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Chronolog

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Archaeology, Assyriology, & Egyptology

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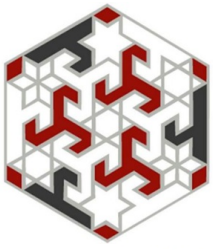

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CHRONOLOG

Letter from the Editor-In-Chief

We can now welcome a third volume of Chronolog, the student driven journal edited and generated by students and junior candidates of Ancient Near Eastern Studies at the University of Copenhagen. This volume contains three research papers and some useful reviews and recommendations of conferences relevant for our field of study. And a presentation of new candidates.

Remember that despite the home address of the journal it's real home is the Middle East and neighboring regions and junior scholars from here are more than welcome to join in and submit articles on their important discoveries and work.

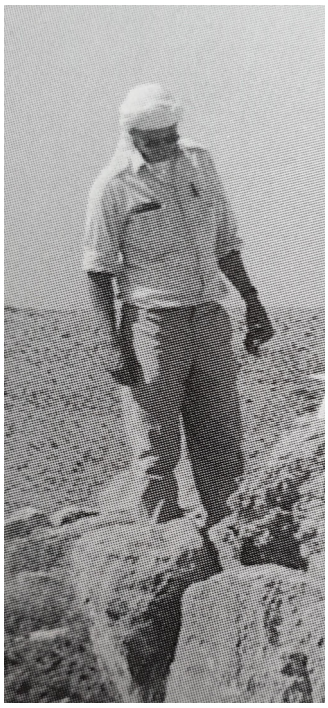
This cannot be emphasized enough in times where world leaders threatens to destroy civilizations. This attitude is apparently still not history. And one may ask, do we ever learn from history? So we who are working with the material remains and history of past civilizations are strongly challenged and must stay together in protecting the human life and heritage that has generated civilized life, technology and thinking for thousands of years.

And which forms the foundation for contemporary life. Scholars of the Ancient Near East are the curators of past civilizations. We must share our concern and understanding of the concept of civilization. Your contribution to Chronolog supports the efforts to make life
civilized.

May peace reach and prevail in the Middle East and civilized life return and flourish.

April 15 2026

Ingolf Thuesen
Chairman of the Danish Institute in Damascus and
the International Congress of the Archaeology of the Ancient Near East (ICAANE).



Ingolf Thuesen
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Chairman for
the Danish Institute in Damascus and
the International Congress of the Archaeology of the Ancient Near East (ICAANE).

From the Editors

With the publication of Chronolog Student Journal, Issue 3, we find ourselves at an important moment of connection and growth. Since our previous issue, much has been happening behind the scenes – strengthening the journal, expanding our networks, and reflecting on how Chronolog should develop in the years to come.

The Editors
(From left to right)
Luisa Dominguez Rey, Oscar Poulsen, Lucian Andersen, Anne Drewsen, Maria Diget Sletterød

What's Been Happening

Since our previous issue, Chronolog has been busy both within the editorial team and across the wider academic community at the University of Copenhagen. Over the past year, Chronolog has welcomed new members to the editorial team, bringing fresh perspectives and energy into the daily work.

As always, we have also worked to stay visible beyond the journal itself; Chronolog has been present at the student-led conferences EACC and FASR held at KUA, engaging with presenters and participants and contributing to conversations around student research and early career scholarship. We here at the editorial team firmly support these conferences as they are key spaces for sharing work in progress, testing ideas, and building academic communities; we therefore see Chronolog's presence as a natural extension of our mission to support students – both on the page and in person.

Chronolog has further expanded its horizons internationally by joining the *International Consortium of Undergraduate Journals*, connecting us with student-run journals across Europe, North America, and Australia. This collaboration opens the door to dialogue across institutions, shared experiences of student publishing, and a broader horizon for what Chronolog can become as part of an international scholarly community.

In addition, we have also worked to support students beyond publication alone, hosting workshops on topics such as applying for funding and a "how-to" on academic presentations, reflecting our belief that a student journal can – and should – be a space for skill building, experimentation, and mutual support.

What's in This Issue

Issue 3 continues Chronolog's core mission: to provide students and recent graduates with a platform to publish high-quality research on the history, cultures, languages, and material worlds of ancient Southwest Asia and Northeast Africa.

The contributions in this issue reflect a wide range of approaches, sources, and research interests, demonstrating both the diversity of our fields and the strong scholarly work being carried out by students. Each article has gone through peer

review and editorial collaboration, underscoring our commitment to academic rigor within a supportive, student-centred framework.

Looking Ahead: An Invitation to Participate

Chronolog is, at its core, a journal shaped by students and its future depends on continued engagement. Looking ahead, we want to place a strong emphasis on strengthening student engagement – whether as authors, editors, reviewers, or contributors of shorter formats such as essays or reflections.

Importantly, we are also opening Chronolog more explicitly to contributors and collaborators beyond those with a direct institutional connection to the University of Copenhagen; we warmly welcome students, recent graduates, and early-career scholars from other institutions who share our academic focus and interest in student-driven publishing.

We warmly invite students and recent graduates to:

- Submit articles, essays, or experimental academic formats
- Apply to join the editorial team
- Contribute ideas, feedback, or participate in discussions about the journal's future

Chronolog is not only a publication venue, but a shared academic space where students can actively influence how scholarly work is produced, reviewed, and shared. If you are curious, motivated, or simply want to learn more, we encourage you to reach out and join us in shaping the next chapters of Chronolog Student Journal.

Chronolog began as a space for students to take their first steps into academic publishing. With Issue 3, we reaffirm that commitment while also embracing new collaborations, new formats, and new voices – both within and beyond our home institution.

If you share our enthusiasm for student-driven scholarship and want to help influence where Chronolog goes next, we encourage you to reach out, get involved, and join the conversation.

- The Editorial Team at Chronolog Student Journal

Reconstructing Irtysenu: From 19th Century Autopsy to 21st Century Discovery

Alma Foldbjerg El-Naaman

Abstract

Ancient Egyptian mummified individuals can offer valuable insights into history. This article will focus on the case of Irtysenu, Lady of the House, also known as Dr. Granville's Mummy, trying to reconstruct her journey from her first autopsy in 1821 by Dr. Augustus Bozzi Granville to recent examinations through a literature review. Irtysenu has undergone multiple tests aiming to determine her cause of death, age, and race, among other factors. But how much new information can modern methods like ancient DNA analysis and X-ray provide? As this paper traces Irtysenu's story over the past 200 years, it shows how new technologies can reveal fresh details about her health and disease, changing her originally identified cause of death from an ovarian tumor to pulmonary tuberculosis, and exploring potential reasons for her weight loss, offering further insights into her overall health.

Keywords: Funerary practices; palaeopathology; Egypt; ethical practice; morphology

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Interest areas
Ancient Egyptian funerary rituals, mummy studies, paleopathology, parasites, and digital methods

يمكن للأفراد المحنطين في مصرالقديمة أن يوفروا رؤى قيمة حول التاريخ. تركزهذه المقالة على حالة إرتيسينو، سيدة البيت، المعروفة أيضاً بمومياء الدكتورجرانفيل، محاولة إعادة بناء رحلتها من تشريحها الأول عام 1821 من قبل الدكتور أوغسطس بوتسي جرانفيل إلى الفحوصات الحديثة من خلال استعراض الدراسات السابقة. خضعت إرتيسينو لعدة اختبارات بهدف تحديد سبب وفاتها وعمرها وعرقها، من بين عوامل أخرى. لكن ما مقدارالمعلومات الجديدة التي يمكن للطرق الحديثة مثل تحليل الحمض النووي القديم والأشعة السينية أن توفرها؟ تتتبع هذه الورقة قصة إرتيسينو على مدى 200 عام الماضية، مظهرة كيف يمكن للتقنيات الجديدة أن تكشف تفاصيل جديدة عن صحتها ومرضها، مما غيّر سبب الوفاة المحدد اصلا من ورم المبيض إلى السل الرئوي، واستكشاف الأسباب المحتملة لفقدان وزنها، مما يوفررؤى إضافية حول صحتها العامة.

Translation by
Mahmoud Alsayed Ahmed,
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Introduction

The obsession with ancient Egyptian history and culture is far from new, having been a fascination since the Romans, continuing into recent days, and is today known as 'Egyptomania'. Egyptomania has had many waves, and during the 18th and 19th centuries, Egyptian mummies sparked considerable curiosity. During this time, mummy unwrapping parties were viewed as a unique form of entertainment. From mummy unwrappings to mummies being used as paint and medicine, many Egyptian mummies were destroyed and knowledge lost as the unwrappings and other usage of Egyptian mummies were rarely documented (Lambert et al., 2018: 6). The ethical concerns surrounding ancient human remains today were rarely considered as these mummies were consistently not recognized as deceased human beings and instead seen as objects (Grauer, 2018; Ikram, 2020; Ikram and Dodson, 1998: 72-73). However, there were a few exceptions to this. One of these exceptions was Irtysenu, who underwent one of the first known scientific mummy autopsies in 1821 under the hands of Dr. Augustus Bozzy Granville (Donoghue et al., 2010; Pain, 2008: 72-73; 2016). In the following years, many would continue to perform more scientific autopsies to learn about the lives of the ancient Egyptians (David, 2008a; Ikram, 2020; Murray, 1910; Pettigrew, 1837; Villa et al., 2015).

This article will focus on the mummified remains of Irtysenu, Lady of the House, also known as Dr. Granville's Mummy, and will reconstruct her journey through the last 200 years through a literature review. While doing so, the article will explore the evolving methods and ethical concerns surrounding the examination of ancient human remains and how these methods can provide new insights into health and disease. To illustrate these points, pictures of the original drawings from Dr. Granville's report will be included to support the discussion. This will consist of drawings of human remains.

The Discovery of Irtysenu

In Gurna, Egypt, on the 24th of March in 1819, the mummified remains of a woman, whose name and title would later be identified as Irtysenu, Lady of the House, were purchased by Sir Archibald Edmonstone, 3rd Baronet, for about four dollars (Granville, 1825: 269; Pain, 2008: 72-73). Edmonstone was a patient of Dr. Augustus Bozzi Granville (1783-1872), who was a well-known gynecologist and surgeon, and to whom Edmonstone gifted the remains of Irtysenu. Dr. Granville was a well-travelled doctor, who had practiced medicine in many countries, such as Turkey, Spain, Portugal, and Greece, where he also had contracted different diseases himself, such as the bubonic plaque, yellow fever, and malaria. He further developed a great interest in Egyptian mummies and a wish to learn how they mummified their dead (Granville 1825; 1833; Nunn et al. 2000:147-149; Pain 2008: 72-73).

Dr. Granville conducted one of the first scientifically documented autopsies on the mummified remains of Irtysenu, but she was the only Egyptian mummy he dissected (Granville, 1825; Pain, 2008: 72-73). He suggested the cause of death of Irtysenu was 'ovarian dropsy', which is a type of ovarian cyst (Granville, 1825; 1833; Nunn et al.,

2000). 30 years later, the mummified remains of Irtysenu were purchased by the British Museum, where she remained in their storage for more than 100 years until she was reexamined by Egyptologist John Taylor in the late 1980s (Harer et al., 2014). Unfortunately, after Dr. Granville had carried out the original examination of the body, not much remained.

What remains of Irtysenu is today located at the British Museum. This includes a section of her femur, parts of her abdomen, and several organs: the gallbladder, lungs, heart, uterus, and ovaries, to name a few. Located with her remains is also wax, bitumen, and various wrappings and other textiles, which were left in their coffin after the autopsy.

Furthermore, Dr. Granville included a dissected arm from a 'North African' mummy and parts of four human fetuses he used for experimental mummification (British Museum, 2026b; Riggs 2016, p. 217). However, a name and a title were present on the coffin, namely Irtysenu, Lady of the House, which potentially could match the female mummy inside the coffin (Figure 1; Pain, 2008: 72-73).

Figure 1: *A picture of the coffin of Irtysenu today (left) and a drawing of the coffin from 1825 (right).*
© British Museum, 2026a (left) and Granville, 1825 (right)

However, there have been many cases of ancient Egyptian mummies and coffins being switched, possibly matching a better-preserved mummy with a better-preserved coffin, as seen, for instance, with a male mummy being sold in a female coffin and vice versa (Vandenbeusch et al., 2021), but this will be discussed in a later section.

The Original Mummy Autopsy by Dr. Granville

The autopsy of Irtysenu began on the 21st of August 1821 and continued for the next six weeks in the drawing room of Dr. Granville in London. In contrast to other mummy unwrappings in the 19th century, which had little to no documentation, Dr. Granville only invited various prominent people of the time to observe the procedure and provided detailed documentation of all of findings in a final report (Clinker, 2024: 110-111; Riggs, 2016: 113). The report itself started by describing all exterior findings, such as her wrappings and decorations, before turning to the surgical blade, choosing to 'sacrifice a most complete specimen of the Egyptian art of embalming' (Granville, 1825: 281) to fulfill his inquiry of the state of preservation of her body (Granville, 1825).

Dr. Granville described the mummy wrappings as having been applied with surgical precision to each limb (Granville, 1825: 271-274). After removing the wrappings, Dr. Granville identified the sex of the individual as female, based on the remains of the breast tissue, as seen in Figure2 in between her arms (Granville, 1821: 277). He did not find any ventral incision, but, when opening the abdomen, Dr. Granville found evidence that the large intestines had been extracted through the anus (Granville, 1833: 240-241). In contrast to many other Egyptian mummies, whose organs were removed and placed in canopic jars, most of the organs in this mummy were still in situ. The teeth were described as perfectly white and in good condition (Granville, 1825: 275). When unwrapping the body, Dr. Granville found that she had multiple deep wrinkles in the abdomen area (Figure 2), which made him conclude that Irtysenu must have been obese in life, and therefore of a higher status, since an extensive food resource would have been required for obesity (Granville, 1825: 277). During the autopsy, all organs were removed and inspected (Granville, 1825: 296). Dr. Granville decided to saw the cranium in half, horizontally, whereafter he concluded that the brain must have been removed through the nostrils due to damage to the nasal cavity (Granville, 1825: 296-297). During the autopsy, Dr. Granville found an ovarian 'dropsy' (cyst), which he concluded must have been the cause of death since it appeared to have destroyed the structural arrangement of the organ, developing into a large mass of diseased tissue (Granville, 1825: 298-300).

Age at Death Estimation

During Dr. Granville's examination of Irtysenu, he examined the pelvis, noting that Irtysenu must have reached sexual maturity and possibly given birth, based on the morphological changes he observed (Granville, 1825: 298-300). He later concluded that she must have been between 50 and 55 years old at the time of her death (Granville, 1825: 298). This conclusion was based solely on the thinning of the osseous plates in the ilium, which is the uppermost part of the pelvis. To his knowledge, this meant that the person was more than 40 years old, as he believed that the thinning of the osseous plates would gradually worsen until reaching their maximum around 55 years of age (Granville, 1825: 298-299). Today, the thinning of the osseous plates is defined as a characteristic of conditions such as osteoporosis, which is described as low bone mass and deterioration (Cianferotti et al, 2013: 7). This type of osteoporosis can develop due to age or menopause, which could be the case for Irtysenu (Cianferotti et al., 2013: 11-13). Measurements of the long bones, as well as drawings of the pelvis, sacrum, and lower vertebrae, were included in the original autopsy report, which confirms that Irtysenu must have reached adulthood (Figure 3; Granville, 1825: 278, 280, 290).

Today, when doing age estimations, dental development and wear, as well as various elements of the pelvis, are often used. However, since neither the teeth nor the pelvis was preserved after the original autopsy, it is only possible to classify Irtysenu as an adult above 18 years of age (AlQahtani et al., 2010; Buckberry & Chamberlain, 2002; Lovejoy et al., 1985).

Racial Theories

During the 18th and 19th centuries, many racial theories concluded that the ancient Egyptians must have been of Caucasian or European descent, as people of African descent were considered lower-status human beings (Riggs, 2016: 125). In Dr. Granville's examinations of Irtysenu, he could only confirm this theory by using comparative anatomy. He did this by examining the pelvis (Figure 3), which he believed to present the most significant racial difference in women. After the examination, he concluded that the pelvis of Irtysenu was more similar to that of Caucasian or European women, as the appearance and measurements did not match the pelvis he had of a young, black woman in his office (Granville, 1825: 279). This claim was further supported by Dr. Granville's former teacher in medicine, Dr. Cuvier, who had greater experience in the examination of Egyptian mummies and believed the ancient Egyptians had Caucasian origins (Granville, 1825: 281).

This belief that ancient Egyptians were Caucasian or of European descent reflected the prevailing racial theories of the time and was supported by depictions of the 'four races' in multiple New Kingdom tombs (Cornelius, 2010: 325; Riggs, 2016: 125). The 'four races' depict Egyptians, Asians, Nubians, and Libyans with distinct skin tones, clothing, and hairstyles. Here, the Nubians are depicted with dark skin, while the Egyptians are depicted with reddish-brown skin, which was seen as an indicator of their Caucasian heritage (Cornelius, 2010: 325). Today, the claim that ancient Egyptians are descendants of Europeans or Caucasians has been disproven.

Modern researchers use other methods to estimate sex, age, and race, such as sexual dimorphic traits of the skull and pelvis, age-related dental development and dental wear, and bone fusion and morphological differences in the skull for possible race (Riggs, 2016).

Figure 2: *Drawing of Irtysenu after unwrapping.*
© Granville, 1825: plate XIX.

Dating the Mummified Remains of Irtysenu

Dr. Granville had numerous theories about when Irtysenu had been alive. However, these were mostly based on his own imagination combined with the information available to him, such as the accounts provided by Herodotus (Granville, 1825: 277, 303, 315). The first suggested dating was that Irtysenu had been alive before the pyramid of Memphis had been built (Granville, 1825: 177). The second suggested dating was that Irtysenu was alive during the reign of Sesostris the Great (Granville, 1825: 315).

In the present day, it is known that the pyramids of Memphis (Giza) were built during the Old Kingdom (2675-2130 BCE), and the king described by Herodotus, Sesostris the Great, is believed to be a combination of Senwosret I (1920-1875 BCE) and Senwosret III (1878-1839 BCE), two great Middle Kingdom (1980-1630 BCE) pharaohs (Dieleman, 2010: 441; Herodotus: II, 102). In 1821, the understanding of ancient Egyptian history was limited.

However, it is also important to note that Dr. Granville was neither an Egyptologist nor an archeologist but merely an enthusiast and curious surgeon and gynecologist who took great interest in the mummification process (Granville, 1825: 313; Pain, 2008: 72-73).

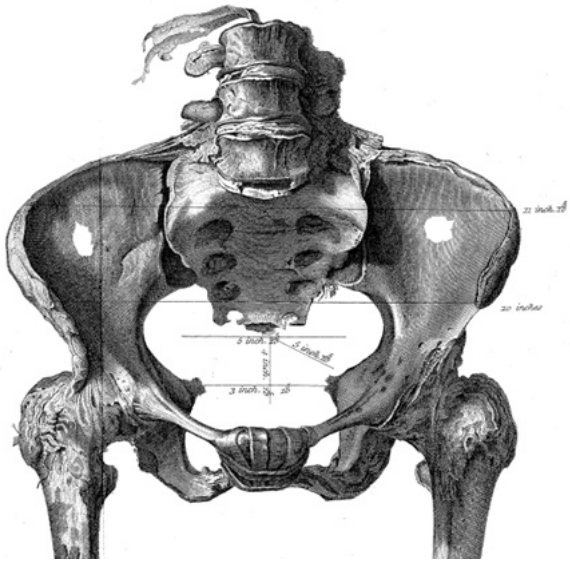

Figure 3. *Drawing of the pelvis. © Granville, 1825: plate XX.*

In modern times, both the iconography of the coffin and the description of the mummification process, as well as radiocarbon dating, have been used to provide a more exact dating. Radiocarbon dating of the coffin wood and mummy linen was performed by Hedges et al. (1997) and yielded dates of around 584 to 490 BCE ± 50-60 years, respectively, assigning the objects to the Late Period (circa 664-332 BCE), approximately 2000 years later than what Dr. Granville suggested (Hedges et al., 1997: 255-256). This is further supported by the shape and decoration of the coffin, which are characteristic of the Late Period (Dawson, 1925: 76-77). Nonetheless, as mentioned above, there have been many cases of ancient Egyptian mummies and coffins being switched (Vandenbeusch et al., 2021).

