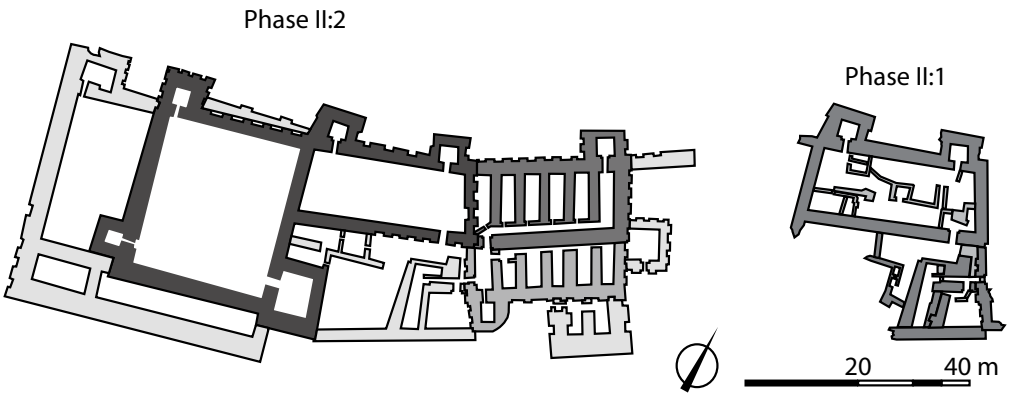


Figure 2. Iron Age occupation of Godin Tepe. Phase II:2 represents the citadel and Phase II:1 represents the subsequent squatter occupation.

on the documentation of finds and their stratigraphic situation and was mainly documented through sketches and excavation diaries. This method, however, proved to be insufficient for a larger scale excavation of a site with multiple architectural layers. As a result, changes were made over the years: the "lot," i.e., a flexible entity able to describe all different archaeological features, was introduced and excavation diaries were formalized (Gopnik and Rothman 2011: 23–34). While the introduction of the lot was a positive step forward, the formalization of the excavation diaries was, from my point of view, not always beneficial. The separations between lot sheets and diary log formula resulted in the loss of complex observations between lots that can only be found in the earlier excavation diaries. Yet, it standardized documentation and with this guaranteed a baseline that was sometimes missing in the informal diaries.

The main settlement phase excavated in Godin Tepe was the Iron Age, which is now interpreted to be a Median hill fortification with a residential function. This building was almost completely excavated and can be separated into two occupational phases: the phase of the intended use, in which it must have been the seat of a local Median elite, and a squatter phase after the abandonment of the residence. During this later phase, a third of the elite structure was reused for smaller domestic units using the monumental architecture as outer walls (Figure 2). Although the digitized material shows that this squatter occupation was documented well, it does not receive the same attention in the publications; in the final excavation report, it is described in only two pages (Gopnik and Rothmann 2011: 314-315).

Godin Tepe - A1

July 1st 1967

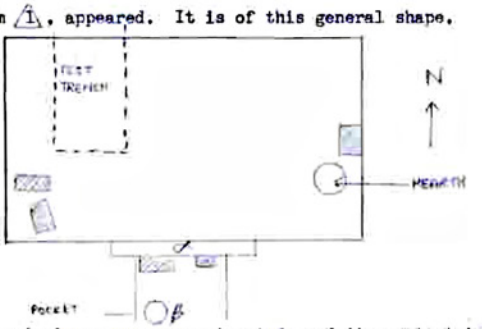
Began operation by removing the top layers of soil. Lot 1 = surface and top soil. All disturbed.

July 2nd 1967

Brickwork began to appear over most of the trench. Poorly preserved and very difficult to delimit. A test trench, (T.T.A.) c.150 wide and 200 long running N.S. was sunk about 200 from west balk. Lots 2 and Lot 3 come from this trench. Lot 4 is material from over the brickwork over the entire trench.

July 3rd 1967

A room 1, appeared. It is of this general shape.



From the T.T. a broken quern was extracted, and its context is clearly that of the room. Lots 5 - 7 are all material from 1.

Large quantities of pottery were found on either side of the doorway between it and the wall. In the S.E. corner, there were the remains of a hearth, identified by a round burnt patch of earth.

Figure 3. Page from the excavation diary of Sqaure A1, written during the 1967 campaign, describing the excavation of the northwestern tower.

However, in 2011 the University of Toronto uploaded most of the original documentation of Godin Tepe in order to complement the final publication.[2] While the original maps of the architecture were not uploaded, the excavation diaries, the lot descriptions, and the diary log formulas were all made available online (Figure 3). These are the main sources for understanding the squatter occupation, which was barely described within the final monograph. Unfortunately, the quality of these PDF documents is rather poor, so sketches and photos are often difficult to interpret. Still, the text is readable, therefore, it serves as the main source of my analysis. These PDFs are sorted after excavation campaigns and reflect possibly an analog organization of folders. Through the published excavation reports, I identified when the squatter occupations were excavated, so that I could narrow down the folders of interest and search within them.

One aspect that affected my research was the digital character of the data I used. Digitization is a transformative process that makes data more accessible, but it does come at the cost of information loss. The information lost in my case was the physical composition of the documents, such as analog forms which are normally used to subdivide such papers. Another problem was that not all documents were uploaded and sometimes pages were missing. Clearly, a sorting had been made and choices regarding resolution also affected the quality of the data. In Godin Tepe's case, the PDFs resolution is quite low, which might have to do with the scanner in use; judging from the look of the scans, it is likely that the file size was reduced for the upload. It is a transformation of the data that we need to investigate further, as it impacts the accessibility and useability of the digitized material.

From the original data to the Sequence-of-Events

After sorting the relevant documentation and identifying the field season of interest, a careful reading of the texts was necessary. As the sources were mainly textual sources with some sketches, the hermeneutic method was the most promising. After an initial reading of an excavation diary to gather core information, I consistently reread the documents with the knowledge of the previous readings. From the notes I made, questions arose that I tried to answer through these constant reassessments.

