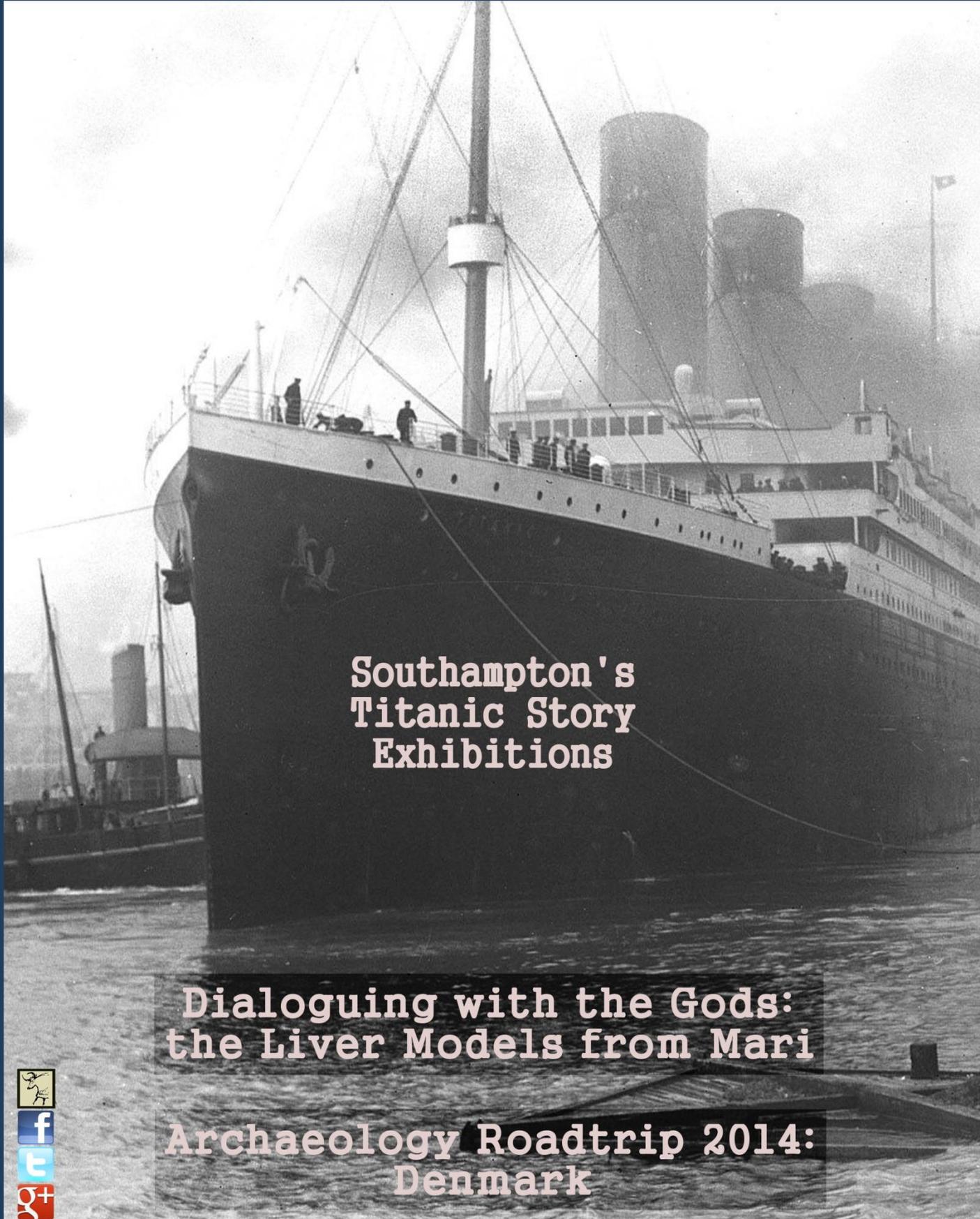




The Post Hole

The student-run archaeology journal

May 2014



Southampton's
Titanic Story
Exhibitions

Dialoguing with the Gods:
the Liver Models from Mari

Archaeology Roadtrip 2014:
Denmark

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Finally, *The Post Hole* wishes to thank University of York students Kerrie Hoffman and Phoebe Haigh for their superb design of this front cover.

Front cover: *Titanic at the Docks of Southampton*, photo taken April 1912 (© Wikimedia Commons: Author Unknown).