However, the mummification characteristics, described by Dr. Granville, consists with the Late Period, such as no body paint evident on the body (Granville 1825, p. 277), the eyes being untouched (Granville 1825, pp. 297-298), the skull shows evidence of the brain having been removed through the nostrils (Granville 1825, p. 297), and although there was no evidence of a ventral incision, there is evidence of the large intestines being removed through the anus (Granville 1825, pp. 307-308), leaving many of the organs in situ (David, 2008b: 16-17).

Therefore, although the coffin matches the biological sex of the mummified individual as well as the time period, it cannot be certain that they belong together, especially today, when neither is fully preserved.

The Mummification of Irtysenu

The mummification technique used on the mummified remains of Irtysenu was compared to the mummification processes described by Herodotus multiple times in the original autopsy report (Granville, 1825: 274, 303, 312; Herodotus: II 86-88). Herodotus (484-425 BCE) was a Greek historian who described many ancient Egyptian medical practices when he visited Egypt around 450 BCE during the Late Period. Here, Herodotus described three ways of mummifying: the expensive one, which included

removal of the brain, evisceration through an incision along the side, a cleansing of the body cavity and the body itself, including submersion in natron for 70 days before being wrapped (Herodotus: II 86).

The middle way included filling the abdomen with cedar-wood oil from syringes for an unknown number of days to dissolve the organs, then emptying it and submerging it in natron. The middle way had no cuts to the body and no wrapping (Herodotus: II 87). The third and least expensive way involved cleansing the abdomen with a purge and submersion in natron for 70 days, without wrapping or cutting the body (Herodotus: II 88).

Dr. Granville noted that Irtysenu must have undergone another form of mummification than the ones described by Herodotus, due to the lack of ventral incision, the use of anal extraction of the organs while also leaving some of the organs in situ, as well as the use of both cotton and linen in the wrapping of Irtysenu. However, Herodotus recorded a mummification method more similar to that of Irtysenu, in which oils were injected, and the intestines were left untouched (Granville, 1825: 274, 312). It is important to note that Herodotus' visit to Egypt would have been approximately 150 years after Irtysenu's mummification, and it is possible that practices changed over time (Brier, 2004: 19; Granville, 1825: 312; Herodotus: II 86-88).

Potential Causes of Death

Since the original cause of death of Irtysenu was determined to be an ovarian cyst by Dr. Granville, Irtysenu has undergone newer examinations for malaria and tuberculosis, two diseases that were prevalent in ancient Egypt (Brier, 2014; Dryer, 2010: 29-32). The potential causes of death are elaborated below.

The Ovarian Cyst

Following the rediscovery of the remains of Irtysenu in the 1980s resulted in the re-examination of the ovarian cyst, now using new techniques that have been developed since the original autopsy in 1821 (Harer et al., 2014: 102). In 1992, Harer et al. (2014) reinvestigated the original proposed cause of death of Irtysenu. Here they focused their examination on the uterus, tubes, and ovaries in order to reexamine the ovarian cyst (Harer et al., 2014). There is generally two types of ovarian cysts: (1) physiological ovarian cysts, caused by normal function of the ovary and are the most common type. This type of cyst has to become larger than a grapefruit before producing symptoms; and (2) neoplastic ovarian cysts, which are categorized as abnormal growth not related to the normal function of the ovaries. This type of cysts is less common and more likely to be malignant, meaning they can be more fatal (Neighbors et al. 2010, pp. 367-368).

The team managed to locate the ovarian cyst; however, they could not identify the solid areas of the cyst described by Dr. Granville and concluded that the cyst must have been benign and, therefore, not lethal (Granville, 1825: 300; Harer et al., 2014: 104-106). Following the dismissal of the original cause of death, the question remained as

to what the cause of death could have been. Due to new knowledge and developments in paleopathology, it is now possible to test for tropical diseases known to have affected the ancient Egyptian people, and thus, malaria was raised as a possible cause of death.

The Malaria Diagnosis

Malaria is caused by a single-celled parasite in the genus Plasmodium and is transmitted through the bites of infected mosquitoes (Nerlich, 2016: 1-2). In 1994, Irtysenu was one of 16 mummies examined for malaria using immunological methods, specifically the modified ParaSightTM-F test, and was among seven mummies that tested positive, by testing a muscle sample (Miller et al., 1994; Nerlich, 2016). However, this specific immunological test showed many false positives, prompting a re-examination in 1997 using ancient DNA analysis (Donoghue et al., 2010: 52).

Here, three individuals were used as the basis for the study: two males who died in the 1930s with malaria as their cause of death, and Irtysenu, whereof only one modern sample tested positive for malaria (Taylor et al., 1997: 194). All three individuals also underwent the ParaSightTM-F test, the same immunological test used in 1994, and all three samples tested negative for malaria.

In both malaria testing, skeletal muscle was used as the sample, and appropriate methods were used to avoid cross-contamination (Miller et al., 1994: 31; Taylor et al., 1997: 194). However, soft tissues, such as skeletal muscle, are often heavily contaminated by environmental factors, and that is likely the case here (Orlando et al., 2021: 2). Both the mummification process could have affected the soft tissue, and as there is no evidence of Dr. Granville using gloves, masks, or other ways of avoiding contamination, this could have resulted in Dr. Granville, or any of his guests, contaminating the soft tissue as well, especially since Dr. Granville himself was infected with malaria (Granville, 1825; Orlando et al., 2021: 2; Pain, 2008, p. 72). Another contamination factor is the arm from a 'North African' mummy and parts of four human fetuses that the remains of Irtysenu were stored with following the autopsy (British Museum, 2026b).

Furthermore, although it is possible to extract viable ancient DNA from ancient Egyptian mummies, it is often highly degraded, and earlier researchers suggest that the upper limit for good DNA preservation in Egypt is around 800-700 BCE, but whole genomes have been sequenced from the Early Old Kingdom from around 2855-2570 BCE (Marota et al., 2002: 316-318; Morez Jacobs et al., 2025).

The Tuberculosis Diagnosis

Tuberculosis is an airborne disease caused by the genus Mycobacterium and is transmitted through air droplets from an infected individual (Donoghue et al., 2010: 51). Here, samples from both soft and hard tissue were used to test her for tuberculosis. The tuberculosis complex was detected in lung, gallbladder, and other

soft-tissue samples, confirming the diagnosis (Donoghue et al., 2010: 52-53).
The greatest quantity of Mycobacterium tuberculosis complex was found in the lung tissue, which led Donoghue et al. (2010) to argue that Lady Irtysenu had pulmonary tuberculosis, that had spread to other parts of the body, as there was also tuberculosis found in the gallbladder and other soft tissue samples (Donoghue et al., 2010: 55). If available, the ribs and vertebrae could have been examined for lesions developed from heavy coughing associated with the disease, however, these were discarded after the original autopsy in 1821 (Roberts et al., 1998). A second autopsy, which was conducted in 1994, supports the diagnosis of pulmonary tuberculosis (Donoghue et al. 2010: 55). This second autopsy noted that the skeletal muscles instead indicated wasting and not obesity, which would be consistent with an active tuberculosis infection (Donoghue et al., 2010: 55).

The Possible Weight Loss

Several factors can contribute to the possible obesity or weight loss described by Dr. Granville (1825) in his original autopsy report, where he stated, "Numerous and deep wrinkles appeared on the integuments of the abdomen, denoting that before death, this part of the body must have had very considerable dimensions" (Granville, 1825: 277). Although the number of wrinkles visible may have resulted from the dehydration of the mummification process, it may also have occurred during Irtysenu's lifetime. This statement could be supported by the symptoms of pulmonary tuberculosis recorded in the present day, including loss of appetite and unexplained weight loss. However, it can take months or years for the symptoms to develop (Dryer 2010, pp. 1-28). The ovarian cyst could also have affected weight loss, depending on what kind of cyst it was (Dryer, 2010: 6). If an ovarian cyst becomes large enough to press on the abdomen, symptoms such as nausea and vomiting can develop, which, in theory, could have affected the life of Irtysenu, making it challenging to keep food down and, therefore, lose weight.

However, an ovarian cyst can also produce rapid weight gain (Neighbors et al., 2010: 367-368). A third scenario could be that the weight loss was a side effect of both the ovarian cyst and the tuberculosis infection overwhelming her body. Both benign and malignant ovarian cysts can weaken the immune system, both directly and indirectly through hormonal imbalance, inflammation, stress, among others, making her more susceptible to contracting other diseases (Neighbors et al. 2010: 367-368). This is also an excellent example of comorbidities in an Egyptian individual, with two diseases present: an ovarian cyst and tuberculosis.

If Irtysenu had been discovered today, it would have been possible to conduct a CT scan of the ovarian cyst identified by Dr. Granville (1825) to assess its size and characteristics, which would have aided research into the pathology of the cyst. This could also have supported the hypothesis of the cyst's benign status (Harer et al., 2014: 106). The ovarian cyst could have made her more receptive to other diseases, such as malaria and/or tuberculosis, especially if the cyst had been symptomatic. Furthermore, it would have been possible to perform a chest X-ray to look for lesions

or tubercles in the lungs in relation to a tuberculosis infection. Dr. Granville examined the lungs in 1821, but there are no notes regarding lesions or tubercles being present, and neither has there been a more recent examination of the lungs (Granville, 1825: 296).

Ethical Consideration

Despite the advancement of methods, the dehumanization of ancient remains is still an issue, as seen with 'Granville's Mummy', arguably stripping the personhood or rights of the deceased individuals, as ancient remains are not able to provide consent to the use of their remains (Fox & Hawks, 2019; Robbins Schug et al., 2025). Today, ancient remains are often stored in boxes in storage rooms, laboratories or museums (Robbins Schug et al., 2025: 2), used for teaching in schools or exhibitions at museums (Robbins Schug et al., 2025: 6-7), among others, often removed from other archaeological material found with the individual, supporting the issue of dehumanization of ancient remains (Fox & Hawks, 2019: 581-583; Robbins Schug et al., 2025: 1-16). Especially for ancient Egyptian individuals, various items were provided to ensure safe passage to and comfortable living in the afterlife (Meskell, 1999: 184-185). The latter being a greater issue with the antiquity dealers of the 18th and 19th centuries, who would also switch around the mummies and their coffins, resulting in the loss of identity of the individuals (Vandenbeusch et al., 2021).

In the case of Irtysenu and Dr. Granville, no mention of ethics or the consideration thereof was present, although there is evidence of careful consideration regarding how to conduct the autopsy and the documentation thereof (Granville, 1825, 1833). Here, it appears that he viewed her mummified remains as a beautiful and curious specimen rather than as a deceased human being, despite their remarkably well-preserved state (Granville, 1825: 301). A similar example was brought up by Fox and Hawks (2019). Here, multiple crania were sampled for DNA from the petrous bone, which is the dense bone that contains the inner ear and also has high concentrations of biomarkers. The sampling was done by drilling into the bone, essentially destroying it, without first taking photographs or using other documenting tools, such as CT scans or X-rays, to ensure morphological records of the bone, essentially destroying the personhood of the individuals (Fox & Hawks, 2019: 582).

Although modern researchers have become more ethical in their treatment of ancient remains, there are still ways to improve their handling, such as keeping individuals with their archaeological finds, reburying them when possible, and ensuring proper documentation of the individuals and their findings.

Conclusions

As this article highlights, re-examining ancient remains can provide new insights into the people of the past. Many changes have occurred over the last 200 years in how ancient remains are examined, and although ancient Egyptian mummies remain of great interest, they are no longer publicly unwrapped for entertainment. The ethics surrounding the handling of ancient remains have improved greatly, but there is still room for improvement.

Despite the original autopsy report done by Dr. Granville (1825), it does show great consideration in terms of documentation, which has aided greatly, as the once perfectly preserved ancient individual was destroyed during the autopsy process. However, Dr. Graville's original findings, such as his estimation of race, possible obesity, and cause of death, have changed through time since newer examination technologies have been developed. This article provides a reconstruction of a single individual's journey through the medical field, attempting to illustrate how methods and technologies can change the outcomes of, for instance, racial theories and cause-of-death assessments, as well as the ethical concerns of examinations.

However, there is much to learn from ancient individuals, and great consideration should be given before using destructive methods. Nonetheless, discoveries are still possible with less and less material, and there may still be more to learn about Irtysenu, Lady of the House.

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Net Sinkers in Prehistoric Archaeology: Archaeological Significance, Typology, and Function in the Levant and Beyond

Anna-Marie Marko

Abstract

Fishing represents one of the earliest technological domains of human subsistence, yet its archaeological visibility is limited due to the perishable nature of organic gear. Net sinkers - stone or clay weights used to submerge nets - provide one of the most durable indicators of prehistoric fishing practices. This review article synthesizes archaeological evidence for net sinkers in a global perspective, with particular focus on the Epipaleolithic and Neolithic Levant, where some of the earliest and most continuous assemblages have been documented. Comparative evidence from Europe, North America, Africa, and Asia demonstrates both technological convergence in net sinker design and regional variability reflecting local environments and fishing strategies. Typological analysis highlights recurring forms such as notched, grooved, perforated, and unmodified cobbles, while raw material studies underscore the opportunistic use of locally available stone or clay. Functional and spatial analyses reveal patterns in fishing technologies, changing subsistence strategies linked to dietary diversification, and the cooperative labour involved in net fishing. By bridging gaps left by the poor preservation of organic gear, net sinkers illuminate the technological and social dimensions of aquatic resource exploitation in prehistory.

Keywords: net sinkers; prehistoric fishing; Epipaleolithic; Levant; aquatic resources

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يمثل صيد الأسماك أحد أقدم المجالات التكنولوجية للعيش البشري، لكن رؤيته الأثرية محدودة بسبب طبيعة المواد العضوية القابلة للتحلل. تُعد ثقالات الشباك—الأوزان الحجرية أو الطينية المستخدمة لإغراق الشباك—من أكثر المؤشرات متانة لممارسات صيد الأسماك في عصور ما قبل التاريخ. تجمع هذه المقالة الاستعراضية الأدلة الأثرية لثقالات الشباك من منظورعالمي، مع التركيز بشكل خاص على العصرالإيبيبالايوليثي والعصر الحجري الحديث في بلاد الشام، حيث تم توثيق بعض من أقدم التجميعات الأثرية والأكثر استمراراً. تُظهرالأدلة المقارنة من أوروبا وأمريكا الشمالية وأفريقيا وآسيا التقارب التكنولوجي في تصميم ثقالات الشباك والتنوع الإقليمي الذي يعكس البيئات المحلية واستراتيجيات الصيد. يُبرزالتحليل النمطي أشكالاً متكررة مثل الصخورالمسننة والمخددة والمثقوبة والصخورغير المعدلة، في حين تؤكد الدراسات الخاصة بالمواد الخام على الاستخدام الانتهازي للحجر المحلي أوالطين. تكشف التحليلات الوظيفية والمكانية عن أنماط في تقنيات الصيد والتغييرات في استراتيجيات المعيشة المرتبطة بتنويع النظام الغذائي والعمل التعاوني المرتبط بصيد الشباك. من خلال سد الفجوات التي تركها سوء الحفاظ على المعدات العضوية، تُلقي ثقالات الشباك الضوء على الأبعاد التكنولوجية والاجتماعية لاستغلال الموارد المائية في عصور ما قبل التاريخ

Translation by
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Introduction

Fishing has been a key food source throughout human evolution, with evidence for fish consumption dating back to ~2 million years ago at Turkana, Kenya, and well-documented cases in the Levant at ‘Ubeidiya and Gesher Benot Yaʿaqov (Braun et al. 2010; Van Neer et al. 2005; Alperson-Afil et al. 2009). Although direct evidence for fishing technology is rare in the Middle (c. 300 – 50 ka) and Upper Palaeolithic (c. 50 – 11.7 ka), exceptions such as bone harpoons, barbed points, and shell fishhooks indicate the gradual emergence of specialized gear (Yellen et al. 1995; O’Connor et al. 2011; Fujita et al. 2016), supported by indirect proxies including fish remains, use-wear patterns, and isotopic data (Richards et al. 2001).

By the Late Epipaleolithic (12,550 – 9750 cal. BC) and Mesolithic (9700 – 5000/4000 cal. BC), human groups across the Levant, the Danube Gorges, the Baltic, Scandinavia, and southern Greece increasingly targeted aquatic resources, a shift often associated with Younger Dryas climatic instability (ca. 12,900–11,700 cal. BP) (Bar-Yosef Mayer 2008; Lougas 1996; Dinu 2010; Stiner and Munro 2011; Bergsvik and Ritchie 2018; Munro et al. 2021). This transition coincided with the emergence and diversification of fishing technologies, including Late Epipaleolithic bone fishhooks associated with stone line weights (Pedergnana et al. 2021), and later Mesolithic weirs, traps, and nets preserved in waterlogged contexts in Europe (McQuade and O’Donnell 2007; Zhilin 2014; Miettinen et al. 2008). Nets, traps, and other organic fishing gear likely existed earlier but rarely survive. Durable net sinkers—stone or clay weights used to submerge nets—first appear in the Epipaleolithic and Mesolithic, with notched or grooved examples widespread at sites from these periods (Nadel and Zaidner 2002), providing the earliest direct evidence for net-based fishing strategies. At Neolithic lakeshore settlements, binding or cordage occasionally preserves on the net sinkers (Bērziņš 2008; Zhilin and Savchenko 2020; Huber and Rehazek 2014).

These developments occurred alongside broader economic and social transformations, including increasing sedentism and the gradual emergence of early agricultural lifeways. In the Levant, the Natufian period marks a key threshold characterised by prolonged site occupation, intensified plant processing, and changes in social organisation (Bar-Yosef and Belfer-Cohen 1989; Bar-Yosef 1998). Reduced mobility, longer-term residence near rivers and lakes, and the reorganisation of labour likely facilitated more consistent and technologically complex fishing practices, encouraging the wider adoption and standardisation of nets and their associated sinkers.

Net sinkers are temporally widespread (ca. 23,000 cal. BP to ca. 800–300 BC) and geographically diverse (Figs. 1. and 2 ., Tab. 1.), with documented assemblages from the Epipaleolithic Levant (Nadel and Zaidner 2002; Rosenberg et al. 2016; Ourodová 2022), Mesolithic and Neolithic Europe (Bērziņš 2008; Ridley, Wardle, and Mould 2000; Huber and Gross 2018), the Woodland period in North America (Prowse 2010; Cleland 1982), Arabian Peninsula (Cavulli and Scaruffi 2011; Marrast et al. 2019) as well as the Neolithic in Vietnam (O’Connor et al. 2011) or Namibia (undated, Sandelowsky 1971).