I sorted my information in a database where my main categories were represented by architectural features that could be described closely through the in-depth text analysis. This database had to be flexible as information tends to be chaotic and it must be possible to go back to the original data to find it (Figure 4). In the end, I rearranged the information from the original documentation within the database, so that I was able to extract information more easily. The benefit of my database over the original data was that every feature was allocated within a specific space, like

[2] Godin Tepe, University of Toronto, viewed 17 December 2024, https://tspace.library.utoronto.ca/handle/1807/26556.

Features of north western tower room					
ID	**Site**	**Type**	**Description**	**Relative dating**	**Source**
197	Godin Tepe	Floor	Floor 3a - later build in	stratum 3a	Report - A1 - 1967
198	Godin Tepe	Floor	Floor 3b - original floor	stratum 3b	Report - A1 - 1967
494	Godin Tepe	Installation	Oven in SE corner - a burnt patch of earth, identified as oven	stratum 3a	Report - A1 - 1967
495	Godin Tepe	Installation	North of oven, single brick plattform	stratum 3a	Report - A1 - 1967
496	Godin Tepe	Installation	In the NW corner: grind stone on floor	stratum 3a	Report - A1 - 1967
497	Godin Tepe	Installation	Burnt mud brick pieces on the floor - ist das wirklich eine installation?	stratum 3a	Report - A1 - 1967
593	Godin Tepe	Refuse	Pottery accumulation on Floor 3a	stratum 3a	Report - A1 - 1967
594	Godin Tepe	Refuse	Find accumulation: baked handmade clay cones, quantity of animal bones and a large loom weight on Floor 3	stratum 3a	Report - A1 - 1967

Figure 4. An example of the database created for this study with features that I found in the original documentation that were not yet published.

a room or a court. These spaces became the main frame for the Sequence-of-Event analysis.

After I gained an overview of the different types of features, I began interpreting the features as events. As already mentioned, I categorized the features into three broad categories, construction, deposit, and collapse, distinguished in the flow charts by different colors. Not all features could be perfectly attributed to just one category; an oven, for example, is built, but also produces ash deposits through its use. In this case, I put two successive events into the flow chart, i.e., "Construction of the oven" and "Food production." In general, one feature represented one event. The deposits can be interpreted based on knowledge gathered from activity area studies in household archaeology (Hayden and Cannon 1983; Miller Rosen 1993; Moore 1982; Rapoport 1990; Steadman 1996). I maintained a largely functional perspective in my interpretations, focusing on typical domestic activities such as food production, storage, cleaning, and renovations. This, however, is a purely methodological functionalism, as ethnoarchaeological investigations have showed that functional activities, like the cleaning of a house, can carry gendered and even religious connotations (Moore 1982).

In this way, I could establish where a specific feature was located and which events could be inferred from it. For instance, I could state that in a specific room several floors and ovens were constructed and food was produced. The last step to organize this in a flow chart was the establishment of a sequence. Toward this aim, all possible stratigraphical information had to be used. Once again, information from a close reading of the excavation diary can be helpful, but also deductions from the general stratigraphic laws are possible: rooms are built before the hearth inside of them and an infill follows a use phase. As a frame the standard biography of a household established by LaMotta and Schiffer (1999) can be useful, but it should not be followed too dogmatically as houses can have biographies that diverge from any given model. The basic shortcoming of old excavation methods is that they often overlooked smaller layers and did not document direct stratigraphic connections between them. General sequences, however, were frequently documented and speculated upon. To reconstruct the excavation, it also proved useful to ask: what was excavated first and what was found a day later? As a rule of thumb, features excavated earlier are younger. Eventually, not all features could be integrated into a sequence. In such cases, it is still possible to place these features within a parallel Sequence-of-Events, making clear that they might be contemporary. At the end of this process, the resulting flowchart is an interpretation of events, what I refer to as a Sequence-of-Events.

The potential of the Sequence-of-Events

With this approach, I could investigate the squatter occupations in Godin Tepe in greater detail than the final excavation publication suggested (Cyrus 2025). Initially, the excavators doubted that much more could be said about these squatter occupations beyond the conclusion that they were simple domestic houses belonging to farmers or shepherds (Gopnik and Rothman 2011: 314–315). However, some defining characteristics, like the blocking of doorways, were observed and partly described. The idea conveyed by the original publication is that the settlement was shrinking and the floorplan was rearranged through blockings to facilitate a smaller domestic life. While all of this is true, I think the Sequence-of-Events analysis provides more valuable insights into the lives of the inhabitants of the squatter occupation.

Through the Sequence-of-Events analysis, I could locate two areas in the house that underwent dynamic changes. Both areas are connected to the attempt to renovate the place and the attempt to resist the decay of a monumental structure. These cases have been discussed in more detail elsewhere (Cyrus 2023), but here I want to concentrate on how a Sequence-of-Events helped me identify these patterns. The first important realization is that the inhabitants did not just build *ad hoc* structures only to abandon them a couple of years later; instead, they established a settlement that possibly lasted 30 to 50 years. During this time, they changed the floor plan several times and constructed many different floors. Up to three distinct floors were documented, and more were potentially overlooked (Hilary Gopnik, personal communication). This

means that even more floors might have been present, but were not documented. Over time, specific parts of the building became more and more unstable; as it is the case with one of the former outer towers (Young 1969: Plate XXII, Fig. 38). At first, this tower became part of a domestic unit and was used as a room for food production. A fire installation was established after the floor was repaired. However, the tower was tilting towards the slope already during the first occupational phase as part of an elite residence, which can be inferred from the reporting of cracks and repairs in its foundations. Eventually, the inhabitants stopped using the tower as a place for food production and started to deposit everyday trash in it. However, even this use became too dangerous, so they eventually blocked the door. This had a huge impact on the household as the inhabitants lost one room of their 'flat', leading to a restructuring of the domestic unit. This process could only be reconstructed through a Sequence-of-Events analysis, which makes it possible to better understand these households and the challenges that are unique to squatter occupations.