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Editorial: Restoration, Restoration, Restoration

As I was sat the other day with course mates in our regular retreat and second home – the library – the TV series ‘Restoration, Restoration, Restoration’ was brought up in conversation. When debating what to discuss within my editorial, I pondered about this topic long and hard. A controversial matter, I wondered if any of our readers could remember this TV series, first aired in 2003. For those who are unaware, the series involved a number of different listed buildings competing for the viewer’s decision as to who would receive a grant from the Heritage Lottery Fund in order to meet their immediate conservation needs. Aired between 2003-2009, a selection of winners included the Turkish-bath section of the Victoria Baths in Manchester, Old Grammar School and Saracen’s Head in Kings Norton, Birmingham, and Chedham’s Yard, an early 19th-century blacksmith’s yard. A series of spin-offs were created on similar topics. However, discussing this the other day led me to the question of whether this is an appropriate method of obtaining funding?

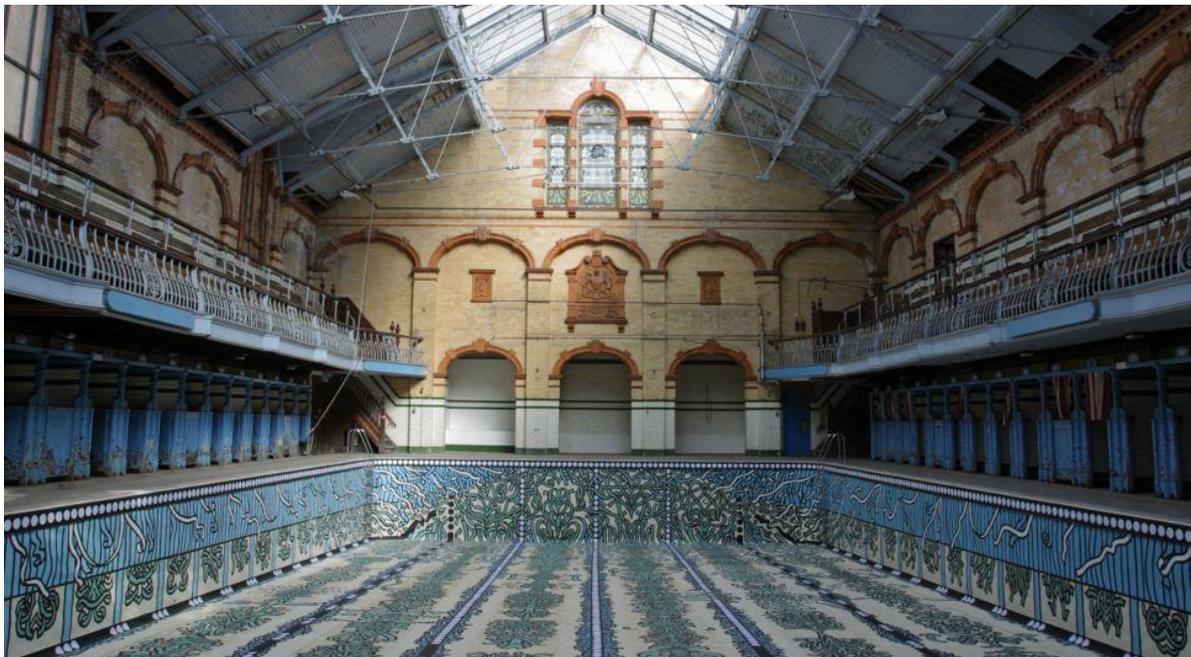


Figure 1. *Victoria Baths in Manchester* (Image obtained from: <http://www.dailymail.co.uk/news/article-2412293/Manchesters-Victoria-Baths-10-years-winning-3million-funding-BBC-Restoration.html>).

Within my dissertation I discussed the uncertainty faced within the museum and heritage sector, and how these organisations, in the face of funding cuts, are looking for new sources of funding and sponsorship. Evidently ‘Restoration, Restoration, Restoration’ incorporates the public, a major investor in the future; however I wanted to question the ethics behind it. The three series in total were hosted by Griff Rhys Jones, the Welsh comedian, writer, actor and television presenter. They also included the involvement of Marianne Suhr, a English Chartered Building Surveyor, writer and expert on historic buildings, and Ptolemy Dean, a British architect specialising in historic preservation and the 19th Surveyor of the Fabric of Westminster Abbey. The involvement of specialists, I think, elevates the programme from the status of a www.theposthole.org

simple restoration programme into a series that incorporates important themes present within society, raising awareness of the listed buildings' profiles and educating and involving the public. It would be interesting to hear some of your thoughts on this matter; it might even spark you to write an article in support of or in disagreement of what I have said. If you would like to discuss the matter further, either email editor@theposthole.org, voice your opinions via **Facebook** or **Twitter** or send submissions to our Submissions Editor, Taryn Bell, at submissions@theposthole.org.