Their broad distribution highlights both the global significance of fishing and recurrent technological solutions to shared functional challenges.

The intensification of fishing has often been interpreted through the lens of Flannery's "Broad Spectrum Revolution" (BSR), which frames expanded exploitation of aquatic and other resources as an adaptive response to demographic pressure and environmental change (Flannery 1969). However, the BSR is increasingly regarded as a debated interpretive framework rather than a singular explanatory model. Research has shown that diversification and intensification frequently developed in contexts of resource abundance and predictability, shaped by technological systems, labour organisation, and culturally mediated subsistence choices (Zeder 2012; Florin and Ramsey 2025). From this perspective, aquatic resources—particularly when exploited using nets, traps, and weirs—represent predictable and potentially high-yield resources, whose intensified use reflects the interaction of environment, technology, and social practice rather than a simple expansion into lower-ranked foods.

The purpose of this review is to examine net sinkers as archaeological artefacts, focusing on their interpretive potential, typological diversity, and functional role within broader fishing strategies across time and space.

Net sinkers in the Levant

The Levant provides an early and the most continuous record of stone net sinkers in

Figure 1: *Global distribution of archaeological sites with significant net sinker assemblages. Map © A.-M. Marko, 2025.*

prehistory, ranging from the early Epipaleolithic (25,000 – 18,500 cal BP) to the Early Bronze Age (ca. 3,700 – 2,000 BC). Sites are concentrated along the shores of the Sea of Galilee, the Hula Valley, and the Euphrates, where aquatic resources were central to subsistence (Fig. 2.). The earliest examples come from Ohalo II, a 23,000-year-old lakeshore camp on the Sea of Galilee, where 47 double-notched basalt and limestone cobbles were recovered, weighing between 150–400 g (Nadel and Zaidner 2002). Based on the morphology of the notched cobbles, wear patterns and their context, the excavators interpreted them as net sinkers or anchors for underwater traps (Nadel and Zaidner 2002, 64).

Their association with abundant fish remains — mainly cichlids and cyprinids — further supports this interpretation (Van Neer, Zohar, and Lernau 2005). At nearby Ohalo I, heavier specimens reaching 1.6 kg, including one with a circumferential groove, suggest additional roles in weighting stationary nets or traps (Nadel and Zaidner 2002).

Figure 2: *Selected Levantine sites with significant net sinker assemblages. Map © A.-M. Marko, 2025.*

Other early sites such as Eynan (‘Ain Mallaha, dated to 14,000 – 12,000 cal. BP) yielded limestone net sinkers alongside bone fishhooks and faunal evidence, pointing to the integration of multiple fishing technologies within Natufian economies (Valla et al. 1999). Similar artefacts have been reported from Abu Hureyra (dated to 13,300 – 7800 cal. BP) on the Euphrates, where notched cobbles likely served as net sinkers (Moore, Hillman, and Legge 2000). A large assemblage of over 200 notched and 300 unmodified net sinkers made of limestone originated from the Epipaleolithic site of Jordan River Dureijat (dated to 20,000 – 10,000 cal. BP, Pedergnana et al. 2021; Sharon et al. 2020; Ourodová 2022, Marko et al. in prep.).

In the Pre-Pottery Neolithic (PPN, 9,750 – 6,400 cal. BC, Birkenfeld et al. 2024), notched cobbles became increasingly standardized and widespread. At the Pre-Pottery Neolithic A (9750 – 8,500 cal. BC, Birkenfeld et al. 2024) site of ‘Ein Dishna, 151 sinkers — mostly limestone, but also basalt and flint — dominated the ground stone assemblage, with most bearing opposed notches shaped by flaking or pecking (Birkenfeld et al. 2019).

Beisamoun, a Late Pre-Pottery Neolithic B/Pre-Pottery Neolithic C (7,500 – 6400 cal. BC, Birkenfeld et al. 2024) site in the Hula Valley, produced an assemblage of 96 light limestone or dolomite sinkers ranging from 20–240 g, with an average of 64 g, often shaped into oval, trapezoidal, or rectangular forms (Rosenberg et al. 2016). Their small size has led scholars to interpret them as sinkers for cast (throwing) net, which are circular and small weights are usually distributed around its edge. Later assemblages from Tel Beit Yerah extend the sequence into the Early Bronze Age (ca. 3,700 – 2,000 BC), demonstrating continuity in this fishing tradition (Rosenberg et al. 2016). Taken

together, Levantine sinkers illustrate both technological continuity and innovation: while Epipaleolithic assemblages are dominated by cobbles with two opposed notches on their long sides, probably used with stationary seine or gill nets (Fig. 3.), the lighter examples from Beisamoun appear better suited to throwing nets, a more mobile fishing technique requiring repeated casting.

Archaeological Significance

The significance of net sinkers lies in their ability to illuminate aspects of prehistoric

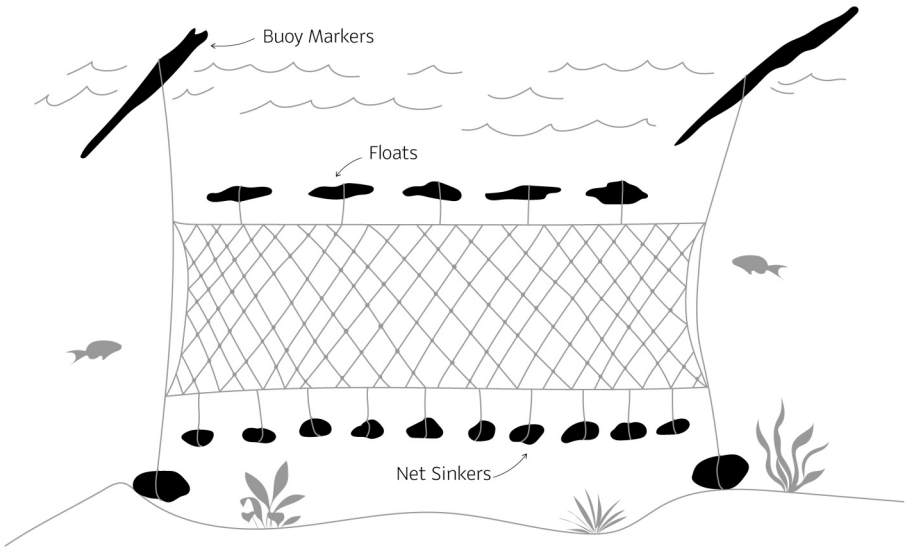

Figure 3: *Functional reconstruction of net sinkers attached to a net. Illustration © Anna Horáková.*

lifeways that are otherwise difficult to access, particularly given the scarcity of fishing evidence in the archaeological record. Archaeologists distinguish between direct and indirect indicators of fishing: direct evidence includes gear such as hooks, line weights, sinkers, nets, traps, and weirs, while indirect evidence comprises fish remains, isotopic signatures in human skeletons, or depictions of fish and fishing scenes (Sahrhage 2008; Erlandson 2001; Pajdla 2017). Yet the preservation of most fishing equipment is hampered by its organic nature. Nets, floats, rods, lines, and traps generally decay unless deposited in exceptional contexts such as waterlogged Alpine pile dwellings or Scandinavian Lake sites, leaving only rare survivals such as cord fragments or imprints (Huber and Gross 2018).

Ethnographic studies demonstrate that traps and scoop nets were likely widespread (Altman 2006; Dounias et al. 2016; Rau 1884), but these are practically invisible archaeologically because their wooden or vegetal components are rarely preserved, and the stones used to weigh them were unmodified making them indistinguishable from regular stones found at the site. Likewise, fishing with bare hands, sharpened wooden spears, stupefying techniques with poisons or mud, or unshaped stone

projectiles leave little or no trace (von Brandt 1984; Dounias et al. 2017). In contrast, hooks or gorges sometimes survive, occasionally with associated shell lures (Cavulli and Scaruffi 2011). Within this context, net sinkers stand out as the most persistent and recognizable inorganic component of net fishing technologies, making them disproportionately valuable for reconstructing prehistoric fishing practices.

Net sinkers illuminate a process of subsistence intensification in the Epipaleolithic Levant in which technological innovation and dietary diversification were mutually reinforcing. As human groups broadened their subsistence base beyond large terrestrial game to systematically exploit fish, molluscs, and small mammals, the development of new capture technologies—such as nets and net sinkers—both facilitated and amplified this expansion of resource use. The earliest securely dated net sinkers from sites around the Sea of Galilee and the Upper Jordan Valley coincide with this transition, underscoring the growing economic importance of aquatic resources (Nadel and Zaidner 2002; Ourodová 2022). Their appearance represents a significant technological development, signalling not only an increased reliance on aquatic foods but also the emergence of specialized equipment designed for mass-capture strategies.

In Europe, Neolithic sites such as Sārnate (4365-2850 cal. BC) in Latvia reveal a similarly systematic organisation of fishing, where notched as well as unmodified cobbles were used in combination with bark floats to weight and stabilize large nets (Bērziņš 2008). In North America, extensive assemblages of side-notched and end-notched sinkers document communal netting practices tied to seasonal fish runs, highlighting how such tools facilitated cooperative labour and large-scale harvesting strategies (Prowse 2010). Taken together, these examples illustrate how the durable presence of net sinkers provides a rare window into the economic transformations and technological adaptations that characterized early Holocene subsistence.

The spatial clustering of net sinkers at archaeological sites provides important insights into activity areas and site function, moving interpretation beyond typology into behavioural reconstruction. At Jordan River Dureijat, GIS-based analysis (Density-based clustering and optimised hot-spot analysis) revealed discrete clusters of notched and unmodified cobbles that may represent the remains of individual nets left in situ, offering rare glimpses into the organisation of fishing on-site (Ourodová 2022, Marko et al. in prep.). A comparable case comes from Neolithic site of Cham-Eslen (4,300 – 3,700 cal. BC) in Switzerland, where sinkers were recovered in association with preserved cordage and fragments of the nets themselves, demonstrating the direct link between these artefacts and fishing gear (Huber and Gross 2018). Similar spatial concentrations at other lakeshore and riverside sites suggest activity loci where nets were manufactured, repaired, or stored, indicating that fishing was not a marginal activity but a structured and recurrent part of settlement life. Such clustering therefore provides evidence not only of fishing techniques but also of the organisation of labour and the repeated use of spaces for aquatic resource exploitation.

Typology

Net sinkers occur in a wide variety of forms, reflecting both raw material availability and cultural traditions. Typologically, they can be grouped into several broad categories: notched cobbles, unmodified cobbles, grooved weights, perforated weights, and clay sinkers (Fig. 4., Prowse 2010; Rosenberg et al. 2016; Hiep and Huffer

Region	Site(s)	Period	Freshwater/ Marine	Raw Materials	Forms	Reference
Levant	Ohalo II, Beisamoun, Ein Dishna, Jordan River Dureijat	Epipalaeolithic–Neolithic	Freshwater	Limestone, basalt, chert	Mainly side-notched, some end-notched	Nadel and Zaidner 2002; Rosenberg, Agnon, and Kaufman 2016; Sharon et al. 2020)
Europe	Cham-Eslen (Switz.), Sārnate (Latvia)	Neolithic	Freshwater lakes	Limestone, quartzite, sandstone, schits	Unmodified + side-notched	Bērziņš 2008; Huber and Gross 2018
North America	Lamoka Lake, Skyway, Recliner (USA/Canada)	Archaic–Woodland	Freshwater rivers/lakes	Siltstone, sandstone	Massive side-notched assemblages (thousands)	Prowse 2010
Asia	Đa Bút (Vietnam), Maedun Cave (Korea)	Neolithic / Late Palaeolithic	Freshwater / marine	Schist, limestone, terracotta	Grooved, perforated, end-notched, atypical	Hiep and Huffer 2015; Phys.org 2018
Africa	Namibia (near Mariental)	Uncertain	Freshwater	Shale	Atypical, side-notched	Sandelowsky 1971
Arabian Peninsula	Ra’s al-Khabbah, Suwayh 1	Neolithic	Marine	Limestone, calcite, quartzite	Side-notched, end-notched, grooved, partly incised	Cavulli and Scaruffi 2011; Marrast, Béarez, and Charpentier 2019

Table 1: *Selected archaeological sites with significant assemblages of net sinkers around the world (simplified and adapted from Ourodová 2022, Appendix 3-7 © A.-M. Marko, 2025)*

2015). Within these broad classes, however, significant regional variation exists, pointing to both technological convergence and local innovation (Rosenberg et al. 2016; O'Connor et al. 2011).

Notched cobbles are among the most common forms worldwide (Sandelowsky 1971; Nadel and Zaidner 2002; Prowse 2010; Marrast et al. 2019). In the Levant, natural limestone cobbles were modified with one or more opposed notches, often created by flaking or pecking (Nadel and Zaidner 2002; Rosenberg et al. 2016; Ourodová 2022). Assemblages from Epipaleolithic and Neolithic sites such as Ohalo II, Beisamoun, and 'Ein Dishna demonstrate how light, standardized weights were adapted for use with throwing nets, while heavier examples may have anchored stationary nets or traps.

Comparable notched forms occur in North America, where archaeologists distinguish between side-notched, end-notched, both-notched, and atypical classes, particularly in the Great Lakes region (Prowse 2010). Here, the large numbers of standardized sinkers — sometimes in the thousands — suggest planned net production and communal fishing strategies. Similar typological variability is seen in coastal Arabian assemblages, where end-notched cobbles occur alongside lighter partly incised flat stones at Ra's al-Khabbah (Cavulli and Scaruffi 2011), and side-notched cobbles and lighter grooved flat pebbles at Suwayh 1 (Marrast et al. 2019).

These examples demonstrate that while the principle of opposed notching was widespread, regional adaptations could generate distinct morphological variants suited to different fishing environments and techniques.

Unmodified cobbles, by contrast, were often selected for their natural shape and weight, with minimal or no modification. At waterlogged Neolithic lakeshore sites such as Cham-Eslen in Switzerland, almost 1000 unmodified cobbles were recovered, many with bast bindings or cordage impressions that confirm their use as sinkers (Huber and Rehazek 2014). Similar finds at Sārnate in Latvia demonstrate that unmodified cobbles were used alongside notched examples, often wrapped in birch bark and tied with bast (Bērziņš 2008). The presence of both modified and unmodified sinkers within single assemblages underscores the flexibility of prehistoric fishers in adapting readily available stones for net weighting.

Grooved weights represent a more formalized solution, in which a transverse groove was carved around the circumference of a cobble to facilitate attachment. Such examples are known from Mesolithic–Neolithic contexts at Lepenski Vir on the Danube, where large, grooved cobbles were likely used to weight lines for catching sturgeon in strong currents (Antonovic 2006). In Southeast Asia, Neolithic sites of the Đa Bút culture in Vietnam produced small, grooved stone sinkers, sometimes with cruciform arrangements of multiple grooves, which may have secured nets or traps in variable aquatic environments (Hiep and Huffer 2015).

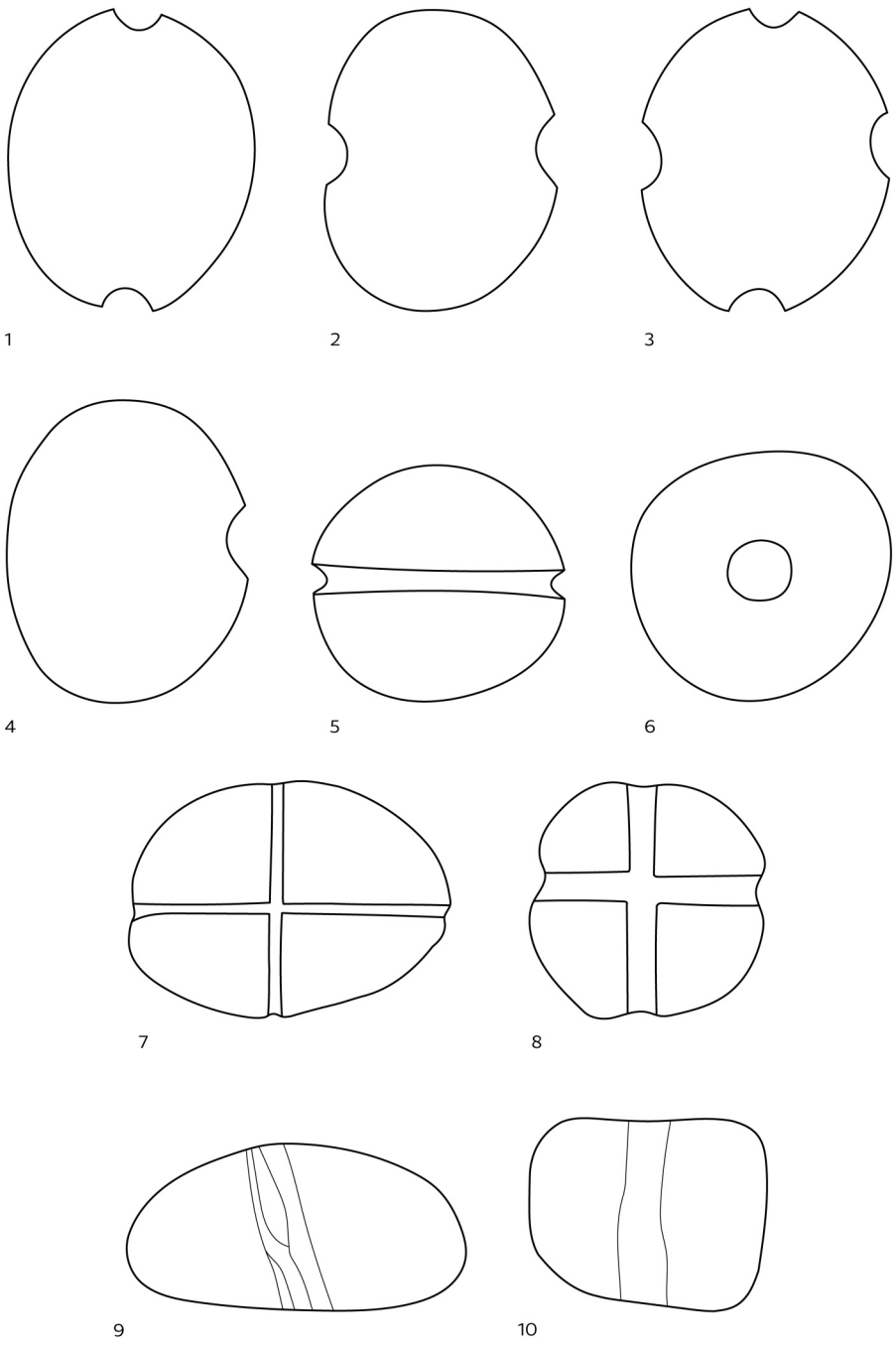

Figure 4: *Typology of net sinkers: 1) end-notched, 2) side-notched, 3) double-notched, 4) atypical, 5) grooved, 6) rounded, perforated, 7) and 8) grooved cross-like, 9) and 10) unmodified cobbles with preserved organic binding.*
Illustration © Anna Horáková.

Perforated weights, in which holes were drilled or pecked through stone blanks, appear especially in South Asia. In Harappan India, miliolite discs with perforations served as sinkers (Ruikar 2013). Clay sinkers appear sporadically in Oceania and Southeast Asia. In Vietnam and Indonesia, small terracotta sinkers with perforations or grooves were hand-shaped and sun-dried (Hiep and Huffer 2015; O'Connor et al. 2011). At Leang Buida in Sulawesi, clay sinkers with twin perforations were recovered alongside fish remains and lures, dating to the late Holocene (O'Connor et al. 2011). The use of clay rather than stone highlights adaptation to raw material availability, particularly in island or coastal settings where cobbles were scarce.