Conclusion

The Sequence-of-Events approach was inspired by the Harris matrix and established to visualize the immense dataset of the Middle Assyrian *Dunnu* at Tell Sabi Abyad. In my work, however, I used it mostly to sort and visualize old documentation, and to better understand what data is present.

The Sequence-of-Events approach is only a visualization of interpreted stratigraphical and historical relations; therefore, it cannot help establishing a more secure stratigraphy than the data allows for. As the interpretative frame and the boundaries are set by the documentation at hand, a rigid source criticism of these data is thus necessary. The Sequence-of-Event approach is just an interpretation of the present data and does not establish new data. There is a real risk that flow chart visualization may be perceived as factuality, but it should be emphasised that this is an interpretation on which others can be built, and further research can be conceptualized.

In my experience, the framework established in the original documentation is always wider than the published data. Reduction of observations is normal during the transformation of archaeological knowledge in the form of reports, articles, and monographs. Therefore, it is nearly always worth looking into the original documentation, to review it and interpret it. Although the Sequence-of-Events analysis is just an interpretation, it can be a *new* interpretation that parallels the already published material. Moreover, it can even contradict the published ideas and reestablish the ambiguity that archaeological knowledge inherently has (Gero 2007). Observations that did not make it into the publication, but might be important for today's research questions, can be evaluated. In my study, for instance, the squatter occupation was the center of the investigation, something not prioritized in previous studies.

During my work with this dataset, I often heard colleagues remark, "There is not much in the documentation!" This feeling is frequently paired with the belief that some parts of the archaeological records are lost forever, either because they were excavated before the development of modern excavation techniques or because specific phases did not spark the interest of the excavators. Nothing is further from the truth. Excavation is, in itself, a process. At Godin Tepe, for example, the uppermost layer was excavated quite carefully, maybe because the excavators initially thought they had found the domestic quarters of a fortified manor house (Young 1969: 24). This early misjudgment made them document the squatter occupation in more detail. The *silencing* of the squatter occupation came later, in publications, once it was recognized that it did not belong to the monumental architecture. Sometimes, old documentation is surprisingly rich in detail; nearly always it contains more data than has been published. It may amaze us how much was documented and how much can be used to answer new research questions.

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Chapter 7:
‘Basements with insatiable appetites’ - Archaeological collections, museum storerooms, and sustainability

Giulia Russo[1]

Abstract

This paper examines the sustainability of archaeological collections in museums housing antiquities from Southwest Asia, focusing on accessibility, research, and ethical stewardship. While museums aim to be sustainable, the accumulation of unstudied and underutilized materials raises concerns about storage capacity, research priorities, and ethical responsibilities. The essay explores challenges and opportunities related to legacy collections, including documentation gaps, curatorial biases, and the need for stronger collaboration between museums and academia. It also considers the role of digitization, funding structures, and institutional strategies in addressing the curation crisis. Collection-based research plays a crucial role in fostering sustainability, enhancing public engagement, and preserving cultural heritage. Advocating for shared stewardship, this essay hopes to initiate a critical discussion on developing curatorial practices better aligned with contemporary ethical and sustainability principles.

Key words: Museum sustainability; Mesopotamia archaeological collections; Legacy collections; Curation; Heritage ethics.

In 2022, the International Council of Museums (ICOM) approved a new definition of museum:

> ‘A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing.’ [2]

This definition emphasizes that museums are ‘accessible and inclusive’ and that they ‘foster diversity and sustainability.’ These terms address contemporary societal challenges and the urgent issues that individuals, communities, and states face today. Therefore, the new ICOM definition reflects the significant changes in museums’

[1] Freie Universität Berlin and German Archaeological Institute. When this paper was presented at the ‘New Research on Old Collections in Southwest Asian Archaeology’ workshop at the British Museum in London in summer 2023, the author was a curatorial assistant at the Vorderasiatisches Museum (VAM, part of the Pergamon Museum) in Berlin.

[2] 2022 Museum definition by the International Council of Museums, viewed 19 November 2024, <https://icom.museum/en/resources/standards-guidelines/museum-definition/>.

work and self-reflection of the past decades. However, I would argue that these terms function less as a strict, universally applicable definition and more as aspirational guidelines. They embody a vision for what museums could become – provided there is the political will and institutional support to realize this potential.[3]

In this paper, I focus on three key concepts from the ICOM definition: sustainability, research, and accessibility. I begin by discussing sustainability in museums, particularly in relation to the research and curation of 'old' archaeological collections. I then explore the challenges and opportunities associated with such research, and their significance concerning accessibility and adequate curation practices in museums. By bringing together these points, I conclude with some reflections on the ethical dimensions of archaeological research within both museum and fieldwork contexts.

Sustainability

The concept of sustainability entered global discourse with the 1987 Brundtland Report, *Our Common Future*, which addressed the environmental exploitation and degradation caused by human activity and introduced sustainable development and growth as a response. The report defined sustainability as 'meeting the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development 1987: 8). Although this definition emphasized the principles of inter- and intra-generational equity, it has remained ambiguous in practice (Merriman 2008: 9). For example, questions remain about how to identify the needs of diverse communities and how to define "generations" across cultural and temporal contexts on a global scale (Hajian and Jangchi Kashani 2021).

In 2015, the United Nations launched the 17 Sustainable Development Goals (SDGs) within the 2030 Agenda, aimed at integrating economic growth, environmental protection, and social equity.[4] While the SDGs – such as climate action, quality education, decent work, and sustainable cities – provided actionable targets, tensions persist between economic (financial) and social (well-being) development, as they proceed at different paces and relate differently to the environment and nature. For instance, nature is seen as a resource to exploit for economic growth versus something to preserve for social and cultural development. As a result, the success of the SDGs relies on coherent policy implementation, adequate resource allocation, transparent monitoring, international cooperation, and a strong ethical foundation (Hajian and Jangchi Kashani 2021).

[3] Museums scramble to grasp impact of Trump's DEI mandate, viewed 14 March 2025, https://hyperallergic.com/987131/museums-scramble-to-grasp-impact-of-trump-dei-mandate/.
[4] The Sustainable Development Goals of the United Nations, viewed 19 November 2024, <https://sdgs.un.org/goals>.