Taken together, these categories illustrate both the global importance of net sinkers and their regional variability. While the basic principle of weighting nets with durable objects is universal, the specific forms — whether notched, unmodified, grooved, perforated, or clay — reflect local ecological conditions, technological choices, and cultural traditions. In this sense, net sinkers embody both technological convergence in function and cultural divergence in form.

Raw materials

The manufacture of net sinkers was closely tied to the natural availability of raw materials in local landscapes. In most cases, fishers selected water-worn cobbles from riverbeds, lakeshores, or coastal zones, as these offered rounded forms and densities well suited to submerging nets (Nadel and Zaidner 2002; Bērziņš 2008). Limestone and basalt cobbles dominate the Levantine assemblages, reflecting the geology of the Jordan Valley and adjacent uplands (Ourodová 2022).

In Europe, granites, sandstones, and glacial erratics were often employed, as seen at Cham-Eslen in Switzerland and Sārnate in Latvia, where cobbles of varied lithology were wrapped with bast or bark to form functional sinkers (Bērziņš 2008; Huber and Rehazek 2014). The expedient selection of locally available stone underscores the practical nature of sinker manufacture: unlike lithic tools requiring high-quality knappable material, any dense cobble of adequate weight could be adapted for use, whether through notching, grooving, or simply binding in its natural state.

In other regions, raw material choices highlight both environmental constraints and cultural preferences. In Southeast Asia and Oceania, clay sinkers were manufactured where cobbles were scarce, providing a lightweight but effective alternative (O'Connor et al. 2011; Hiep and Huffer 2015). These examples demonstrate that raw material selection was not random but conditioned by geology, availability, and intended function.

Function

The primary function of net sinkers was to weigh down fishing nets, keeping them spread and submerged in the water. Their size and weight varied considerably, reflecting different fishing strategies and net types. Light notched cobbles, such as

those from Beisamoun, have been interpreted as components of throwing nets, which required relatively small, portable weights for effective casting (Rosenberg et al. 2016). By contrast, heavier examples, such as those from Epipaleolithic Levantine sites, Sārnate in Latvia or North American riverine sites, were likely attached to seine nets, or gill nets, which demanded stronger anchoring to remain fixed in place (Bērziņš 2008; Prowse 2010; Nadel and Zaidner 2002). In some contexts, larger cobbles may have served in traps or stationary weirs (Fig. 5.), while lighter variants facilitated mobile and communal fishing strategies.

Experimental archaeology has provided important insights into net sinker performance. Hannold demonstrated that notch placement significantly influenced how securely cobbles could be tied with binding, with U-shaped notches holding cords more effectively than shallow V-shaped incisions (Hannold 2019). Ethnographic parallels reinforce these findings: in Cameroon and Sri Lanka, fishers attach stones to seine and gill nets using bast or cordage, with lighter sinkers employed for fine-meshed nets and heavier weights for large-scale communal fishing (Von Brandt 1984; Dounias et al. 2016). Such comparisons underline the methodological value of integrating archaeological, experimental, and ethnographic data when reconstructing prehistoric fishing practices.

Use-wear and preservation evidence add further confirmation of function. At Cham-Eslen in Switzerland, rope imprints preserved on cobbles directly attest to their attachment to nets (Huber and Gross 2018), while at the Mesolithic site of Beregovaya 2 (9,350 – 5,295 cal. BC) in Russia, remnants of bast cordage survived, providing rare direct evidence of fibre bindings (Zhilin and Savchenko 2020). Diagnostic traces such as percussion scars, U- or V-shaped notches, and cord imprints distinguish net sinkers from ordinary cobbles, making them methodologically significant despite their deceptively simple form.

Figure 5: *Reconstruction of a net with attached net sinkers from a museum in Japan and a trap with attached sinkers from the Upper Galilee Museum of Prehistory (courtesy of Gonen Sharon).*

Beyond their practical role, net sinkers also reflect aspects of labour organisation: the construction and operation of large nets required dozens of sinkers and therefore collective effort in both manufacture and use. Their presence at archaeological sites thus speaks not only to subsistence strategies but also to the social dynamics of cooperative fishing and seasonal resource exploitation.

Taken together, the functional and use-wear evidence shows that net sinkers, while simple in form, were integral components of sophisticated fishing strategies. Their variability in size, modification, and spatial clustering speaks to different modes of resource exploitation, from small-scale opportunistic fishing to large-scale communal harvesting. Importantly, the study of their function highlights not only technological adaptation but also the organisation of labour, situating net sinkers within broader discussions of Mesolithic and Neolithic subsistence, settlement, and social practice.

Discussion

The study of net sinkers highlights the methodological challenges and interpretive opportunities posed by otherwise modest artefacts. Unlike lithic tools or ceramics, sinkers are rarely standardized, often expediently made, and easily mistaken for ordinary cobbles. For this reason, they were long overlooked in excavations or relegated to the margins of typological studies. Yet, their distribution is geographically broad, extending from the Epipaleolithic Levant to Mesolithic Europe, North America, Africa, and Asia. This ubiquity, coupled with recurring solutions such as opposed notches or circumferential grooves, underscores a fundamental technological convergence: wherever humans fished with nets, the need to submerge and stabilize them produced similar artefactual forms.

Despite this convergence, net sinkers are embedded within specific ecological and cultural contexts. Raw material selection reflects local landscapes—limestone and basalt in the Levant; limestone, quartzite, sandstone, and schist in Europe; clay in Southeast Asia—demonstrating technological flexibility.

Typological variability likewise corresponds to different fishing strategies: notched cobbles likely weighted seine and gill nets (Prowse 2010); lightweight sinkers such as those from Beisamoun were suited to casting nets (Rosenberg et al. 2016); and larger grooved or heavy notched weights may have stabilized nets in strong currents (Antonovic 2006). Experimental and ethnographic parallels confirm that weight, notch placement, and raw material all influenced performance, and that sinkers formed part of wider technological systems including floats and nets (Rau 1884; Dounias et al. 2016; Prowse 2010; Hannold 2019).

In the Epipaleolithic Levant, the spatial clustering and abundance of net sinkers at riverine and lakeshore sites underscore their structural role in subsistence organisation. Their proliferation coincides with sustained occupation of the lacustrine and riverine environments of the Jordan Rift Valley, particularly around the Sea of Galilee and the

Upper Jordan Valley (Nadel and Zaidner 2002; Rosenberg et al. 2016; Sharon et al. 2020). These ecosystems supported predictable, seasonally concentrated fish populations, making investment in net-based mass-capture technologies economically rational.

Although often interpreted through the lens of the "Broad Spectrum Revolution," the Levantine evidence does not simply signal expansion into lower-ranked resources. The scale and density of net sinker assemblages instead indicate systematic targeting of reliable, high-yield aquatic foods. From Ohalo II to Jordan River Dureijat, the repeated association of net sinkers with abundant fish remains and early hooks demonstrates that net fishing was planned and recurrent rather than incidental, in some cases preserving the outlines of discarded nets (Ourodová 2022). Preserved impressions attest to substantial fibre technologies and sustained technical expertise.

The abundance of early net sinkers therefore reflects the scaling of coordinated mass-capture strategies enabled by advances in fibre production, net construction, and maintenance. Such systems required logistical planning, labour coordination, and knowledge transmission, linking technological innovation to increasingly stable settlement patterns. Intensified fishing thus emerged from the interaction of ecological opportunity, technological capacity, and socially mediated subsistence choices, rather than as a passive response to resource stress.

Comparable spatial patterning is evident beyond the Levant. In north-eastern Europe, assemblages from Sārnate and Šventoji accumulated in discrete zones within lakeshore settlements, possibly marking areas of net repair, storage, or repeated casting (Bērziņš 2008). Similar concentrations occur in North America, particularly around the Great Lakes, where sites yielding thousands of net sinkers attest to large nets and mass-fishing operations (Cleland 1982; Prowse 2003, 2010; Hannold 2019). Ethnographic parallels emphasize that such practices are typically collective, pooling labour to exploit seasonal fish runs efficiently (Von Brandt 1984; Dounias et al. 2016).
Net sinkers therefore provide rare material evidence for cooperative economies structured around predictable aquatic resources.

Within broader anthropological debates, net sinkers are best understood not as passive indicators of dietary diversification but as material expressions of evolving technological knowledge, labour organisation, and social practice. At sites such as Ohalo II and Beisamoun, their association with permanent or semi-permanent settlement structures indicates that fishing contributed to the subsistence base supporting longer-term occupation.

Viewed comparatively, the persistence and widespread adoption of net sinkers reflect diverse regional pathways through which aquatic resource exploitation became embedded in early Holocene economic and social systems.

Conclusion

This study demonstrates that net sinkers constitute a robust and analytically powerful proxy for reconstructing prehistoric fishing practices. Anchored in the Epipaleolithic–Neolithic transition, particularly within the Levantine record, their early appearance and patterned deposition reveal that fishing was not an opportunistic supplement but a structured, technologically informed, and often cooperative subsistence activity.

Unlike most organic fishing gear, net sinkers preserve clear signals of technological choices, labour organisation, and seasonal scheduling, allowing practices to be traced across sites and through time. In doing so, they link local ecological adaptations to broader processes of economic intensification and emerging sedentism in the early Holocene. Continued integration of typological, spatial, and experimental approaches will further sharpen their capacity to illuminate how aquatic resource use shaped early subsistence economies and social life.

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When Greeks Roamed the Nile. Pre-Hellenistic Greek Networks in Egypt: Trade, Settlement, and the Cultural Foundations of Ptolemaic Legitimacy

Ana Belén Rumí Gutiérrez

Abstract

The interconnections of the ancient Mediterranean, initiated during Minoan maritime trade networks, persisted despite disruptions caused by the invasions of the Sea Peoples around 1200 BCE, as witnessed in the 1884 discovery of Naukratis by Flinders Petrie. Evidence from Naukratis demonstrates that Graeco-Egyptian trade continued after the fall of the Mycenaean world and before Alexander the Great's conquest of Egypt in 332 BCE. While Naukratis was long considered the only officially recognized Greek settlement in Egypt, more recent archaeological investigations at sites such as Thonis-Heracleion, Thmuis, and the Metelis region suggest a broader and more enduring Greek presence prior to the Ptolemaic era.

This paper seeks to investigate the question: To what extent did pre-Hellenistic Greek settlements in Egypt influence the later acceptance of the Ptolemaic dynasty into the pharaonic tradition, particularly in a context where dynastic legitimacy was not solely achieved through marital alliances? Using a comparative archaeological approach, the study analyzes material culture from Greek-identified sites in the Nile Delta dated between the 7th and 3rd centuries BCE, examining these alongside textual sources to trace cultural and economic continuities.

The paper argues that a sustained Greek presence, embedded through trade, religious activity, and urban settlement, laid important groundwork for the Ptolemaic dynasty's legitimacy in Egypt. This evidence challenges narratives of abrupt cultural imposition and instead suggests a gradual process of integration rooted in long-standing Graeco-Egyptian interaction.

Keywords: Graeco-Egyptian; maritime trade networks; Naukratis; Ptolemaic Egypt

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Hellenistic and Ptolemaic Egypt, Graeco-Egyptian Relationships, Greco-Egyptian Integration and Local Acceptance.

استمرت الترابطات الإجتماعية والإقتصادية لشعوب حوض البحرالأبيض المتوسط القدماء، التي بدأت خلال شبكات التجارة البحرية المينوية، وذلك بالرغم من الاضطرابات الناجمة عن غزوات شعوب البحر حوالي 1200 قبل الميلاد، كما في حالة اكتشاف نوكراتيس عام 1884 من قبل فلندرز بتري. تُظهر الأدلة من نوكراتيس أن التجارة المصرية اليونانية استمرت بعد سقوط العالم الميسيني وقبل فتح الإسكندرالأكبر لمصرعام 332 قبل الميلاد. على الرغم من أن نوكراتيس اعتُبرت لفترة طويلة المستوطنة اليونانية الوحيدة المعترف بها رسمياً في مصر، فإن التحقيقات الأثرية الأكثر حداثة في مواقع مثل ثونيس-هرقليون وتموي والمنطقة الميتيلية تشيرإلى وجود يوناني أوسع وأكثراستمرارية قبل العصرالبطلمي.

تسعى هذه الورقة إلى التحقيق في السؤال: ما مدى تأثيرالمستوطنات اليونانية قبل الهلينستية في مصرعلى القبول اللاحق لسلالة البطالمة في التقليد الفرعوني، وخصوصا إن الشرعية الحاكمة لم تكن تأتي فقط من خلال التحالفات الزوجية؟ باستخدام نهج أثري مقارن، تحلل الدراسة الثقافة المادية من المواقع المحددة بأنها يونانية في دلتا النيل المؤرخة بين القرنين السابع والثالث قبل الميلاد، مع فحص هذه الأدلة إلى جانب المصادر النصية لتتبع الاستمراريات الثقافية والاقتصادية.

تؤكد الورقة أن الوجود اليوناني المستدام، المدمج من خلال التجارة والنشاط الديني والاستيطان الحضري، وضع أساساً مهماً لشرعية سلالة البطالمة في مصر. تُطعن هذه الأدلة في الروايات المتعلقة بفرض ثقافي مفاجئ وبدلاً من ذلك تشير إلى عملية تدريجية للتكامل متجذرة في التفاعل اليوناني المصري طويل الأمد.

Translation by
Mahmoud Alsayed Ahmed,
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Introduction

Extensive scholarship has focused on the governance of the Ptolemaic dynasty, which ruled Egypt from 323 to 31 BCE, making it the longest-reigning royal house in Egyptian history. Emerging after Alexander the Great's conquest in 332 BCE, the Ptolemies are often studied for their political structures, social policies, and cultural programs, including artistic patronage. Notable contributions by Fraser (1972), Bowman (1996), and Vanoyeke (2000) reflect this interest. However, comparatively few studies examine the underlying conditions that facilitated the Ptolemies' rise to power. Most existing literature attributes their legitimacy primarily to Alexander the Great, whose reception as a divine savior and pharaoh, particularly during his visit to the oracle at Siwa Oasis (Arrian, Anabasis III.1.1–1.4; Bell 1965, 37; Gómez 2007, 43), is seen as foundational. Ptolemy I Soter, initially appointed as satrap, later claimed dynastic legitimacy by associating himself with Alexander, eventually proclaiming himself pharaoh in 305 BCE, almost two decades after Alexander's death (Vanoyeke 2000, 54; Moretti 1981, 199).

Long before the foundation of the Greek trading settlement of Naukratis in the 7th century BCE, interactions between the Aegean and Egypt had already begun to take shape. These early connections can be traced back to the Minoan and Mycenaean civilizations (ca. 2000–1100 BCE), which maintained maritime contact through trade and cultural exchange (Merrillees 1972, 281; Kemp and Merrillees 1980, 268–281; Wachsmann 1998, 295). Archaeological evidence, including Mycenaean pottery in Egyptian contexts and Egyptian objects in Aegean sites, confirms these early interactions (Cline 1990; Merrillees 1972, 1998; Sevilla Cueva 1991, 12).

During the Mediterranean Late Bronze Age (ca. 1600–1100 BCE), diplomatic and commercial exchange intensified, particularly under pharaohs such as Amenhotep III. Although these exchanges declined following the collapse of the Mycenaean world and the upheavals associated with the Sea Peoples, a mysterious group of maritime raiders whose origins remain unknown (Cline 2014, 172; Alvar 1989, 43–44; Díaz Alonso 2015, 208–229) around 1200 BCE, contact gradually resumed by the 9th and 8th centuries BCE. This period of renewed engagement saw Greek merchants and mercenaries appearing more frequently in the Nile Delta, not only at Naukratis but also at key eastern sites such as Tell Dafana (Daphnae). These early encounters established the socio-economic groundwork for the formalized settlements of the Saite and Ptolemaic periods.

This study proposes a complementary hypothesis: that pre-existing Greek settlements in Egypt, evident through trade, cultural exchange, and long-term habitation, may have facilitated the Ptolemies' integration into the pharaonic tradition, distinguishing their rule from earlier foreign powers such as the Persians.

By examining archaeological and textual evidence from key sites across the Nile Delta and broader Egyptian landscape, this article investigates the research question: *To what extent did pre-Hellenistic Greek settlements in Egypt influence the later acceptance of the Ptolemaic dynasty into the pharaonic tradition?*

Early Greek-Egyptian Interactions: Chronology and Evidence

While Greek-Egyptian contact originated in the Mediterranean Late Bronze Age through Minoan and Mycenaean maritime networks (Kemp and Merrillees 1980, 268–281; Wachsmann 1998, 295), the subsequent disruption associated with the Sea Peoples necessitated a re-establishment of these ties during the 7th century BCE. This new era marked a shift from intermittent diplomatic exchange to a structured, permanent Greek presence centered in the Delta (James 2003; Möller 2000, 2005, 2019). This study focuses on a specific network of these settlements, particularly Naukratis, Thonis-Heracleion, Mendes, Thmuis, Kom Wasit, and Kom al-Ahmer, which demonstrate varying degrees of Greek integration from the late 7th century BCE through the late 4th century BCE. Across these locations, archaeological markers such as Greek-style ceramics, domestic architecture, and votive offerings point to a transition from seasonal trade to long-term, semi-permanent habitation (Tab. 1).

Systematic excavations, such as those conducted by the British Museum at Naukratis and the IEASM at Thonis-Heracleion, provide concrete evidence for this longstanding cultural hybridity (Robinson and Goddio 2015; Möller 2005). These are complemented by extensive studies at Mendes-Thmuis and Kom Wasit-Kom al-Ahmer, where the material record, specifically the presence of imported and locally produced Greek-style transport amphorae and fine wares, illustrates sustained socio-economic interaction (Marchiori 2014; Kenawi 2019; Kenawi and Marchiori 2025, XIX; Reghinham 2025, 197-208). Numismatic and artifactual distributions further support this integration,

suggesting that these sites functioned as sophisticated regional hubs with multi-ethnic populations well before the transition to the Hellenistic period (Asolati et al. 2019). Collectively, these findings demonstrate that pre-Hellenistic Greek settlements functioned as both economic and cultural bridges, characterized by a material culture that blended Hellenic and Egyptian influences.

Pre-Hellenistic Greek Settlements and Their Impact on the Ptolemaic Integration into Pharaonic Tradition

Traditionally, Naukratis has been considered the only officially sanctioned Greek *emporion* in Egypt (Herodotus, Histories 2.178). Herodotus' account suggests an institutionalized religious and cultural presence, noting that Amasis "*gave those who came to Egypt the city of Naucratis to dwell in*.".

However, the claim that Naukratis was an isolated enclave has been challenged by archaeological evidence from sites including Sais, Athribis, Bubastis, Tell el-Maskhuta, and Daphnai in the Delta, as well as Memphis and Saqqara along the Nile Valley (Vittmann 2003, 198; Sevilla Cueva 1994; Fraser 1972). To understand the depth of this integration, this study employs a comparative archaeological approach focused on specific "*micro-regions*" within the Delta.