Museums have increasingly engaged with sustainability. For example, the German Museums Association's 2023 conference, *Taking Action. Climate Protection in Museums*,[5] and its *Handbook on Climate Sustainability*,[6] addressed climate action within museum contexts. Similarly, the 2023 International Congress on the Archaeology of the Ancient Near East (ICAANE) included a thematic session on sustainability, tackling issues such as social inequality and resilience, water management, and urbanism.[7]

A study by Izabela Pop and Anca Borza (2016) on Romanian museums identified four pillars of sustainability (economic, social, natural, and cultural) but found that many museum managers prioritize their institutions' survival and development over broader sustainability goals. This has often resulted in the unchecked expansion of collections without adequate investment in research or exhibition development, thus increasing maintenance costs without proportional financial return. Therefore, the authors suggested that the extent of heritage research could serve as an indicator of a museum's sustainability, particularly in terms of the proportion of objects that are fully documented.

This issue also affects archaeological museums and collections. Since the 1970s, scholars in the US and elsewhere have drawn attention to a curation crisis caused by the accumulation of archaeological material that exceeds available resources for its storage, conservation, and study (Childs 2022; Marquardt *et al.* 1982; Sullivan and Childs 2003). As a result, museums house vast numbers of unstudied or understudied collections, which nonetheless hold untapped research potential (Kersel 2015b; Voss 2012). If the curation crisis has been a pressing issue for archaeological repositories and museums for over fifty years, why – and how – are we still discussing and contributing to it?

Archaeology makes new discoveries through fieldwork. While some scholars would argue that collection-based research is gaining momentum, others might contend that it remains underutilized, particularly in graduate research. It would be beneficial to have survey data on this topic, yet, to my knowledge, there is no quantitative data to support either perspective. Furthermore, how should one define collection-based research? Does the term apply only to the exclusive study of existing museum collections, or does it also include 'hybrid' approaches that integrate fieldwork data? And is this distinction meaningful, and for whom?

[5] Translated by the author from German '*Ins Handeln kommen: Klimaschutz im Museum*.' 2023 Annual Conference of the *Deutscher Museumsbund*, viewed 19 November 2024, <https://www.museumsbund.de/jahrestagung-2023/>.
[6] Translated by the author from German '*Leitfaden Klimaschutz im Museum.*' 2023 Leitfaden Klimaschutz im Museum of the *Deutscher Museumsbund*, viewed 19 November 2024, <https://www.museumsbund.de/publikationen/leitfaden-klimaschutz-im-museum/>.
[7] 2023 International Congress on the Archaeology of the Ancient Near East (ICAANE), viewed 9 December 2024, https://eventsignup.ku.dk/icaane13/conference.

Regardless of these definitional nuances, it would be overly simplistic to blame the (perceived?) limited interest in collection-based research solely on bias within the archaeological community. Challenges in researching museum collections impact both museum professionals and external researchers and stem from structural rather than individual biases. Addressing these challenges requires systemic change rather than individual interventions.

'Old' collections – problems, potentials, and practicalities

Over thirty years ago, Richard Robins (1988) highlighted a common myth about museums having 'insatiable basements,' implying that once objects enter, they are lost forever. This reflects a broader issue of underanalyzed collections in archaeology, referred to as 'archaeology's dirty secret' (Voss 2012). When excavation and survey materials remain unpublished and stored in old repositories, it is as though the fieldwork never truly happened (Kersel 2015b), leading to what has been described as 'a crisis of confidence for archaeology' (Voss 2012: 147).

Collections in archaeological museums are not created in a vacuum. Some were acquired from the antiquities market, while many others result from excavations and surveys that were conducted long before the introduction of current fieldwork and documentation standards. But what qualifies as an 'old collection'? According to the Archaeological Collection Consortium (2016: 42), 'New collections are those that are currently in the process of being systematically excavated and recovered, analyzed, and prepared for curation, or in the process of being accepted into a repository. New collections become existing collections once they have been formally accessioned into a repository. Some older, existing collections are referred to as legacy collections, which may or may not be processed according to professional curatorial standards.' Edward Luby and colleagues (2013) prefer the term 'legacy collections,' emphasizing their historical significance as they have been transmitted from someone from the past. This focus on legacy underscores the role of stewardship in museum work, intertwining education, culture, and research.

Legacy collections are valuable resources for new research and modern analytical techniques (O'Gorman 2007; Quinn 2022). These collections, preserved by museums for many years, provide insights into now-inaccessible sites and lost archaeological contexts. However, since they were often excavated using outdated methodologies, as written above, the provenience of the objects may require reassessment through related publications and museum inventories. Moreover, while many legacy collections are extensive and contain a diverse range of materials, vital contextual information about their origins can be lost during curation, resulting in so-called orphaned collections. These are defined as groups of objects with unclear ownership that have been 'abandoned' in a repository or museum (Archaeological Collections Consortium 2016: 43).

Archival materials are another component of museum collections, essential for analysing and interpreting artifacts. Gail Boyle (2022: 271) defines an archaeological archive as all records and materials (such as fieldwork journals, photographs, drawings, and old labels) identified for long-term preservation during an archaeological project. Archives present their own set of challenges, particularly regarding standardization and quality compared to the detail expected today (Zaina 2020; see also Cyrus in this volume). Despite these limitations, they remain valuable if managed by experts to ensure accessibility. Digitization is crucial to achieve this but requires substantial resources. Moreover, many museums' online databases do not effectively link archival materials to the corresponding objects,[8] making them 'invisible' (Boyle 2022). This highlights the need to democratize data for better accessibility and preservation.

The research potential of legacy collections and their related archives often relies on their integrity – and the research interests of curators and museums in general. On the one hand, some researchers might hesitate to engage with these collections due to the perception that they require extensive rehabilitation (including conservation, restoration, cataloguing, and documentation), which can deter their use. On the other hand, a strong focus on preserving and documenting collections by museum staff can lead to a failure to prioritize or facilitate collection-based research. The following discussion addresses the problems and potentials of legacy and orphaned collections, explores diverse approaches to the study of these groups of objects, and examines their significance in relation to sustainability in museums.

Legacy and orphaned collections – biases, challenges, and limitations

Museum staff may overlook the value of legacy and orphaned collections due to inadequate documentation, reinforcing the perception that these collections lack relevance (Brown 1981). Historically, collection practices often favoured complete or decorated pieces over plain or fragmentary ones, resulting in biases (Humphreys 1973). For instance, in the excavations in square MM at Kuyunjik, Nineveh, Max Mallowan paid workers for the painted sherds they found – a phenomenon known as the 'baksheesh effect' (Gut 2002: 18) – producing a skewed pottery collection acquired by the British Museum. Similarly, the Danish excavations of the 1930s at Hama yielded a limited collection of only painted and burnished pottery fragments from the Ubaid and Late Chalcolithic periods. This collection, now housed at the National Museum of Denmark, fails to represent the broader late prehistoric ceramic traditions at the site (Thuesen 1988).[9]

After a century of museum-sponsored fieldwork in Southwest Asia, facilitated by the division of finds (*partage*) between Western museums and the countries where

[8] For example, i.dai Archives provide access to the digitized archives of the German Archaeological Institute. Viewed 4 December 2024, <https://archives.dainst.org/>.
[9] Since the author's research interests focus on the late prehistory of Mesopotamia, these examples — among the many available in our discipline — were selected.

fieldwork occurred, it is evident that most museums' collections consist largely of non-displayed objects. These are often deemed unsuitable for exhibition due to their fragmentary nature and lack of visual appeal. These include primarily 'bulk items' such as fragments of undecorated and/or unrestorable ceramics or stone tools and byproducts of their production. Cataloguing these objects in bulk complicates collection statistics, making it uncertain how many and what types of single items make up a collection (Kletter 2015). Indeed, the Museums Association's report, *Collections for the Future* (2005: 8), highlighted that many collections are underused and poorly understood. Institutions struggle with backlogs and high maintenance costs, ultimately lacking precise knowledge of their own collections. Unsurprisingly, concerns have been raised about the effective use of public funding for storing and preserving these collections, questioning their necessity and future relevance (Keene 2005).

If museums have amassed more materials than they can effectively manage, then one must draw the conclusion that they are unsustainable institutions (Merriman 2008). Undeniably, museum professionals face significant challenges in curating collections due to inadequate storage, insufficient security, and outdated climate controls. For example, it is no coincidence that a new storage facility is being built in Berlin-Friedrichshagen for the Berlin State Museums, with modern storage technologies and a digital archive.[10] Similarly, the British Museum´s storage and research facility, BM_ARC, aims to enhance accessibility for researchers and the public[11] while promoting sustainability through a Museum Energy Centre designed to reduce carbon emissions. Interestingly, this environmentally friendly project is funded by the oil company BP. This raises serious ethical concerns about fundraising and sponsorship of cultural initiatives within the scientific community and civil society, ultimately adding controversy to the discussion on the sustainability of museums.[12]

The unmanageable size of collections often implies a chronic shortage of trained staff to care for archaeological materials, resulting in a backlog of unprocessed objects. This situation hinders access for researchers and other users and undermines the integrity of the museum´s core mission to collect, preserve, research, and communicate. What

[10] Topping-Out ceremony in Friedrichshagen: A multifunctional storage facility for the Staatliche Museen zu Berlin, viewed 4 December 2024, <https://www.smb.museum/en/whats-new/detail/topping-out-ceremony-in-friedrichshagen-a-multifunctional-storage-facility-for-the-staatliche-museen-zu-berlin/>.

[11] British Museum opens new storage and research facility, viewed 4 December 2024, <https://www.theartnewspaper.com/2024/06/06/british-museum-opens-new-storage-and-research-facility>.

[12] Trustee quits British Museum over record £50m sponsorship deal with BP, viewed 4 December 2024, <https://www.thetimes.com/uk/article/british-museum-london-bp-deal-r5l0blht3?utm_medium=Social&utm_source=Twitter&region=global#Echobox=1702983409>; British Museum's BP sponsorship deal 'astonishingly out of touch', viewed 4 December 2024, <https://www.theguardian.com/culture/2023/dec/19/british-museum-bp-sponsorship-deal-astonishingly-out-of-touch>; 'Will it cause reputational damage?' British Museum director discusses BP donation, viewed 4 December 2024, <https://www.theartnewspaper.com/2024/09/16/will-it-cause-reputational-damage-british-museum-director-discusses-bp-donation>.

is more, this backlog puts collections at risk.[13] In August 2023, news broke that a senior curator at the British Museum had stolen and sold approximately 2000 objects from the museum's ancient Greece and Rome collection, making headlines worldwide.[14] This theft once again brought the museum under national and international scrutiny, especially since out of the 8,000,000, not fully catalogued, objects in its possession, only 80,000 (about 1%) are on permanent display. Artist Noah Angell was quoted to remark, 'The British Museum is only marginally an exhibition space; in material terms it's mostly a site of disappearance.'[15] This undermines the museum's role as a steward of cultural heritage and prompts ethical questions about the responsibilities of curators towards *what* – and *how* – they curate.

Limited funding, often lamented by museums staff, complicates the ability to address any problems and delays in museums´ work swiftly and efficaciously. As museums face pressure to do more with less funding, they increasingly depend on government grants[16] and other sources for financial support, raising questions about the allocation of funds, among others. After covering conservation, exhibitions, and education, how much can realistically be allotted to research infrastructure?