Table 1: *Major Archaeological Sites in Egypt with Evidence of Pre-Ptolemaic Greek Presence.*
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Site/Project	Location	Excavation History (Key Phases)	Greek Presence / Finds	Key Discoveries & Notes
Naukratis	Western Delta	1884–1903 (Petrie, Gardner); 1977–1982 (Coulson & Leonard); 2004–2024(British Museum)	7th c. BCE – Byzantine	Sanctuaries (Hellenion), Greek pottery, figurines, and the Great Temenos.
Thonis-Heracleion	Aboukir Bay	1996–Present (IEASM/Goddio)	6th–4th c. BCE (Peak)	Aphrodite sanctuary, Greek weaponry, shipwreck "baris," and Saite-era artifacts.
Mendes	Central Delta	1964–1980 (NYU); 1990–Present (Penn State/Redford)	Late Period / Saïte	Attic pottery, commercial traces, and imported transport amphorae.
Thmuis	Central Delta	2009–Present (Univ. of Hawai'i)	Late Period – Ptolemaic	Domestic Greek-style architecture, kilns, and ceramic assemblages.
Kom al-Ahmer / Kom Wasit	Western Delta	2012–Present (Univ. of Padua/Kenawi)	Late Period – Ptolemaic	Greek-style dwellings, structural remains, and numismatic evidence.

The selection of Naukratis, Thonis-Heracleion, Mendes, Thmuis, Kom Wasit, and Kom al-Ahmer is based on three specific criteria:

1. Chronological Continuity and Evidence: Selected sites provide clear archaeological evidence—primarily through ceramic and numismatic data—of sustained occupation from the Saite/Persian periods (7th–5th centuries BCE) through the early Ptolemaic transition.

2. Material and Functional Hybridity: Each site exhibits a demonstrable mix of Greek and Egyptian domestic architecture and ceramic assemblages, serving as either primary maritime gateways (emporia) or secondary inland hubs within regional trade networks.

3. Textual and Regional Correlation: Each location is explicitly mentioned in ancient textual sources, most notably by Herodotus, allowing for a direct correlation between the material culture and the historical narrative of the Late Period.

By examining the material record of these sites, we can identify consistent patterns of socio-economic and cultural hybridity. This methodology moves beyond traditional textual narratives to analyze domestic architecture, ceramic assemblages, and religious artifacts as primary indicators of long-term habitation and Greek-Egyptian environmental adaptation. Such a comparison allows us to assess how these

Figure 1: Map of the Nile Delta showing settlements with evidence of Greek presence. Map prepared by the author using Google Maps as a base, © 2025 Google.

settlements functioned as foundational nodes of exchange, providing the material evidence for the cultural substrate that existed prior to the late 4th century BCE.

Naukratis and Pre-Hellenistic Greek Presence: Foundations for Ptolemaic Integration
Naukratis, located in the western Nile Delta near present-day Kom Gi'eif, represents the earliest and most extensively studied Greek settlement in Egypt. While often defined by its role as an emporion, archaeological evidence reveals a complex urban reality that predates and informs the later Ptolemaic administrative structures. Classical sources form the foundation of our understanding, though they require critical scrutiny. Herodotus describes the city as a joint precinct granted to the Greeks by Pharaoh Amasis (570–526 BCE):

"*Amasis became a lover of the Greeks, and [...] he gave those who came to Egypt the city of Naucratis to dwell in, and to those who voyaged to the country without desire to settle there he gave lands where they might set altars and make holy places for their gods*." (Histories 2.178, trans. by Godley).

In the original Greek:

"Ἄμασὶς δὲ φίλον ἐγένετο τοῖς Ἕλλησι, καὶ ἔδωκε τοῖς ἐλθόντις εἰς Αἴγυπτον τὴν πόλιν Ναύκρατιν οἰκέειν, καὶ τοῖς ἄλλοις τῶν ἐλθόντων ἀπροσδοκήτως ἐς τὴν χώραν ἔδωκε τὰς γαῖας, ἵνα ἐπιτελέσωσιν ἱερά τῶν θεῶν αὐτῶν." (Histories 2.178)

Strabo (17.1.18), by contrast, attributes the foundation to the Milesians under Psamtik I (664–610 BCE). This divergence reflects broader historiographical questions; when using these sources, one must account for potential Hellenocentric bias, where complex, organic settlement processes are often reduced to singular "foundational acts" by specific monarchs (James 2003).
The rediscovery of Naukratis began with Petrie (1884), followed by Gardner (1885), Hogarth (1889, 1903), Smith (1921), and Ali (1944). Systematic excavations resumed in 1977–78 under Coulson and Leonard, culminating in the British Museum's project Naukratis: Greeks in Egypt from 2012, which catalogued over 18,000 objects (Gardner 1886; Leonard 1997; British Museum 2017).

Archaeologically, Greek activity at Naukratis can be traced to at least the early 7th century BCE. Corinthian pottery dated around 620 BCE provides evidence of presence prior to Amasis' reign. While imported ceramics do not necessarily indicate permanent settlement (Austin 1970, 20-22), stratigraphy and architectural remains suggest that by the 6th century BCE, Greek populations were organizing within the city, establishing sanctuaries, domestic spaces, and civic structures that testify to a sustained, embedded presence. The city's layout reveals a complex, multicultural urban center divided into Greek and Egyptian quarters (Sevilla Cueva 1992, 180-182; Villing 2015 and 2019, 218).

Notably, Naukratis contained at least six temples, including the Hellenion—a joint sanctuary of nine Greek cities—and the Great Temenos, alongside temples dedicated to Aphrodite, Apollo, Hera, and the Dioscuri (fig. 2). The sanctuary of Aphrodite appears to be the oldest, based on ceramic assemblages (Möller 2000). The temenos of Apollo dates to the early 6th century BCE, with a major construction phase between 530–510 BCE.

Adjacent is the sanctuary of Hera, attributed by Herodotus to Samian settlers. Initially misidentified as a palaestra, it was confirmed as a temple by Gardner through votive inscriptions (Leonard 1997). The Hellenion itself remains a subject of debate. While Petrie initially mislocated it, Hogarth uncovered substantial architectural remains in the north, including rooms enclosed by a massive wall. Ceramic evidence indicates three construction phases: 6th century BCE, 5th century BCE (with 4th-century renovations), and a final 3rd-century BCE Ptolemaic phase (Höckmann and Möller 2006, 11-22). The Great Temenos, initially thought to be a military camp, likely represents an Egyptian temple (Sevilla Cueva 1992, 180-182), illustrating the spatial coexistence of Greek and Egyptian sacred spheres.

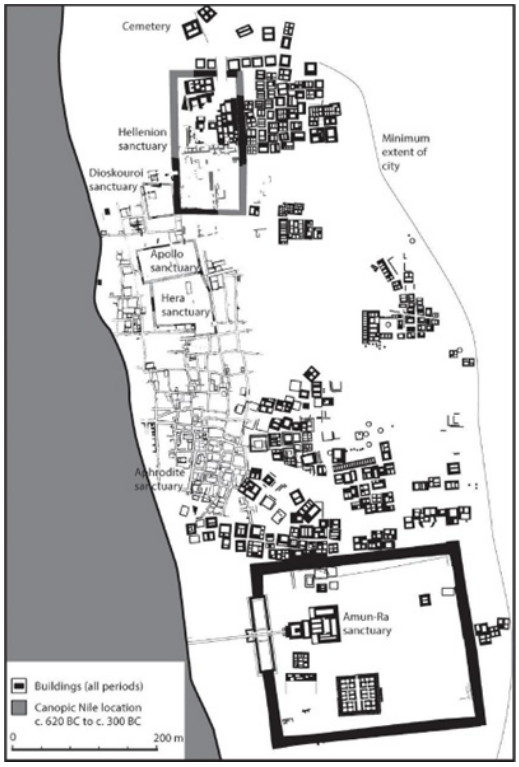

Figure 2: *Map of Naukratis showing its buildings.*
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Naukratis' material culture reflects this convergence. The Naukratis Stele (380 BCE) formalizes Greek religious presence and demonstrates Egyptian recognition of Greek institutions (fig. 3). Such embedded interactions—including trade, religious life, and urban cohabitation—provided a societal framework familiar with Greek culture long before the late 4th century BCE. While many areas remain unexplored, the evidence from Naukratis highlights a continuity of Greek presence that provided both the historical precedent and social familiarity that distinguished the region's trajectory from earlier periods of foreign contact.

Thonis-Heracleion: A Pre-Hellenistic Greek-Egyptian Maritime Hub and Its Role in Ptolemaic Integration

The discovery of Thonis-Heracleion by Franck Goddio in 2000 represents one of the most significant recent archaeological finds in Egypt. This fully submerged city, located in the Bay of Aboukir near the Canopic mouth of the Nile (fig. 1), served as a critical port city connecting Greece, the Levantine coast, and Egypt (Van der Wilt 2013). Its function as a maritime hub is evidenced by numerous artifacts, including over sixty shipwrecks, which suggest that the site operated as a primary customs and trading center between the 7th and 5th centuries BCE (Pfeiffer 2010, 17; Van der Wilt 2013, 7, 183).

Two key monuments—the naos of the temple of Amun-Gereb and the Stele of Heracleion (fig. 4)—have been instrumental in confirming the city's identity. The Canopus Decree explicitly mentions Amun-Gereb residing in a city called Heracleion,

with the Egyptian name *rA-Hnt* corresponding to the Greek Thonis (Van der Wilt 2013, 7). The Stele of Heracleion, issued under Nectanebo I (c. 380 BCE), is a near-identical twin to the Naukratis Stele found inland. Both stelae detail the same royal decree: a 10% tax on Greek imported goods and locally manufactured Greek products to be paid into the treasury of the temple of Neith. While the Naukratis Stele stood at the inland trading hub, the Heracleion Stele was positioned at the coast to regulate the actual point of entry. This dual-placement of identical administrative decrees demonstrates a sophisticated, state-sanctioned framework for Greek-Egyptian interaction that was fully operational decades before the Ptolemaic period.

Figure 3: *The Naukratis Stela (Decree of Nectanebo I). © Antikforever.com; original artifact in the Egyptian Museum, Cairo (JE 34002).*

Scholarly consensus identifies Thonis and Heracleion as the same city, with the Greek name linked to Heracles, who was associated locally with the Egyptian god Khonsu, son of Amun-Gereb. This religious pairing reflects the syncretic culture that facilitated long-term Greek-Egyptian coexistence (Van der Wilt 2013, 8). Situated amidst the Nile, canals, and a lake, the city's central island housed major religious and civic buildings, where colossal statues of Egyptian kings and deities stood alongside a rich assemblage of artifacts which includes Egyptian and Greek pottery, votive figurines, ritual objects, and imported trade goods dated from the late 7th century BCE. The presence of numerous baris vessels (fig. 5) recovered from the harbor further supports its identification as the principal trading port (Fabre and Belov 2009; Robinson 2018).

Thonis-Heracleion's role as a customs port likely peaked in the 5th and 4th centuries BCE, serving as the primary gateway for goods moving upriver to Naukratis and into the Egyptian interior. Diodorus Siculus (1.19.4) corroborates this by describing Thonis as the principal emporion of Egypt at the Nile's mouth. This controlled access highlights the pre-existing framework of Greek economic and religious presence in Egypt, which the Ptolemies later integrated into their pharaonic administration.

While the rise of Alexandria in the 3rd century BCE eventually supplanted Thonis-Heracleion as the primary port, archaeological finds—including a Ptolemaic-era stele (c. 118 BCE)—demonstrate that the site remained an active part of the Greco-Egyptian landscape until its eventual submergence (Pfeiffer 2010, 17; Van der Wilt 2013, 7).

Ultimately, the city functioned as a key gateway where Greek culture was already embedded within the Egyptian economic and religious landscape, setting the necessary precedent for the Ptolemies' acceptance as legitimate pharaohs.

From Mendes to Thmuis: Economic and Cultural Foundations for Ptolemaic Integration in the Eastern Delta

The ancient cities of Mendes (modern Tell El-Ruba) and Thmuis (modern Tell Timai), located in Egypt's Eastern Delta (fig. 1), illustrate how Greek presence intersected with

longstanding Egyptian urban and economic traditions in ways that facilitated the Ptolemaic dynasty's later acceptance into the pharaonic tradition (Marchiori 2014, 86).

Mendes, situated on the Mendesian branch of the Nile, had been continuously inhabited since predynastic times, developing by the 7th century BCE into one of the Delta's most prominent port cities and serving as the capital of Egypt during the 29th Dynasty (Blouin 2014, 57; Redford 2010, 173–78). This status made Mendes an important political, religious, and commercial center.

Mendes was particularly renowned for its production of luxury goods, including perfumes and cosmetics highly prized throughout Egypt and the Mediterranean world. Archaeological and textual evidence indicate the city housed large-scale perfume workshops; local traditions even associate a famous perfume with Cleopatra VII herself, underscoring Mendes's enduring cultural influence (Marchiori 2014, 88; Littman et al. 2021). This luxury industry not only facilitated trade with Greek merchants but also established Mendes as a hub of cross-cultural commercial exchange before and during the early phases of Greek settlement in Egypt.

Nearby Thmuis likely originated as an industrial extension of Mendes, eventually evolving into an autonomous urban center by the 4th century BCE (Marchiori 2014, 87). Unlike Mendes's irregular urban fabric, Thmuis exhibits a grid-like layout characteristic of Greek urban planning, indicating deliberate Hellenistic influence on its

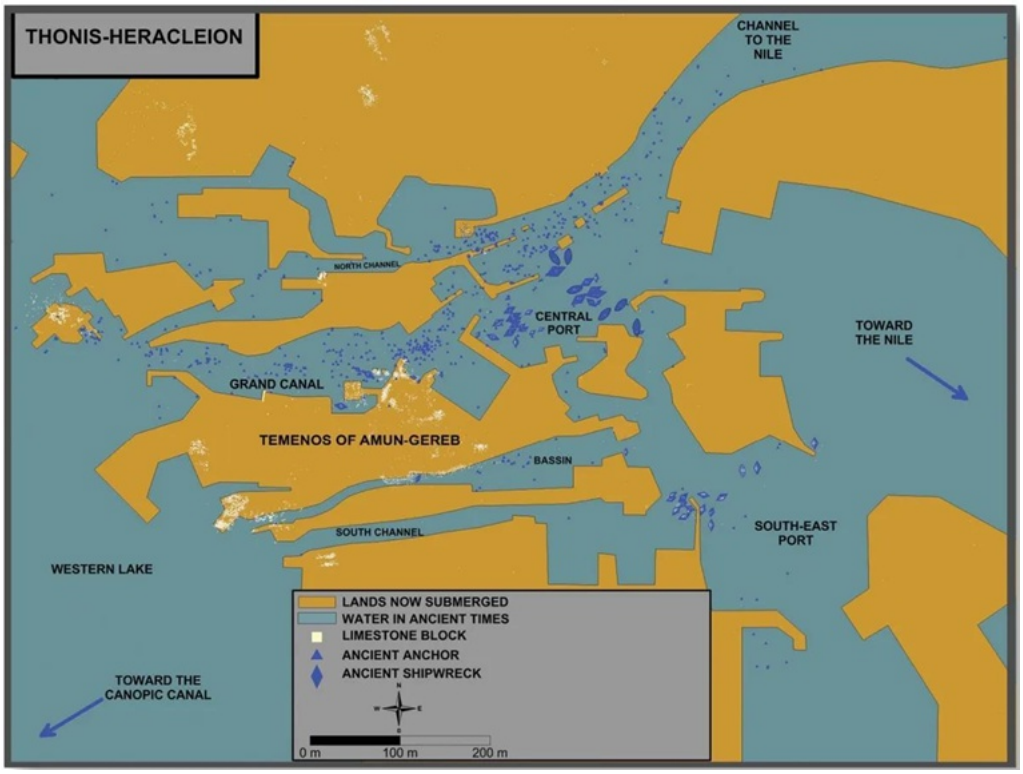

Figure 4: *Map of key elements in Thonis-Heracleion. © Franck Goddio/Hilti Foundation.*

design and governance. This urban configuration reflects Greek-Egyptian synthesis, blending indigenous and immigrant architectural traditions. Environmental factors shaped the relationship between these two cities.

Over time, natural changes in the Mendesian branch of the Nile caused its course to shift closer to Thmuis (fig. 6), facilitating the latter's rise as a commercial and administrative center at Mendes's expense by the early 2nd century CE (Blouin 2014, 61, 65; Redford 2010, 199–202). The geographic shift demonstrates how environmental and economic factors intertwined to reshape the Delta's urban hierarchy, with Thmuis ultimately assuming the economic and civic functions previously centered in Mendes.

Greek-Egyptian interaction in this region is attested in classical sources as well. Herodotus (5th century BCE) mentions both Mendes and Thmuis within the broader context of pre-Hellenistic Greek settlements that served as points of economic and cultural contact between Egypt and the Greek world: "*The Kalasiries for their part are of the provinces of Thebes, Bubastis, Aphthis, Tanis, Mendes, Sebennys, Athribis, Pharbaïthis, Thmuis, [...]*" (Herodotus 2.166).

The planned urban layout of Thmuis, emerging next to an ancient Egyptian capital, demonstrates how Greek settlers adapted to local conditions while leaving a recognizable imprint on the urban and economic landscape. The evidence from Mendes and Thmuis suggests a sustained process of cultural and economic integration, characterized by trade, luxury production, and urban planning. These interactions laid important groundwork for the Ptolemies' later acceptance into the pharaonic tradition, providing a population already familiar with Greek-Egyptian hybridity. By inheriting cities where Greek and Egyptian elements coexisted, the Ptolemies could claim legitimacy in a context shaped by centuries of prior settlement, commerce, and cultural negotiation.

Kom al-Ahmer and Kom Wasit: Western Delta Settlements and Their Role in Greek-Egyptian Interactions

The Kom al-Ahmer–Kom Wasit archaeological project, a collaborative mission led by the Università di Siena and the Italian Archaeological Center of Egypt (CAIE), was initiated in 2012 to enhance understanding of the Western Nile Delta's archaeological heritage, with particular focus on the hinterlands of Alexandria (Marchiori 2014, 79). The project centers on two neighboring sites—Kom al-Ahmer and Kom Wasit—located in the modern Beheira province (fig. 1).

Historical records are scarce, and early looting has significantly disturbed the contexts (Manchip White 2011, 29).Nonetheless, these sites are posited to have played key roles as ancient urban centers, possibly serving as the capital of the Metelis nome.

Figure 5: *The Baris-type vessel from Thonis-Heracleion. Photo by Christoph Gerigk; © Franck Goddio/Hilti Foundation, image via Smithsonian Magazine.*

The relationship between Kom Wasit and Kom al-Ahmer suggests a migratory and functional shift reminiscent of the transition between Mendes and Thmuis in the Eastern Delta. Kom Wasit appears to have declined as Kom al-Ahmer rose in prominence, potentially reflecting the strategic relocation of the nome capital to maintain control over key waterways and trade routes (Marchiori 2014, 80). As administrative centers, these settlements facilitated multicultural exchanges and attracted diverse populations, including Greek merchants and settlers.

Although comprehensive excavation of Kom Wasit remains limited, surface ceramic analyses by M. Kenawi and P. Wilson reveal continuous occupation from the 7th century BCE to the 1st century CE (Marchiori 2014, 84). Ongoing archaeological efforts try to bring to light the layout of Kom Wasit, with many of its main buildings still underground (Silverstein and Littman 2023, 247; fig. 7). Wilson's study identified a predominance of Ptolemaic pottery fragments, alongside earlier Late Dynastic and some Early Roman materials, corroborated by finds such as a lekythos and a Ptolemaic coin (Wilson and Grigoropoulos 2009, 176).