Stewardship

Curated collections have been referred to as a 'second archaeological record' (Barker 2004), suggesting that they can sometimes be more beneficial for research than new excavations. A growing trend in collection-based research is emerging (Frieman and Janz 2018; Schiappacasse 2019; Voss 2012), not as a substitute for fieldwork but as a complementary approach (Frieman and Janz 2018; Luby *et al.* 2013), with some scholars seeing this as the future of archaeological studies (Flexner 2016). This shift stresses the importance of stewardship as museums and archaeologists work towards the long-term preservation of sites and collections, which are non-renewable resources. The discourse around restitution and audience engagement has intensified interest in these collections (Repetto Málaga and Brown 2019), yet challenges remain concerning unreviewed objects. In addressing the curation crisis,

[13] When discussing the restitution of collections to their countries or communities of origin, scholars and the public alike might argue that collections are safer in Western museums. Yet is this truly the case? Some scholars might contend that the primary threats to collections in Western museums come from external factors – think for instance of the destruction of the Tell Halaf Museum in Berlin and the damage inflicted on the sculptures and objects therein during World War II bombing raids by the RAF (Cholidis and Martin 2010).

[14] Exclusive: British Museum launches webpage to recover stolen objects and announces return of 60 items, viewed 4 December 2024, <https://www.theartnewspaper.com/2023/09/26/exclusive-british-museum-launches-webpage-to-recover-stolen-objectsand-announces-return-of-60-items?fbclid=IwZXh0bgNhZW0CMTEAAR06hx8x8Q96LczL8lEB--mytT9FxiREhJqeaTLyck2T7BjOAXXWcHM4q18_aem_Fp9MPJGbds3N-t0p1ENftA>; How museum items go missing, viewed 4 December 2024, <https://www.sapiens.org/archaeology/british-museum-thefts/>.

[15] A reckoning for the British Museum, viewed 4 December 2024, <https://www.newstatesman.com/culture/books/2024/04/a-reckoning-for-the-british-museum>.

[16] However, this does not apply homogeneously to museums worldwide, as many museums are funded by private donors.

initiatives like the Archaeological Repository Map[17] in the US list institutions with collections accessible to researchers – a model for similar efforts in the archaeology and museology of Southwest Asia?

Museum archaeologists, in their pivotal role as research facilitators, can actively contribute to enhancing accessibility by identifying understudied collections, promoting research, and fostering collaborations with universities and other research institutions (Childs 2022). Moreover, museums can offer students internships and training opportunities in collections management and collection-based research. As producers of knowledge and mediators in knowledge production, museum staff should actively seek collaboration with academics, as it is also crucial for universities to incorporate object-based learning into their programs. Students should have access to training with both catalogued and uncatalogued collections,[18] with classes addressing provenance and preservation.

Effective long-term museum curation requires adequate facilities and practices that prioritize research (Childs 2022; Luby *et al.* 2013; Kersel 2015b; Marquardt *et al.* 1982; St Amand *et al.* 2020). Access to collections should be central to curatorial efforts, while considerations around deaccessioning and disposing of collections or objects that do not meet the museum´s standards are also necessary (Merriman 2008). Since most museum collections are kept in storage and are likely to remain there, downsizing collections, hence storage facilities, appears as a viable option for environmental, ethical, financial, and social reasons.[19] Although different legal frameworks regulate what museums can or cannot do with their collections, i.e., whether deaccession or restitution is allowed, museum professionals have a responsibility, as scholars and stewards of human heritage, to speak up and advocate for necessary changes within institutions.

Collaboration with researchers complements effective museum curation. This requires developing strategic plans with a clear vision for the role of legacy collections and recognizing the significant support researchers provide in integrating their research into museum work and databases. Financial support for studying museum collections varies, with institutions like the American School of Overseas Research (ASOR)[20] and the Metropolitan Museum of Art providing fellowships to encourage the study of

[17] The Archaeological Repository Map, viewed 9 December 2024, <https://sha-gis.maps.arcgis.com/apps/dashboards/6186a3f99a004a00bcedb582320e27e2>.
[18] International Training Programme of the British Museum, viewed 9 December 2024, <https://www.britishmuseum.org/our-work/international/international-training-programme>.
[19] The age of too much museum storage must end, viewed 4 December 2024, <https://hyperallergic.com/689596/the-age-of-too-much-museum-storage-must-end/?fbclid=IwZXh0bgNhZW0CMTEAAR2Ds-wXGWn2GXpq1f237PoxdV107Xi4FGfh5sBQo7peBS69Mvp5SgGDxwM_aem_eW9J341YKMyu8R5063XVsQ>.
[20] ASOR Study of Collections Fellowship, viewed 9 December 2024, <https://www.asor.org/fellowships/study-of-collections-fellowships/>.

their collections.[21] However, given the sheer number of unstudied or understudied collections, more museums should promote studies of their collections in a manner that is financially sustainable for external researchers.

Digitization, public engagement, and education

New technologies and digital tools (Mulrooney *et al.* 2016; O'Gorman 2007) increasingly play a role in making collections more accessible, for instance by making it possible to reach out to historically overlooked audiences, including people with disabilities, and those from the countries of origin of the objects or from low-income groups who may not have the means – or the privilege – to visit museums. Furthermore, digital documentation helps minimize handling of original objects, thereby contributing to their long-term preservation.

Yet, finding legacy collections to research is still challenging due to varying information about museum repositories (Keene 2005). Researchers often rely on word of mouth, but an increasing number of museums are digitizing their collections and creating online databases. These efforts benefit both researchers and the public by providing access to objects that are not usually on display. Françoise Vergès (2024: 53) argues that digitization "must be part of the reparations that the West owes these countries," referring to the countries of origin of the displayed objects. She maintains that digitization is "not a neutral resource" because its technology relies on a system of mineral extraction in former European colonies in Africa, which is *unsustainable* for both local communities and the environment. Moreover, in Western museums, digitization is a resource-intensive process that requires substantial funding and staff, with the level of implementation varying across institutions. Online databases featuring Southwest Asian collections include those from the British Museum,[22] the Metropolitan Museum of Art,[23] the Ashmolean Museum,[24] the Harvard Museum of the Ancient Near East,[25] the Louvre,[26] and the VAM, among others.[27] Comparing museum collections is complicated by each institution's unique management, documentation, and curatorial practices, making it difficult to assess how much of a museum's collection is accessible online.[28] Uneven progress in digitization means