In contrast to many Ptolemaic baths later altered during the Roman period, Kom Wasit's Hellenistic tholos bath appears unmodified, suggesting abandonment by the 1st century CE, possibly due to rising groundwater and flooding damaging urban structures (Kenawi 2019, 73; Wilson and Grigoropoulos 2009, 176).

Kom Wasit's identification as the capital of the Metelis nome is reinforced by its spatial and chronological relationship with Kom al-Ahmer. Both sites enjoyed access to the Bolbitine branch of the Nile, situating them advantageously within regional trade networks connecting major centers such as Heracleion, Naukratis, and Alexandria (Kenawi 2014, 312; Marchiori 2014, 85). Greek presence is well-attested at Kom Wasit through imported fine ceramics and amphorae, including a late 7th–early 6th century BCE aryballos decorated with a palmette motif, indicating early Greek artistic influence

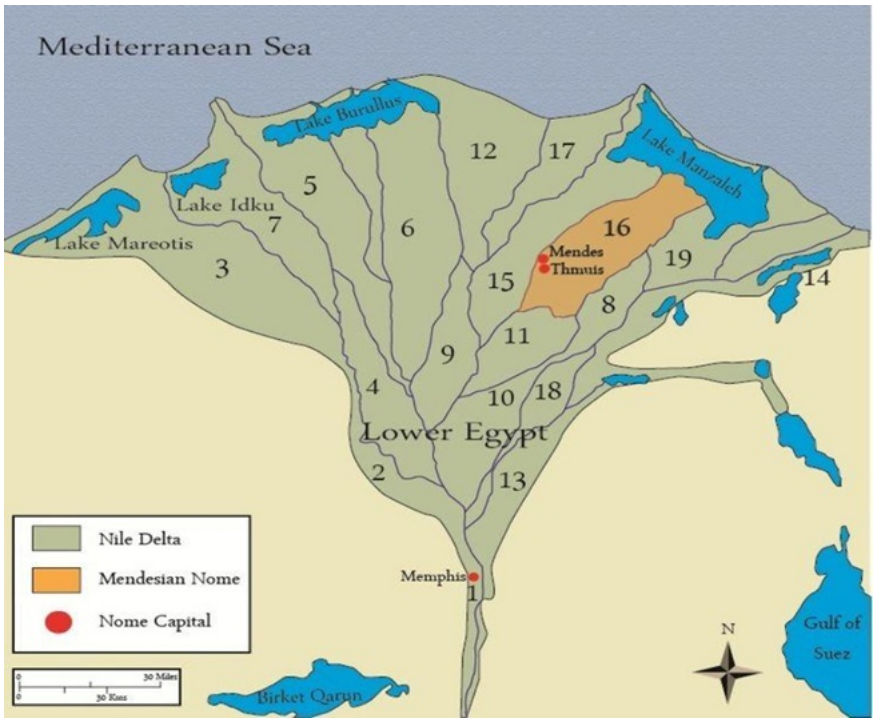

Figure 6: *Map of the Mendesian nome, showing the relationship between Mendes (Tell el-Rub'a) and Thmuis (Tell el-Timai).*
Image via Alchetron; based on the archaeological survey of the Tell Timai Project. © Alchetron.

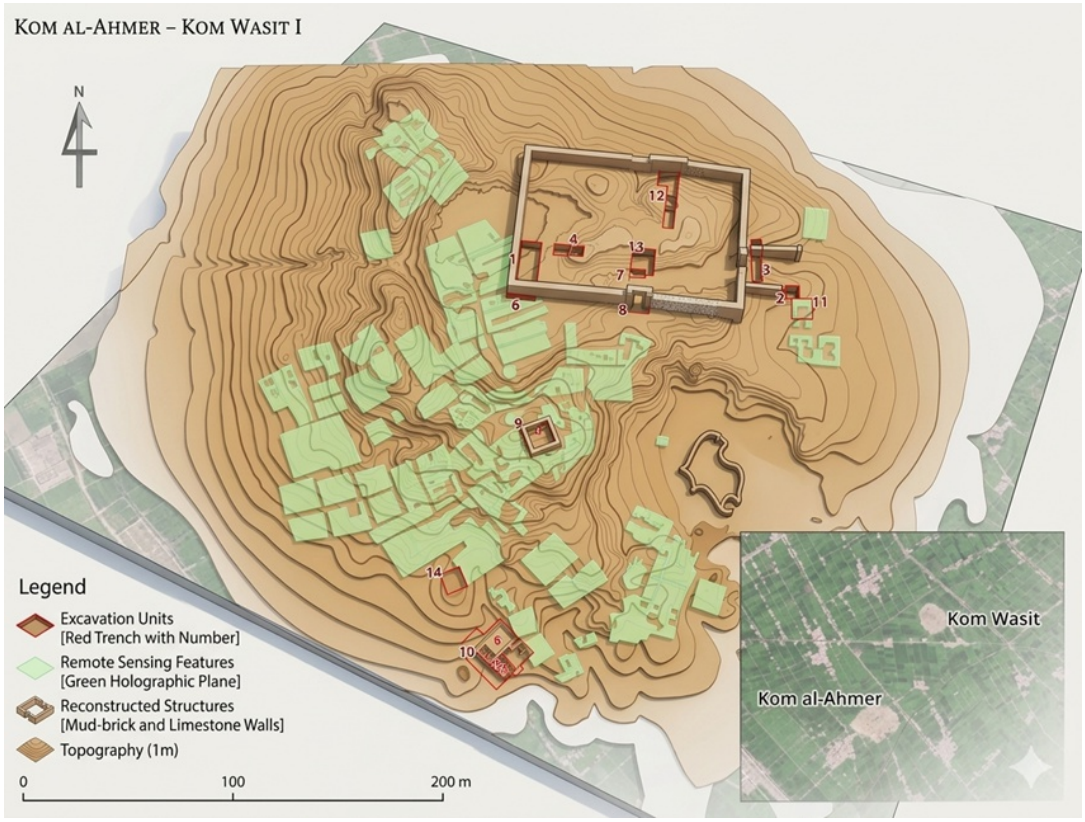

Figure 7: *3D map recreation of units in Kom Wasit.*
Generated with AI by author, based on Kenawi and Herslund (2019, p. 68, fig. 5.1).

and commercial activity in the area (Marchiori 2014, 85). Kom al-Ahmer's occupation primarily dates to the Hellenistic period and later, as evidenced by Ptolemaic coin finds and ceramic sherds extending into the 9th century CE.

This suggests a prolonged settlement with sustained Greek-Egyptian interactions (Marchiori 2014, 85). The migration from Kom Wasit to Kom al-Ahmer mirrors the regional shifts observed between Mendes and Thmuis, highlighting the adaptability and resilience of these interconnected centers. The archaeological evidence from Kom Wasit and Kom al-Ahmer demonstrates how pre-Hellenistic and early Hellenistic Greek settlements established entrenched economic and administrative roles within the Western Delta. Strategic locations and the presence of Greek material culture indicate that these settlements were active participants in the cross-cultural dynamics of ancient Egypt, contributing to a regional environment of hybridity long before the formal consolidation of the Ptolemaic state (Marchiori 2014; Kenawi 2014; Wilson and Grigoropoulos 2009). Kom Wasit's identification as the capital of the Metelis nome is reinforced by its spatial and chronological relationship with Kom al-Ahmer.

Both sites enjoyed access to the Bolbitine branch of the Nile, situating them advantageously within regional trade networks connecting major centers such as Heracleion, Naukratis, and Alexandria (Kenawi 2014, 312; Marchiori 2014, 85). Greek presence is well-attested at Kom Wasit through imported fine ceramics and amphorae, including a late 7th–early 6th century BCE aryballos decorated with a palmette motif, indicating early Greek artistic influence and commercial activity in the area (Marchiori 2014, 85).

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Discussion: The Influence of Pre-Hellenistic Greek Settlements on Ptolemaic Integration

The analysis presented here evaluates the evolution of Greek-Egyptian hybridity by synthesizing the archaeological data from the four micro-regions established in the selection criteria. By correlating the literary attestations of the Late Period with the material record—specifically the ceramic and architectural evidence from the 5th and 4th centuries BCE—we can move beyond traditional text-based narratives. The functional diversity of these sites, ranging from coastal gateways like Thonis-Heracleion to administrative inland centers like Mendes and Kom Wasit, allows for a comprehensive assessment of how Greek communities were spatially and economically embedded within the Delta's landscape. This comparative framework reveals that the "receptive infrastructure" inherited by the Ptolemies was a consistent, regional phenomenon rather than a series of isolated occurrences.

Regional Synthesis and Integration

These pre-Hellenistic settlements collectively demonstrate a deep-rooted and multifaceted interaction that long preceded the Ptolemaic era. They formed interregional networks connecting the Aegean and Egyptian heartlands, facilitating the exchange of wine, oil, and perfumes while enabling sustained social and religious negotiation (Redford 2010; Kenawi and Marchiori 2025; Reghinham 2025).
The strategic prominence of Naukratis as a multi-ethnic emporion is underscored by its specific topographic layout, which allowed for a controlled yet fluid exchange between Greek merchants and the Egyptian administration (Sevilla Cueva 1992). This urban complexity provided the blueprint for the permanent Greek presence that would later characterize the Delta's commercial hubs.

Thonis-Heracleion functioned as Egypt's principal maritime port and a customs gateway where Greek traders interfaced with Egyptian authorities (Pfeiffer 2010; Van der Wilt 2013, 7-8). The site's material record—including shipwrecks, imported ceramics, and monumental architecture—underscores how Greek commercial and ritual practices were already embedded within the Egyptian landscape (Goddio 2007; Wilson and Grigoropoulos 2009; Villing 2015). This prominence suggests that the "Greek world" was an integrated component of Egyptian political economy well before 305 BCE. Similarly, the transition from Mendes to Thmuis illustrates the adaptive nature of Greek settlement in the Eastern Delta. While Mendes was a center for luxury production (Redford 2010; Blouin 2014), environmental shifts led to the rise of Thmuis, whose grid-like urban layout reflects deliberate Hellenistic planning within a traditional administrative hub (Littman et al. 2021).

This regional continuity created the social familiarity necessary to support later Ptolemaic claims to legitimacy. In the Western Delta, Kom Wasit and Kom al-Ahmer reveal a similar pattern of resilience. Continuous occupation from the 7th century BCE, signaled by Greek ceramics and domestic structures, points to embedded communities active in both trade and local administration (Wilson and Grigoropoulos 2009; Kenawi

2014). The "shifting center" migration observed here mirrors the Eastern Delta, confirming that Greek settlers were not transient visitors but active participants in the regional evolution of the Delta.

The material and textual evidence collectively indicates that Greek presence was neither incidental nor transient. By distinguishing seasonal trade sites from those demonstrating permanent habitation—marked by Greek-style domestic architecture and sanctuaries to Greek deities—we see a degree of cultural embeddedness that fostered a receptive environment for the Ptolemies (Villing 2022; Austin 1970). By the time Ptolemy I Soter established his dynasty, he leveraged these existing networks of intercultural familiarity and urban infrastructure. This allowed the Ptolemies to adopt Pharaonic traditions more effectively than earlier foreign powers, such as the Persians, whose authority was often viewed as an external imposition due to limited social integration (Briant 2002; Knapp and Manning 2016).
As emphasized by Vanoyeke (2000), the success of the first Ptolemies rested on their ability to navigate this inherited landscape, transforming regional Greek-Egyptian commercial entrenchment into a centralized administrative system (Thompson 2012). Ultimately, these early settlements fostered the hybridity that allowed the Ptolemaic kingdom to consolidate power and establish one of the most enduring Hellenistic states (Fraser 1972; Kenawi and Marchiori 2025).

Conclusion

The archaeological evidence from Naukratis, Thonis-Heracleion, Mendes-Thmuis, and Kom Wasit-Kom al-Ahmer demonstrates that pre-Hellenistic Greek communities were not merely transient visitors, but were deeply embedded within the socio-economic and religious fabric of the Nile Delta. This study has shown that these settlements functioned as active centers of urban life where Greek and Egyptian practices coexisted and evolved through a 300-year process of maturation. From the customs gateways of the Canopic mouth to the industrial perfume-production centers of the Central Delta, the "Greek world" was an integrated component of the Egyptian landscape long before the arrival of Alexander the Great. The primary contribution of this research is the identification of a "receptive infrastructure"—a pre-existing network of trade, domestic architecture, and hybrid religious sanctuaries that facilitated the Ptolemaic transition.

By the time Ptolemy I Soter ascended to power in 305 BCE, he inherited a landscape already defined by intercultural familiarity. The success of the Ptolemaic dynasty in presenting themselves as legitimate Pharaohs was not a vacuum-born political strategy; it was the direct result of leveraging these established Greek-Egyptian social networks. This distinguishes their rule from the Persian administrations, whose authority—lacking a similarly integrated social base—was often contested as an external imposition.

Site	Location and Coordinates	Period of Maximum Activity	Primary Economic/ Cultural Role
Mendes/Thmuis	Central Delta 30°57′N 31°30′E	7th–4th c. BCE (capital of the Dynasty 29)	Perfume production; political/religious center.
Thonis-Heracleion	Canopic Mouth 31°18′N 30°07′E	6th–4th c. BCE (port of dynastic city Sais)	Principal maritime port; customs gateway; baris vessel; Stele.
Kom Wasit/Kom al-Ahmer	Western Delta 31°11′N 30°29′E	Late Period – Hellenistic	Regional trade hub; wine production (Mareotic); Hellenistic tholos bath; Metelis Nome administration.
Naukratis	Western Delta 30°54′N 30°35′E	7th–4th c. BCE	Multi-ethnic emporion; religious sanctuary (Hellenion); Stele.

Table 2: *Comparative table of the deposits presented in detail. Prepared by the author.*

Furthermore, the site migration patterns identified in this study—the shift from Mendes to Thmuis and Kom Wasit to Kom al-Ahmer—highlight the localized adaptability of these communities. These migrations demonstrate that Greek settlers were active participants in the regional evolution of the Delta, contributing to a permanent population familiar with Greek language, coinage, and urban grid-planning. Ultimately, the foundation of Ptolemaic legitimacy was built upon these pre-Hellenistic urban and social structures. This historical continuity explains how Alexandria and its hinterland became the center of a world-defining cultural synthesis, as the dynasty built upon three centuries of established Greek-Egyptian hybridity (Fraser 1972).

In sum, the integration of Greek and Egyptian identities was a process already well underway prior to 305 BCE. The pre-Hellenistic settlements acted as both cultural and political bridges, creating the social and economic frameworks that the Ptolemies would eventually adopt and expand. Their legacy underscores that long-term interaction and material hybridity, rather than conquest alone, defined the distinctive character of Ptolemaic Egypt as one of the most enduring cross-cultural episodes of the ancient world.

Acknowledgments
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Upcoming UCPH Events

11 May 2026, 13:00-15:00 *Far (and Not So Far) Right Uses of the Bible in Contemporary Politics*

Lecture by Hannah M. Strømmen (Lund University). (CEMES, CSGN)

12 May 2026 *The Criticism Dilemma in International Organizations*

Book presentation by Ben Christian. (INNER_LEAGUE)

13 May 2026, 13:00-15:00 *Hyperfossil Empire*

Lecture by Andreas Malm on fossil fuels and imperialism in the Middle East and Beyond. (Centre for Sustainable Futures)

13 May 2026, 19:00 *Klæder skaber folk - tøj i det prædynastiske Egypten*

Lecture by Anne Drewsen on dress in Predynastic Egypt. (CCRS Institute)

19 May 2026, 13:00-15:00 *Innovation as a Research Perspective*

Workshop on translating knowledge into impact, developed in collaboration with KU Lighthouse. (CCRS Institute)

20 May 2026, 09:00-09:45 Ph.d. til morgenmad (series): *Overlevelsesstrategier og naturressourcer på kanten af plantagelandbruget*

Talk by Rasmus Christensen on survival strategies and natural resources. (CApE)

22 May 2026, 11:00-12:30 *Ishq/Love, a Defiant Affair*

A book discussion with Dr Qais Munhazim, Assistant Professor of Global Studies at Jefferson University. (Department of Anthropology)

27 May 2026, 14:00-16:00 *The Fire Will Never Cease: Defiant Ecologies in South Lebanon*

Talk by Munira Khayyat (New York University). (CApE)

28. maj 2026, 8.30-11.30 *Aldringsforskning og aldringsinnovation*

Launch of the project KU-CARI. (KU-CARI)

1. June 2026, 14.00-16.00 *Hvordan sikrer vi fremtidige generationers rettigheder i klimakrisen?*

Panel debate with Pernille Larsen, WELA, Mette Müller Kristensen, Globalt Fokus and Julie Nygaard, The Green Youth Movement moderated by Stefan Gaarsmand Jacobsen. (CApE)

3 June 2026, 14:00-16:00 *Impasse Poetics at the Nordic Oil Coast*

Book presentation and performance. (CApE)

9 June 2026, 13:15-14:30 *It's Past Time to Leave Decolonizing Discourse Behind*

HUM:Global Talks! public lecture by Professor Olúfẹ́mi Táíwò .(HUM:Global)

15 June 2026, 13:00-17:00 *Women International Civil Servants and International Thought (1920–1975)*

Lecture by postdoc Myriam Piguet. (INNER_LEAGUE)

For more events and information:

https://saxo.ku.dk/kalender/

https://tors.ku.dk/kalender/

Features: On studying and what comes next

This section is for the curious. Wether you're a current student or a recent graduate and want a better sense of what studying and researching at CCRS can look like - both during and after your degree.

In the very first issue of Chronolog, this section mainly featured short articles introducing recent CCRS graduates who had submitted their theses within the past year. They shared brief descriptions of their thesis topics (hopefully sparking some ideas for others) along with advice for current students.

Since then, the section has grown and taken on new formats. In this issue, you'll find a mix of personal essays, reviews, spotlights, and other feature-style pieces. We present a series of features highlighting students and recent graduates, alongside introductions to two professors affiliated with CCRS. Together, these contributions offer a snapshot of the different research interests, academic paths, and experiences that shape the CCRS community.

We also include conference-related content in a couple of different formats: one personal essay reflecting on a conference experience, and one conference review. Along the way, we share tips on how to find funding if you're hoping to attend a conference yourself. In addition, we point you toward relevant networks and other ways to connect with students and early-career researchers in other countries.
If you've recently graduated from a CCRS program—or written a thesis on a topic related to Ancient Southwest Asia or Northern Africa - and would like to share your research, experiences, or advice, we'd love to hear from you.

We hope you enjoy this section! If there's something you'd like to see more of, or something you wish you'd known as a student, feel free to reach out to us at chronologjournal@gmail.com.

- The Editorial Team at Chronolog Student Journal

Something Fishy:
A Selection of Egyptian Fish and Artifacts

Lucian R. Andersen

In a fascinating display of continuity, a number of species of extant Egyptian fish have been identified in Ancient Egyptian sources. Deir el-Medina records of fish deliveries list various species of fish by their Egyptian names, some of which were able to be mapped to known genera of fish, such as elephantfish (Mormyrus), upside-down catfish (Synodontis), mullets (Mugil), and tilapia (Oreochromis, possibly O. niloticus) (Janssen 1997, 49).

These same fish have also been identified in the tomb reliefs of Ti (Saqqara, dynasty V) and Mereruka (Saqqara, dynasty VI), along with the fahaka pufferfish (Tetraodon lineatus) and the vundu (Heterobranchus longifilis) (Darby et al 1977, 360). These are only a select few species of fish, I have chosen to depict in my illustration, taking inspiration from the Ancient Egyptian material culture.