[21] The Met Fellowship Program, viewed 9 December 2024, <https://www.metmuseum.org/about-the-met/fellowships>.
[22] The British Museum, Explore the collection, viewed 6 December 2024, <https://www.britishmuseum.org/collection>.
[23] The Metropolitan Museum of Art, Search the Collection, viewed 6 December 2024, <https://www.metmuseum.org/art/collection/search?department=3>.
[24] The Ashmolean Museum, Search the Collection, viewed 6 December 2024, <https://www.ashmolean.org/collections-online#/search>.
[25] The Harvard Museum of the Ancient Near East, Collections, viewed 6 December 2024, <https://hmane.emuseum.com/collections>.
[26] The Louvre, Explore the Collections, viewed 6 December 2024, <https://collections.louvre.fr/en/>.
[27] Vorderasiatisches Museum Online Collection, viewed 6 December 2024, <https://recherche.smb.museum/?language=de&limit=15&sort=relevance&controls=none&collectionKey=VAM*>
[28] It is also important to remember that we all make mistakes when classifying, describing, and recording data during long, demanding routine tasks such as finding cataloguing in the field, office, or museum.

some museums have more records available online than others. For example, the VAM has around 500,000 objects from pre-Islamic Iran, Iraq, Palestine, Syria, Turkey, and Yemen, including more than 30,000 cuneiform texts.[29] However, its online public database has only 1367 entries as of March 2025. Consequently, researchers depend on publications and professional and personal networks to ascertain what is stored in this museum for their studies.

While digitized records aim to be accessible, online databases must be tailored to museums' record-keeping systems. In larger entities, such as the VAM, which is part of the Berlin State Museums and the Prussian Cultural Heritage Foundation, or the Middle East Department within the British Museum, the broader institutional database should ideally provide consistent information about all objects across departments. Therefore, these online databases may not fully meet the needs of archaeological research. While certain objects may be prioritized for digitization, related catalogues or older collection images may not receive the same emphasis. This misalignment can pose challenges for researchers, especially if funding bodies assume that traveling to study collections is unnecessary because they are allegedly digitized (Frieman and Janz 2018).

In Southwest Asian archaeology, a well-known example of digitization of collections and archives is the Ur Digitisation Project (Helgestad 2020).[30] This collaborative effort between the British Museum and the Penn Museum published the finds and archives from Leonard Woolley's excavations at Ur (1922-1934) online, making the collection freely accessible to researchers. The project's strength lies in its ability to bring together finds scattered across three major institutions: the British Museum, the Penn Museum, and the Iraq Museum. This collaboration fostered international cooperation among these institutions and established a consistent vocabulary for defining and describing the various components of Woolley's legacy collection and archive. For each object, related archival documentation – such as photographs and notes – was provided, and users can freely use these images for non-profit purposes as they are released under a Creative Commons license. The Ur Digitisation Project serves as an example of effective curation for legacy collections and archives. The initiative involved specialists from both archaeology and IT and significantly relied on the contributions of students from various universities, facilitating a fruitful exchange of expertise and providing opportunities to develop new skills and knowledge.

The quality and consistency of the data in databases are also inevitably connected to the knowledge that the person inputting data has of the different categories of artefacts. Museum staff are aware of this issue, and on museums' websites, users can provide feedback, including indicating any problems with objects' digital records. For instance, the British Museum has a dedicated web page updating the public on the issues with the online collection the museum's staff is working on; see <https://www.britishmuseum.org/development>, viewed 25 November 2024.

[29] About the Collection of the Vorderasiatisches Museum, viewed 25 November 2024, <https://www.smb.museum/museen-einrichtungen/vorderasiatisches-museum/sammeln-forschen/sammlung/>.

[30] UrOnline, viewed 2 March 2025, <http://www.ur-online.org/>

The Provenance and Collections Project[31] at the Central Archive of the State Museums in Berlin has made substantial progress in enhancing the accessibility and usability of museum archives. From 2019 to 2022, the acquisition and accession records of the museums were digitized and made available online. These include the VAM records,[32] which comprise artefacts recovered from fieldwork in Babylon, Assur, Uruk, and Zincirli, as well as objects purchased from the antiquities market, donations to the collection, and plaster casts created in the museum. However, the archival materials can be challenging to read or understand due to variations in handwriting and the use of obsolete abbreviations that were common among the staff at the time.

Finally, legacy and orphaned collections can serve valuable educational purposes, not only within big museums but also in supporting smaller institutions and school programs (Hirsch and Margaris 2023; Humphreys 1973; Jamieson 2015). Jen Thum and Julia Troche (2016) highlighted the potential of understudied, broken, and unprovenienced ancient Egyptian objects at Brown University for exhibitions that showcase the research process, and the researchers involved.[33] This initiative engaged visitors by using fragmentary artifacts for hands-on education and humanizing archaeological research. Feedback indicated that openly sharing the realities of archaeology and involving visitors in the research process significantly enhances their experience. What is more, many visitors usually lack a background in archaeology. Hence, Thum and Troche argue that museums should publicly display research processes to create teaching opportunities and invite visitors behind the scenes.

Collection-based research, archaeology, and museums: sustainable?

From this short survey of available literature, it is evident that research is the function that draws on collections, but achieving sustainability in collection-based research in museums is more challenging than it might seem at first glance. First, it is important to recognize that there is no single definition of 'the museum.' Museums, which are non-profit cultural organizations, vary in size, type, collections, and funding. As with any cultural endeavour, funding plays a crucial role in their operations. Historically, museums focused on traditional functions such as collection, research, and education; however, these roles have changed over time. The relevance of museums today largely depends on their ability to attract visitors and engage

[31] Provenance and collections – publishing the acquisition and accession logs of the Staatliche Museen zu Berlin online, viewed 4 December 2024, <https://www.smb.museum/en/research/research-projects/provenance-and-collections/>.
[32] Acquisition and accession logs of the Vorderasiatisches Museum, viewed 6 December 2024, <https://www.smb.museum/en/museums-institutions/vorderasiatisches-museum/collection-research/acquisition-and-accession-logs/>.
[33] Based on my experience, I can confirm the importance of this approach. While I was a curatorial assistant at the VAM, visitors frequently asked me about the research process, including how archaeologists date artifacts and understand their uses. Audiences are particularly intrigued by the application of scientific analyses, such as dating techniques and residue analysis.

with them (Nielsen 2015). Consequently, museum staff dedicate significant effort to organizing exhibitions and educational programs to draw in visitors and, ultimately, secure the necessary funding to exist.

This overview has highlighted that research and accessibility of collections are closely linked to sustainability, and these issues should be considered together in archaeology and archaeological museums. Over a century of archaeological fieldwork has resulted in the accumulation of collections that require long-term conservation and storage, thus contributing to the carbon footprint of museums (Klenz Larsen 2023; National Museum Directors Council 2009; Network of European Museum Organisations 2023). Scholars have noted that 'for most archaeologists, storage and curation is someone else's problem, and more often than not, that "someone" is the museum curator and/or conservator' (Kersel 2015a: 78). This perspective aligns with the general perception of curation 'as routine activities that manage, rather than investigate, archaeological collections' (Voss 2012: 146).

Curatorial responsibilities extend to fieldwork as well. Andrew Jamieson and Diana Fitzpatrick (2014) pointed out a decade ago that the need for sustainable management strategies for Southwest Asian collections from ongoing or future excavation projects was frequently overlooked and remained a neglected issue within the discipline. Collections in museums in Southwest Asia are particularly vulnerable due to political and economic instability in the region, which results in a need for improving basic infrastructure for proper storage and collection management. A recent example can be seen in the tragic events that affected the National Archaeology Museum in Raqqa following the outbreak of the war in Syria in 2011. The museum housed approximately 6000 artifacts from excavations in the surrounding region; these items were looted during the conflict. There was no detailed inventory that could have helped identify the stolen objects if they resurfaced in the international antiquities market. To address this urgent matter, in 2017, Olivier Nieuwenhuyse initiated the Focus Raqqa project, building on the work conducted by the Syrian Directorate-General of Antiquities and Museums (DGAM).[34] This project aimed to create a comprehensive database of the objects stored in the Raqqa Museum, enabling both Syrian and international police, as well as heritage organizations, to identify and repatriate the stolen items, with the ultimate goal of reconstructing the Raqqa Museum. An essential part of this project involved collaborating with the various archaeological missions that had conducted fieldwork in the region surrounding Raqqa over the years. Their documentation in the form of databases and archives, including photos, drawings, and descriptions of objects, proved to be an invaluable source of information to complement the museum inventories.

[34] Focus Raqqa, viewed 9 December 2024, <https://www.globalheritage.nl/research/heritage-under-threat/focus-raqqa>; Focus Raqqa: reconstruction of a Syrian museum collection, viewed 9 December 2024, <https://www.universiteitleiden.nl/en/news/2017/02/focus-on-raqqa-reconstruction-of-a-syrian-museum-collection>.

Jamieson and Fitzpatrick's (2014) survey exposed a curation crisis in Southwestern Asian archaeology, which until then had not been acknowledged. This indicated that approximately 1.2 tons of artefacts were excavated each season, with around 2700 artefacts inventoried. Yet, only 6% of these were accessioned by local museums. Furthermore, just 19% of the surveyed participants had defined long-term plans for the collections. The fact that 81% of archaeologists expressed interest in developing archaeological collections management plans raises important questions: Shouldn't we, as archaeologists, inherently be interested in the management of the collections we create through fieldwork? When does our responsibility as (field) archaeologists end? Is it merely collecting finds during excavations and surveys, and then does it stop when handing them over to local museums and authorities? Or should we engage in more strategic, long-term thinking and partnerships that go beyond fieldwork? Every archaeologist conducting fieldwork in Southwest Asia is aware that it is nearly impossible to record, document, and analyze all finds from and during a single campaign. As a result, regular study seasons are planned between excavation or survey seasons. What happens to the recovered objects and samples after a campaign concludes, funding ceases, and the project is finished? Should this not be a significant concern for everyone involved? Years after a project is concluded, there may be a need to revisit specific collections, or new questions may arise. New students and researchers might decide to re-study the material. Hence, how can we ensure that these collections are adequately managed and curated to preserve them for future generations, benefiting not only academics but also local communities?

As I write this paper, the countries in Southwest Asia that are the origins of these collections face political, social, and climatic instability. For instance, Iraq is the fifth-most vulnerable country to climate breakdown, grappling with rising temperatures, intensified drought, water scarcity, and frequent sand and dust storms (Alfayadh 2023; Office of the High Commissioner for Human Rights 2023). As a result, people are migrating from rural to urban areas, igniting community conflicts. To expect that fieldwork abroad will remain miraculously unaffected by this crisis is unrealistic. Especially given the persistent lack of funding for archaeological research, let alone the publication of its findings – and ongoing attempts to further reduce it through austerity measures embraced by Western governments.

There have been provocative suggestions that excavations should be halted or minimized until the existing collections are properly analyzed and published. On the one hand, it is unlikely that this will happen, given the scientific, political, and economic interests at stake. On the other hand, stopping or reducing excavations would not solve the question of what to do with the several bulky legacy collections in museums and repositories worldwide. As archaeologists, we must carefully consider our ethical responsibilities and our engagement with excavations and their aftermath, particularly regarding the long-term storage of archaeological finds. In a much-needed shift in perspective, we must acknowledge that the future

of archaeology increasingly depends on museums and archaeological repositories for both research and public engagement (Frieman and Janz 2018: 1). Or, perhaps, that 'the future of archaeology is in excavating collections' (Kersel 2015b: 47). This can happen if archaeologists and museum professionals create new collaborations and partnerships in a joint effort towards sustainable curation, management, and research of collections informed by shared stewardship – and if governments actively support culture and education by committing to justice, peace, and collaboration between countries. When re-examining 'old' collections, we should also re-examine our discipline's practices, beliefs, ethics, and shortcomings – thus ourselves.

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