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Interest areas
linguistics, art, reconstructions and models, experimental archaeology

Illustration description:
a: Upside-down catfish (Synodontis batensoda).
b: Upside-down catfish amulet, after object 09.180.1182 (The Metropolitan Museum).
c: Upside-down catfish amulet, after object 57.1072 (The Walters Art Museum). d: Nile tilapia with young (Oreochromis niloticus).
e: Flathead gray mullet (Mugil cephalus).
f: Figure of a tilapia, after object 48.111 (Brooklyn Museum).
g: Tilapia-shaped cosmetic dish, after object 90.6.24 (The Metropolitan Museum).
h: Fahaka pufferfish (Tetraodon lineatus). i: Fesikh, a salted fermented gray mullet.
j: Fish amulet, after object EA30484 (The British Museum).
k: A painting of the fahaka, after object EA37977 (The British Museum).
l: Vundu (Heterobranchus longifilis).
m: Narmer's (nʿr-mr) anthropomorphized name, after AN1896-1908.E.3915 (The Ashmolean Museum).
n: Elephant-snout fish (Mormyrus kannume).
o: A figure of the Oxyrhynchus fish, inspired by the object 1987.001 (Michael C. Carlos Museum) and Paheri's inscription in the tomb of Ahmose (EK-5).

Hieroglyph colors referenced from The Polychrome Hieroglyph Research Project (Nunn 2020).


A SELECTION OF
EGYPTIAN FISH AND ARTIFACTS
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Illustration © Lucian R. Andersen
23/03
2026

(a–c) **Upside-down catfish (Synodontis sp.)**

 *wḥˁ.w* (TLA 48830)

As per their common name, some of the members of this genus of fish are known to swim upside down. The ancient Egyptians were aware of it, as can be seen from the depictions in the tomb of Mereruka (Brewer and Friedman 1989, 68–69). Charms shaped like the upside-down catfish were worn in the Middle Kingdom, possibly as protection from drowning (Brewer and Friedman 1989, 4). One such charm features in the Papyrus Westcar (Parkinson 1997, 110–111), resembling the upside-down catfish amulet (09.180.1182) in the Metropolitan Museum by description. It has been suggested that Ancient Egyptians connected the catfish appearing dead but clearly being alive with regeneration, and its image could have been used for the amulets for that reason (Stünkel 2015). Alternatively, it could have been shaped like the tilapia, similarly to the amulet EA30484 in The British Museum.

(d, f, g, j) **Nile tilapia (Oreochromis niloticus)**

 *wꜣḏ* (TLA 43660),  *ỉn.t* (TLA 26760)

Out of all the tilapia species found in Egypt, the Nile tilapia or bulti is both the most common and one of the most frequently represented in fishing scenes and artifacts from Ancient Egypt. (Brewer and Friedman 1989, 77). They tend to live and breed in shallow waters, and, as a result, would have been caught in the water basins after the seasonal Nile flood subsided, which could have led to their association with fertility and with the primeval waters of the creation myths (Brewer and Friedman, 1989, 4).

In addition, the Nile tilapia keeps its eggs in its mouth until they hatch (Brewer and Friedman, 1989: 79), which parallels the Heliopolitan creation myth (Wilkinson 2017, 17–18), making it one of the possible reasons for its popularity.

(l, m) **Heterobranchus sp**.

 nˁr (TLA 80570)

Two species of the genus, the eel-like fattyfin catfish (*H. bidorsalis*) and the vundu (*H. longifilis*) have been recorded in modern Egypt. Apart from the aforementioned tomb reliefs, this genus of catfish is the subject of one of the earliest artistic depictions of fish in Ancient Egypt, as one of the hieroglyphs used to write the earliest known Egyptian king Narmer's name on the Narmer palette and cylinder seal (Brewer and Friedman 1989, 63; Egyptian Museum in Cairo, JE 32169; Ashmolean Museum, AN1896-1908.E.3915).

(n, o) **Elephantfish (Mormyrus sp.)**
 *ḫꜣ.t* (TLA 122210)

Recognizable by their downturned snouts, the members of this genus are easy to spot in Egyptian art, though it can be challenging to distinguish between individual species based on that alone (Brewer and Friedman, 1989: 51–52). According to the Osiris myth, it was namely one of these fish, also known by its Greek name *Oxyrhynchus*, that ate the phallus of Osiris. Plutarch and Aelian report that the fishermen of the city Oxyrhynchus (modern Al-Bahnasa), where the fish were worshipped, avoided catching them for religious reasons, which is corroborated by contemporary Egyptian sources. However, elephantfish were also depicted in the fishing scenes across all periods of Egyptian history, suggesting, though not guaranteeing, that they may have been an accepted food (Darby et al 1977, 383–389).

(e, i) **Mullet (Mugil sp.)**
 *ʿḏ.w* (TLA 35540)

Three species of the Mugil genus (*M. cephalus, M. capito, and M. auratus*) have been identified in Egypt (Brewer and Friedman 1989, 73). Today, they are some of the most important commercial fish in modern Egypt, along with the tilapia (Brewer and Friedman 1989, 72), as well as the main ingredient of *fesikh* (فسيخ), a salted fermented mullet traditionally eaten during the spring festival of Sham el-Nessim (Darby et al 1977, 372).

It has been suggested that the festival goes back to Ancient Egyptian springtime festivals (Asante 2002, 75), and the methods used to prepare *fesikh* today are similar to the salting and drying of fish described by Herodotus (Darby et al 1977, 369; Hdt. 2.77), showing continuity.

(h, k) **Fahaka pufferfish (Tetraodon lineatus)**
 *špt* (TLA 153960)

The fahaka pufferfish is the only freshwater pufferfish species found in Egypt today, and its characteristic appearance makes it easily recognizable in artistic depictions (Brewer and Friedman, 1989: 80). Its likeness can occasionally be seen in texts outside of the fishing scenes: the word *špt* is used in the Egyptian language as both the name of the fish (TLA 153960) and as the verb "*to be angry*" (TLA 153970).

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Archaeological Illustrations

Anna Peters

Anna enjoys bringing the ancient back to life via illustrations and has worked on projects in Germany and abroad; she will also be joining Dr. Susanne Kerner's (University of Copenhagen, CRRS) team in Jordan at the Ritual Landscape of Murayghat Project.

Anna got in contact with Chronolog at our student lounge at the *ICAANE 13 Conference*, hosted at UCPH, in 2023. The student lounge was a meeting place for students to network, eat lunch together and also featured a student poster session.

This encounter reflects Chronolog's ongoing interest in engaging with students, early-career scholars, and practitioners working across disciplines and formats. As a journal, we are keen to showcase a wide range of contributions - from visual work and creative reflections to interviews, field notes, and experimental features that sit alongside more traditional academic content and open up space for reflection, dialogue, and creative practice.

For this feature, Anna has selected a few illustrations and have added some thoughts about her style and experiences while drawing them.

We warmly invite readers to consider contributing their own work to Chronolog and to get in touch with the editorial team if they have ideas for features, visual material, or experimental formats they would like to share in future issues.

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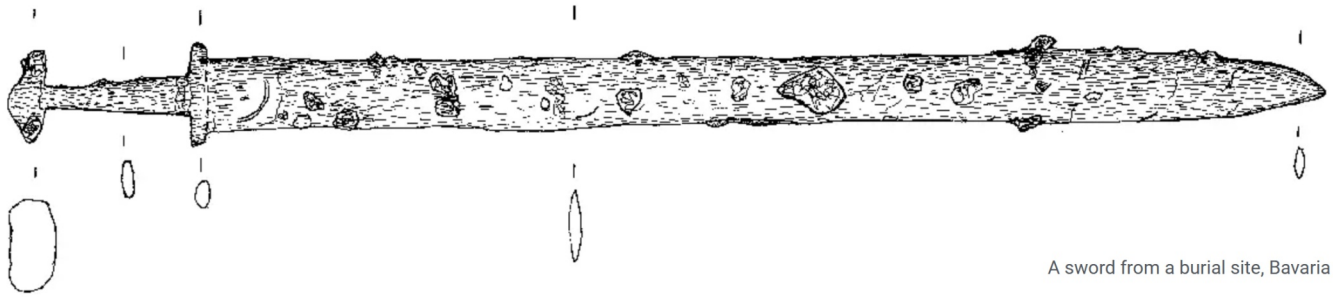
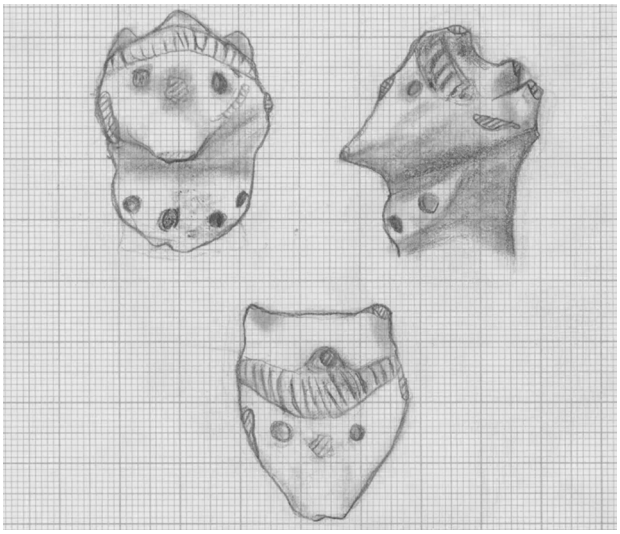
This object comes from a Bavarian excavation and was found by an archaeological excavation company; this drawing represents my wish to be able to draw as many different categories of objects i.e. ceramic, bones and many more to me. It reminds me to always look up and forward.

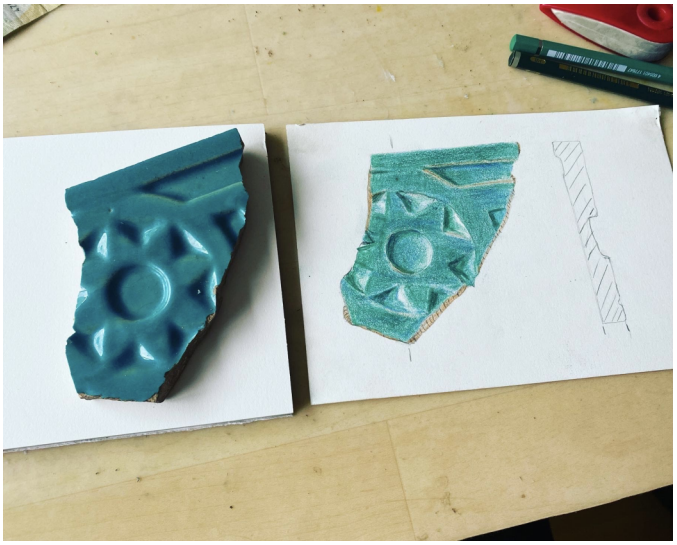


A sword from a burial site, Bavaria

I drew this figurine head (Hellenistic period) in the Kurdish region of Iraq.

The archaeologists working on the project had lovingly nicknamed it "the Devil's head". Its nickname reminds me somehow of the wonderful imperfectness of humans now and back then.





The sherd is from a drawing course in Bavaria, Germany by a former archaeological illustrator and artist.

A guide to attending conferences: An early career archaeologist's point of view

Maria Diget Sletterød

In June 2025, the ICAANE 14 Congress took place at Université Lumière Lyon 2. The congress is the biggest of its kind concerning the archaeology of ancient SW Asia and Egypt, and in 2025, 1800 people attended and the programme was packed with interesting talks and workshops for five straight days.

As a newly graduated MA student of Near Eastern Archaeology, I decided that I wanted to attend this conference. Conferences are always a good way to create new contacts, meet up with old friends and colleagues and learn about the current projects in the region.

Here, I am going to share my advice as a first-time attendee at a large conference.

Buy early bird entrance passes:
You save a lot of money and can spend that extra on a nice place to stay or museum visits, nice food etc.

Have a conference buddy:
Having a familiar face at a conference really helps if you are a bit introverted or socially anxious, and it is always fun to have someone to share the experience with! On top of that, maybe your conference buddy knows other people at the conference and you can meet and connect with them as well. It is also nice to have a friend you can decompress with, eat dinner, meet for a coffee in-between session or explore the city you are in.

I met up with a good friend at the conference, and the funny thing was that we started our friendship at the previous ICAANE conference. We met there and had not seen each other since, but agreed that we would both go to Lyon and attend the conference together. I also met another old friend from my uni days and it was great because we are now working at the same museum and have become colleagues!

Get an Airbnb or a hotel with a kitchen:
This is another way of saving money since you can cook "at home" and won't have to spend a ton of money on eating at restaurants every day. If you are travelling with others, book a place together so you can save some more money. BookPlanning ahead is also a good idea because you can plan free time where you can spend time relaxing or exploring the city you are in. ICAANE was in Lyon, a city I had never been to before,

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and by planning ahead, I found time to explore the city during the daytime and not just at night. Just because the conference programme is packed does not mean that you have to go to a talk or workshop every single minute of the day.

I went exploring with friends and alone and got to experience Lyon, and despite it raining almost every single day, I really enjoyed the city – because as we say in Northern Europe: There is no such thing as bad weather, only bad clothing.

Photo © Maria Diget Sletterød

Engage (if you feel like it!):
I was very nervous the first time I put my hand in the air to comment on a presentation at ICAANE. As a newly graduated MA student in a room full of very experienced researchers, I was honestly a bit afraid that my comment might sound dumb. But the intention of a conference is to learn new things and discuss and debate topics!
So if you have something to add or have a question, engage with the presenter and the topic.

Network:
This was the most difficult for me. As an introverted person with some tendencies towards social anxiety, walking up to a stranger with so much more knowledge and experience than you can be a bit terrifying. The way I approached it was by reminding myself that the very experienced people used to be students, early career people etc. and the way they advanced their careers was to network and have good connections.

And another really important thing: They are actually interested in meeting students and early career people and, as far as my experience goes, they want to help out if they can. Bottom line: They are humans and were once in your place.

Have fun:
It kind of speaks for itself. Have fun. At many conferences there will be gatherings and dinners included in the fee. Go and have some wine, eat some delicious food and join the people who ask you to go for a beer after the dinner is over. Conferences can be exhausting and it is very important to have some fun as well.
Book a place early, especially since hotels and Airbnbs will catch on that many people are looking for a place to stay at the same time and will hike their prices. A hostel with a shared kitchen is also a great option, but personally, I prefer to sleep in a room without other people and be able to just relax alone.

Apply for funding to cover your expenses:
I applied at the Danish Institute in Damascus who are known to cover expenses for conferences such as ICAANE. I got the full amount I applied for and it gave me some breathing-space so that I did not have to worry too much about the costs of the conference and the stay.

Buy your flight tickets early:
A very basic tip, but nonetheless, a good tip to save money and get the good tickets with as few layovers as possible. Leave a few days earlier or stay a few extra days! If you can take the time off and have the finances for it, I would really recommend arriving a few days before the conference begins. ICAANE began on a Monday, so I decided to leave for Lyon the Friday before and do one night in Dijon as well. I had never been to this region of France, so I wanted to take advantage and see a bit more than just the inside of the university.

Check the programme (and have it on hand!):
At ICAANE, the programme was packed! I spent time before arriving to check the programme and get an idea of which lectures I wanted to attend and if any of them conflicted with each other. At ICAANE, all countries in the region and all periods and subjects are covered. I was pleasantly surprised by the number of talks concerning the Arabian Peninsula which is a region I have always felt has been underrepresented during my time as a student.

Photo © Maria Diget Sletterød

As my Norwegian grandmother always said: "*Ut på tur, aldri sur*!"
- roughly translating to: if you go on a walk/trip, you are never in a bad mood.

Conference review: 2nd Forum for Archaeological Student Research in Copenhagen (FASR)

Luisa Dominguez Rey

The 2nd Forum for Archaeological Student Research in Copenhagen (FASR) was held on 26 November 2025 at the University of Copenhagen, Søndre Campus. Organised by students, the one-day conference presented current research by undergraduate and graduate students across prehistoric, classical, and related archaeological fields. The programme was structured into four thematic sessions, reflecting both chronological breadth and methodological diversity.

Session 1, Continuity and Change in Prehistory, focused on long-term perspectives within prehistoric archaeology. The opening paper examined the reuse of Neolithic megalithic gravesites in Denmark over a period of two-thousand years, while the following presented the role of ships in warfare during the Danish Middle Ages. Together, these contributions highlighted how continuity and transformation can be traced through material evidence across long temporal spans across time to examine changing practices and shifting societal functions. They further demonstrated how we can adapt archaeological practice to keep up with evolving research and interpretations.

Session 2, Politics, Power and Rituals, examined the intersection of material culture, political structures, and ritual practice in the ancient Mediterranean. Presentations explored political interpretations of Athenian theatre, the commemoration of politically excluded individuals in Hellenistic inscriptions, and the use of pottery as votive offerings in Greek sanctuaries. This session foregrounded the relationship between material evidence and ideological frameworks.

Session 3, Making and Meaning of the Past, addressed interpretive and communicative aspects of archaeology. Contributions ranged from lithic fracture patterns as diagnostic tools, to gender, bodies, and heritage communication, and fragmented elite material culture. The papers collectively emphasised methodological reflection and the role of interpretation in shaping archaeological narratives.

Session 4, Memory and Material Heritage, focused on material culture as a medium of memory and identity. Papers included a presentation of one of our editor's completed master's thesis project Beyond Fabric: The Role of Folk Dress in Activism and Cultural Resistance, which examined folk dress as a form of cultural and political expression, as well as a study of memory and materiality in Roman memento gems. This session highlighted the nexus between material objects and memory; wherein a metaphysical archive of remembrance and resistance occur.

A keynote lecture was scheduled as part of the programme but was cancelled due to illness. The conference concluded with a reception – followed later by a dinner for speakers and organisers – providing informal settings for continued discussion and networking.

Overall, FASR offer a structured and thematically coherent forum for early-career researchers. The conference demonstrated the breadth of current student research and underscored the value of student-led initiatives in fostering scholarly exchange and academic community within archaeology.

Upcoming Conferences: Editors' Picks (2026-2027)

Conferences are valuable both for keeping up to date with current research and for building professional networks. In many cases, primary fieldwork results may remain unpublished for years - sometimes up to a decade - before final reports appear in print. Conferences therefore offer an important opportunity to hear preliminary findings, progress reports, and methodological reflections while projects are still ongoing. By contrast, edited volumes and journal issues often take several years to assemble and publish.
Networking is equally important, particularly in specialised fields where long-term professional relationships may form even through occasional conference encounters. These are often the colleagues we later turn to for collaboration, advice, fieldwork opportunities, or the exchange of experiences within shared areas of expertise.

In alphabetical order:

Aktuel Arkæologi (DK)
Yearly meeting for employees of Danish museums and students at the University of Copenhagen. Despite this conference being about Danish archaeology and history, it is a good idea to attend as a student to learn about current projects in Denmark and create connections beyond ANE studies. There is a chance that one of your first jobs as a Near Eastern archaeologist could be with a Danish museum.
Next on: Spring 2027, date and place TBA

Ancient Landscapes of Textile Production – Interdisciplinary Perspectives (DK)
This conference explores themes and new interdisciplinary methods in textile research. Researchers and experts from all sorts of fields, such textile research, archaeology, ancient history, digital archaeology, biomolecular science, biology and osteology are presenting.
Next on: South Campus Room 23.0.50, University of Copenhagen, 27-29th May 2026.
Preregistration necessary: https://eventsignup.ku.dk/landscapesoftextileproduction

Computer Applications and Quantitative Methods in Archaeology (CAA International)
A yearly conference. The CAA (Computer Applications and Quantitative Methods in Archaeology) is an international organisation which brings archaeologists, mathematicians and computer scientist together to think about archaeology, computers and tech used in fieldwork, now and in the future.
Next on: Spring 2027 (place and time TBA)
More information: https://caa-international.org/about/

Egyptological-Assyriological Conference in Copenhagen (EACC) (DK)
A yearly student organised conference concerning the ancient history, languages and archaeology of the Ancient Near East. Students, recent graduates and professionals present at this conference, and posters are welcome as well.
Next on: Søndre Campus, University of Copenhagen, 2027 (dates TBA)
More information: EACC Facebook page

Experimental Archaeology Conference (EAC 15) (ROU)
The conference brings together researchers and practitioners working with experimental approaches across archaeology and heritage studies. Key themes include pyrotechnology, the production of material culture (such as lithics, ceramics, metallurgy, and textiles), architectural reconstruction, taphonomy, use-wear analysis, and public outreach. The event is hosted by the Faculty of History and Arheoinvest through its specialised working group ExArIS.
Next: Iași, Romania, from 12-16 May 2027
More information: @exarc.1 and exarc.org/

Forum for Archaeological Student Research (FASR) (DK)
A yearly conference for all students and recent graduates of archaeology at the University of Copenhagen. The conference is organised by students, and you can join the organising committee.
Next on: Autumn 2026, date and place TBA
More information: https://www.instagram.com/fasrcph

International Congress of the Archaeology of the Anient Near East (ICAANE 15) (GE)
A biannual conference concerning the archaeology of the Ancient Near East. It is the biggest conference of its kind. Students, recent graduates and professionals present their work and poster are welcome as well.
Next on: Tbilisi State University, 2027 (dates TBA)
More information: https://www.orientlab.net/icaane/

International Round Table in Polychromy in Ancient Sculpture and Architecture "Polychrome Round Table" (GRC)
A biannual conference where the growing network of scholars researching polychromy meet and present their research and discuss multidisciplinary approaches. The theme of the 13th round table will be "Polychromy and thre Senses: Integrating Scientific, Cognitive and Aesthetic Perspectives on Ancient Colours.
Next on: The Archaeological Museum of Thessaloniki, Greece, 18th – 21st November, 2026
More information: https://www.polychromyroundtable.com/

The Society for the Study of Childhood in the Past (SSCIP) (FI)
A yearly conference and meeting for members concerning children's lived lives in the past. Memberships are on a yearly basis and student memberships are offered. The society also has a biannual journal.
Next on: University of Oulu, Finland, 10th – 12th June 2026
More information: https://sscip.org.uk/

Spirits, Elementals, Ghosts, Vampires, Fairies, and Other Occult Beings in Modern Theosophy and Related Esoteric Currents (UK)
International Theosophical History Conference organised by Copenhagen Centre for the Study of Theosophy and Esotericism (CCSTE).
Next on: London, England, 3 – 4 October 2026
More information: https://ccrs.ku.dk/research/centres-and-projects/ccste/events/spirits-elementals-ghosts-vampires-fairies/

Connections: Mobility and Community in the Early Modern World (DK)
The seminar aims to give early career scholars an opportunity to discuss and further develop their research within early modern history in the company of their peers and experienced scholars.
Next on: University of Copenhagen, Denmark, 21 – 23 October 2026
More information: https://saxoinstitute.ku.dk/research/history/radical-pietism-in-northern-europe/events/2026/connections-mobility-and-community-in-the-early-modern-world/

Staging the Past: Living History, Live Audiences, Real Challenges (DE)
The conference is made possible by EXARC and Stadtmuseum Berlin (Team Düppel), is open to all, and welcomes professionals, researchers, practitioners, and interested participants working in experimental archaeology, living history, museum practice, and related fields. Participation for audience and contributors is be possible both in person and online via the registration button. The conference explores the opportunities and challenges of presenting the past through living history and museum theatre. Several workshops are offered.
Next on: Berlin, Germany, 12 – 15 November 2026
Registration and information: exarc.org

SPOTLIGHT

Alma Foldbjerg El-Naaman

I currently work at the Museum of Copenhagen as an archaeologist, where I started after finishing my master's degree in Near Eastern Archaeology (2025) from the University of Copenhagen. Furthermore, I also have a bachelor's degree in Near Eastern Archaeology (2022) and Egyptology (2023). Throughout my studies, my primary research interests has been on ancient Egyptian mummies, paleopathology, ancient DNA, and human osteology, as well as Egyptian funerary rituals and religion, and how these can connect.

Thesis Presentation

My thesis examined the prevalence of cranial porous lesions in ancient Nubia, reflecting health during a time of environmental and societal change. Here, I focused on the co-occurrence of three different cranial porous lesions: cranial orbitalia, porotic hyperostosis, and sphenoid porosities, in the context of Lower Nubia. These cranial porosities have previously been examined as indicators of malnutrition, diseases (schistosomiasis, malaria), anemia (iron deficiency, hemolytic, megaloblastic) in relation to ancient Nubians. However, most studies have focused on individual cranial porosities and rarely addressed their possible co-occurrence. Here, 168 individuals were chosen from the A-Group, C-Group, and Pharaonic Period, dating to 3800-1200 BCE. All individuals were examined macroscopically for the presence of these three porous lesions, their co-occurrence, and their relationship to the archaeological context, diet, and environmental data in connection with health and the societal changes that occurred during this time period. The results showed a complex pattern in the prevalence of the lesions, with noticeable differences by age, sex, and time period, which challenged the original theory that cribra orbitalia is a precursor to porotic hyperostosis. Furthermore, this is one of the first studies to examine the A-Group for cranial porous lesions.

Advice for other students

Don't be afraid to dig into your little niche of interest. Ask your professors or older students for help – in my experience, they are often happy to guide you to where you want to be. And network. During my studies, I have secured several great student jobs through friends and teachers. And try to sit back and enjoy the whole experience while you are studying.

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Ancient Egyptian funerary rituals, mummy studies, paleopathology, parasites, and digital methods

SPOTLIGHT

Luisa Dominguez Rey

I'm a 2025 graduate from UCPH, where I have my Master's degree in Near Eastern Archaeology. Throughout my studies, I've been particularly interested in holistic and critical approaches to archaeology, with a focus on cultural heritage, ethics, and the political and social contexts in which archaeological knowledge is produced. I'm especially motivated by initiatives that make academic practices more transparent and accessible to students and early career scholars.

During and after my studies, I've focused on research and editorial engagement within academic and cultural heritage contexts. This includes working with an exhibition on Cambodian textiles as part of *TEX KR: Making and Unmaking of Textiles during the Khmer Rouge Regime* at CTR, focusing on heritage destruction and rehabilitation, archival research, and related documentation and outreach. I've also worked with collections management, with an emphasis on textiles from regions affected by conflict, as well as editorial and consultant work - including as an editor with Chronolog Student Journal. During the first years of studying, I also worked part-time at Land of Legends where I fell in love with teaching, curating, experimental arcaheology, and outreach-work. This is also where I really learned to have fun with archaeology.

Thesis

My thesis examined questions of ethics, intangible cultural heritage, and Western hegemony within archaeological and heritage practice, using Palestinian embroidery, tatreez, as a case study. Through this work, I explored how knowledge production, preservation frameworks, and institutional power structures shape the treatment and interpretation of living cultural traditions – particularly those situated in contexts of prolonged political conflict. By focusing on craftmanship as both cultural practice and political expression, the thesis aimed to highlight the tensions between local meaning, global heritage discourse, and academic representation.

A piece of advice for other students

It won't always feel easy, but try to remember why you chose to study archaeology in the first place. Read your studieordning(!), pay attention to the opportunities around you, and don't be lazy with your passions; you will always get further with a project you are genuinely proud of than with something done halfway. And most importantly – reach out, ask questions, and don't underestimate how far curiosity and a willingness to risk "falling flat" can take you.

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Interest areas
Cultural heritage management, teaching

SPOTLIGHT

Mathilde Sehested Thormann

I am a former student at CCRS, where I completed my Master's degree in Near Eastern Archaeology in the summer of 2024. Following graduation, I worked as an archaeologist at the Museum of Copenhagen, assisting in cemetery excavations. Today, I work as an osteologist at the Laboratory of Biological Anthropology at Globe Institute, where I have been affiliated as a student assistant since 2021.

My work involves the analysis of human remains from Danish archaeological excavations, as well as the curation and maintenance of the Anthropological Collection, which comprises approximately 30,000 skeletons, representing more than 10,000 years of human tissue from the Paleolithic to the mid-1800s.
My primary academic interests center on the study of human remains, with a particular focus on paleopathology and dental anthropology.

Thesis
With primary supervision at the Laboratory of Biological Anthropology, I wrote my thesis on chronic maxillary sinusitis and its relation to dental diseases in ancient Lower Nubia. I conducted macroscopic analyses of the maxillary sinuses and dentition of 136 adult individuals from Lower Nubia, spanning the A-group (c. 3800–2900 BCE), C-group (c. 2300–1200 BCE), and the Pharaonic period (c. 1550–1069 BCE), in order to investigate possible statistical correlations between inflammatory bone changes in the sinuses and dental diseases, as well as broader diachronic patterns across the study periods. Over the past three decades, variations in chronic maxillary sinusitis prevalence have been widely discussed in paleopathology, often in relation to factors such as climate, living conditions, occupation, and oral health.

The Nubian context offers a particularly valuable case study, as the region experienced severe increasing climatic aridification, agricultural intensification, and urbanization during the periods examined – all factors that may have influenced susceptibility to sinus and dental disease. At the same time, ancient Nubian populations are well known for high rates of dental wear and associated periapical and periodontal diseases, both of which are linked to the development of sinusitis.

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Interest areas
human remains, osteoarchaeology, paleopathology, health/disease, dental anthropology, biomolecular archaeology

This combination of environmental change and widespread dental pathology makes Lower Nubia an especially well-suited context for exploring the relationship between oral health and maxillary sinus inflammation in the past. Paleopathological studies like this one provide valuable insight into how past climate changes shaped human health. By identifying patterns of physiological stress, disease, and inequality in skeletal remains, they offer a long-term perspective that deepens our understanding of the challenges and vulnerabilities emerging in today's accelerating climate crisis.

A piece of advice for other students

Aim high and invest real effort in your exam projects. Consider turning your work into something more: submit it to academic journals or present it at conferences. Even a poster presentation is a great start if a full talk feels like too much. These opportunities allow you to share your ideas, build confidence, and connect with established scholars as well as fellow students from other universities. It won't be easy. It takes time, persistence, and you'll likely face imposter syndrome more than once along the way. Still, these kinds of experiences can make a meaningful difference on your CV and may help open doors later - especially if you're considering a career in academia. If you're looking for a more straightforward starting point, look up researchers affiliated with the UCPH School of Archaeology whose work aligns with your academic interests. Reach out to them, look into internship opportunities, and consider writing your thesis under their supervision as an external advisor.

PROFILE

Seraina Nett

"Something that always amazes me is how much data there actually is from Mesopotamia; being able to trace the life of someone who lived 4000 years ago is incredible."

- Seraina Nett

Seraina Nett
Teaching Assistant Professor, UCPH, Assyriology

For Seraina Nett, the journey to being an Assyriologist starts with a final exam in Greek and Latin at her high school in Switzerland. When taking a large passage from a book on the Iliad written by the exam's censor, Seraina stumbles over the Hittites. Turns out: to Seraina, the Hittites were much more interesting than Greek or Latin.

The nexus between language and society has always been a baseline interest, and this new, to Seraina, and exciting area drew her in. As fate would have it, her chosen university did not offer Hittite, and so Ancient Near Eastern Languages and Archaeology it had to be – a combined degree at Universität Bern.

Through this series of, fortunate, events Seraina fell in love with Assyriology. Especially Sumerian drew her in – a field of study she has been in since. Some of her favourite memories from her own time at university is excursions and field work, having been to Armenia, Syria, and Libya amongst other. A more unconventional moment was *"living in an abandoned hospital with my friend Mari."*, as she jokingly refers to it: while finishing their MA thesis during a major library renovation, Seraina and a close friend were given office space in an old hospital building – empty except for the two of them. Armed with air mattresses, a shared toast maker, and the same deadline, they all but moved in, helping each other through the final stretch.

After completing her degree, curiosity in the field persisted and in 2009, Seraina started working on a PhD at the *Center for Canon and Identity Formation* at UCPH – successfully defended in 2012. Especially the administration of offerings in the Ur III period is an area where all her academic interests intersect: "The material is so interesting and varied, it's like being in a large playground with all of the fun swings and slides!".

Photo © Seraina Nett
Interview conducted by Luisa Dominguez Rey

Another passion has also been educating the new generations within the field; today, Seraina teaches classes in Sumerian and Akkadian language as well as courses on Mesopotamian history and society alongside researching.

When asked about which accomplishments she's most proud of, the Digital Applications in Assyriology Nordic Summer School comes up. It came to be as the self-taught organisers wished education in these subjects had been available when they were students. The 5-day summer school – which is being held for the 4th time this year – sees students from all corners of the world.

It is clear that, although there are many things for Seraina to be proud of, the most important are her students.

"Teaching or researching can sometimes feel like screaming into the void; actually seeing the impact is one of my favourite things. [...] Meeting [former students] at conferences later on, seeing them present, using what they learned, is always extremely fun!"
- Seraina Nett

Research in the works include a project aiming to highlight the agency of ancient women. The end goal is to trace and document the role and impact of women in society – and across social class when possible.

What's your most important advice?
[Laughing] Don't forget the Ur III period exists! But jokes aside: how important it is to stay curious and interested: keep reading, listen, talk to other people. A lot of my thoughts come from my students asking me questions, that I then go reflect and read up on. [...] Side quests can become fun – stay openminded!"

PROFILE
Tobias Richter

"I spent the summer digging and returned two months late [to university] – [laughing] which wasn't very popular."
-Tobias Richter

For Tobias Richter, archaeology is not a distant, museum-bound pursuit. Now an Associate Professor at the University of Copenhagen (UCPH), Tobias' career reflects a willingness to follow curiosity wherever it led and opportunities whenever they arise.

"I was always a bit of a history buff."

Curious enough to act on that interest, his first foray into the world of professional historical work was an internship-turned-job at the local city archive. On advice from an acquaintance, he completed his national service with the Hesse State Archaeology Authority. Free from classrooms and exams, Tobias spent his time doing archaeology, meeting people, and learning by doing; *"I think it was one of the most amazing periods of my life."*

Tobias began his formal studies at the University of Wales Lampeter, where he completed his BA degree. Here, he gravitated towards the prehistory of Southwest Asia and made a point of spending every summer on excavations. One such summer saw him at Göbekli Tepe, where a former colleague put Tobias in contact with the project's director.

Fieldwork has remained central throughout his career. In 2002, Tobias moved to Amman to work at the British Institute in Jordan, where he balanced work with a two-year 'master's degree, before doing his PhD at the Institute of Archaeology at University College London in 2005-2009. In 2009, he joined UCPH as field director for the excavations at Al Zubarah in Qatar. A postdoctoral grant followed in 2011, leading to a formal postdoc position at UCPH in 2012. Tobias emphasizes that being outdoors and working directly with the archaeology is the heart of his work. Even now, he insists on returning to the field whenever possible.

Tobias did not expect how central teaching would become to him and was initially drawn to university life for the freedom it offered to shape one's own research agenda. Even so, despite an accomplished research career, Tobias' deepest pride lies in his students.

Tobias Richter
Associate Professor, UCPH,
Near Eastern Archaeology

"For as long as I still can, I will always return [to field work]."
- Tobias Richter

Photo © Tobias Richter
Interview conducted by Luisa Dominguez Rey

What's your most important advice?
"Don't be shy. Go and talk to people. So many of the things that happened to me is because I simply had the opportunity to meet people and talk to them. And that just opened doors. And sometimes you fall on your nose. I definitely remember going up to people and it backfiring. […] If you want to find digs, the pulse of the discipline is at the conferences; its invaluable […] Just do [it]. They might seem like huge people within our field, but people on the street have no clue who they are."

During his time in Jordan, Tobias learned to think of and present himself as a researcher; confidence which he feels elevated conversations and earned respect. Still, while effort and ambition matter, he also cautions against trying too hard: *"Sometimes things just happen. You can't always control it; you just have to stick with it."*

When asked about his fondest memory from his own time as a student, Tobias recalls a day hiking with Professor Andrew Fleming:

"There's a lot, but the one that really stands out? I had a professor at university called Andrew Fleming – great guy, with a deep gravelly voice. […] I mentioned to him that I had been working on a survey in the Welsh uplands during the Easter break. He said "That sounds wonderful! One day we can go together, and you can show me the area.", and we did!
We spent all day on this amazing landscape, hiking. Andrew was a true expert, [who] had no problem going out with an undergraduate in the Welsh landscape for a whole day – [smiling] and then having a beer at a pub afterwards."

Guidelines, dates, and deadlines

Chronolog aims to provide a peer reviewed journal in which students with relations to UCPH can publish their research on the ancient Near East. Contributions may include scientific articles, essays or book reports. Contributions are accepted in English. All contributions are double-blind peer-reviewed by invited specialists.

The author's guidelines can be found at https://tidsskrift.dk/Chronolog.
Please check the current guidelines as they are updated regularly.
Illustrations should be sent as separate files.
All submissions may be subject to editorial revision for clarity, accuracy, and coherence. Any substantive editorial changes will be shared with the author for approval prior to publication. Authors are therefore advised to remain attentive to correspondence following submission.

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Dates and Deadlines
- *19 May 2026 16:00, Writing Workshop*: Hybrid event. Does not require prior submission to Chronolog Journal. More information TBA.
- *October 2026, Deadline for articles*: Submit your paper by October 1st for our 2027 issue.
- *January 2027, Call for features (deadline March 2027):* We welcome essays, cartoons, illustrations, reviews, and other creative content you might want to share with us!
- *February 2027, How to apply for funding*: Hybrid event. The workshop will focus on the do's and dont's of funding applications, how to plan a budget, where to apply and more. Date TBA.

Until next time

As the 3rd issue of Chronolog Student Journal draws to a close, we wish to underline that the journal remains an open and evolving project - one sustained through continued participation, exchange, and collective investment. Beyond each published volume, Chronolog functions as a shared academic framework in which students and early-career scholars can engage with scholarly practice, develop skills, and contribute to ongoing conversations within our fields.

Looking ahead, we are attentive to how the journal may continue to develop in scope and function. This includes expanding participation beyond UCPH by moving toward opening Chronolog more fully to international submissions, as well as continuing constructive dialogue with our partners about how the journal may further integrate into existing academic environments and programmes; developments which are part of an ongoing process shaped by both practical considerations and community input.

We therefore welcome suggestions, reflections, and expressions of interest from readers who wish to contribute, collaborate, or share thoughts on the journal's future direction. Inquiries, submissions, and ideas can be sent to:
chronolog.journal@gmail.com

Chronolog continues through the engagement of those who read, write, review, and reflect alongside us. We encourage our readers to remain part of this process and to help shape the journal's future, issue by issue.

Alongside publication, the journal supports academic engagement through workshops and related initiatives focused on practical aspects of academic life, including writing, presenting research, and navigating funding opportunities. These activities reflect Chronolog's broader role as a site of learning and collaboration rather than a static publication alone.

- The Editorial Team at Chronolog Student Journal

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