Dissertations are in, the end of academic term is slowly creeping nearer, fieldwork and summer school opportunities are being decided and, for some of us, big decisions are to be made surrounding the 'next step'. Our previous issue, issue 36, combined March and April to compensate for university deadlines, and the team are pleased to announce the release of this issue and two 'Digging through the Profession of Archaeology' interviews. The past month has been extremely busy for the team, juggling the demands of university against other commitments and *The Post Hole*, whilst organising the next team to step up once we graduate.

Within this issue there are five interesting and very different articles. You may recognise the author of the first article, **Jim Grant** who also produced '*The Archaeology Coursebook*' and taught me AS and A-level archaeology at Cirencester College. Grant's account of the yearly archaeology trip is a fantastic insight into the wonders of studying archaeology at AS and A-Level and of the different opportunities that can be explored in Denmark.

Malgorzata Radomska provides us with an interesting take on the 'Public perceptions and attitudes to the 'Southampton's Titanic Story' exhibition at the Sea City Museum'. Covering such a well-known topic is always tricky, however Radomska looks at the exhibition from all angles, focusing on visitor experiences, a key element in determining the success and response to exhibitions within museums.

Alistair Galt, our PR coordinator at Southampton University, builds upon a previous article written for us by Robert Barratt last year, 'The Use of Photogrammetric Models for Recording of Archaeological Features' (which can be accessed via <http://www.theposthole.org/read/article/237>), and his own blog post '3D Modelling for Archaeologists' posted on the 14th April 2014 (to view, please follow www.archserve.blogspot.co.uk), to produce 'It's all Fun and Games to You, isn't you? The New Technology by the 'New Generation' in Archaeology'. A thought provoking article, it would be interesting to get some papers in response to this.

Discussing divination and the role of the liver, **Emilio Passera** discusses 'Dialoguing with the Gods: the Liver Models from Mari'. In a unique article, liver models give a glimpse into Mesopotamian society and societies in Babylon, Mari, Hattusa and Etruria, revealing not only symbolic and ritual aspects, but trade and communication within a complex network spread across the globe.

Issue 37 draws to a close with another fabulous and stimulating article by **Arnaud F. Lambert**. Having written for us before in issues 26, 27, 29 and 32, Lambert is becoming one of our most supportive and continuous authors, and we appreciate greatly all he does for *The Post Hole* (his work can be accessed via <http://www.theposthole.org/archive>). Lambert's article builds upon his other work, this time focusing upon 'Cave Imagery in the Non-Olmec Rock Art of Oxtotitlán, Guerrero, Mexico'.

We hope you enjoy this issue and apologise for the delay of this release. In July, we will be handing over to the next team, and if you feel you would like to become part of *The Post Hole* and its exciting role as the first archaeological undergraduate journal within the UK, please do not hesitate to get in contact. Please continue sending your submissions into submissions@theposthole.org and any questions to myself at editor@theposthole.org.

Best wishes,

Emily Taylor

(Editor-in-Chief of *The Post Hole* - editor@theposthole.org)

Another Archaeology Road Trip: Denmark 2014

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Aidan Scott and I had considered Denmark as a destination for our annual Archaeology road-trip for several years, but had previously dismissed it on costs. We wanted all students to be able to access our trips and, as with much of Scandinavia, Denmark is not cheap. However, after some serious arm-twisting and weeks of logistical research, we finally found a way to visit Denmark. Sadly, this meant leaving our beloved minibuses behind due to the time and cost, and travelling by public transport instead. We had to go before Easter, which was not ideal considering that most of the open air museums (for which Denmark is famous) do not open until April or May. These include the experimental centre at Lerje (near Roskilde), Viking Fyrkat and Viking Ribe. A further blow was the complete rebuilding of the wonderful Moesgaard Museum just outside Aarhus which will not re-open until the end of 2014. This includes finds from the fascinating Mesolithic sites of Ringkloster and Tybrind Vig, the Illerup Hoard and Grauballe Man. Still, there was more than enough left to fill a full week.



Figure 1. *The obligatory mermaid group shot* (Image Copyright: J. Grant).

Arriving in the late evening, we based ourselves at The Copenhagen Amager Danhostel. We purchased passes at the airport on arrival to get to Roskilde on our first full day. The main draw to Roskilde is the Viking ship museum. As it was winter, the reconstructed boats were drawn up on the grass, but that was interesting in itself. The contrast between the deep hulls of the traders and the long, sleek shapes of the warships was very evident. Inside the museum were the remains of five ships recovered from the Fjord, as well as displays on construction, trade and warfare. A film in English explained the excavation and reconstruction, while the boatyard outside provided insights into the use of wood, shipbuilding and early medieval technology. Aside from its stunning Cathedral (the Domkirke), Roskilde, in common with most large provincial towns, has its own museum. This presented a chronological summary of Denmark from the end of the Ice Age into the Medieval Period. We encountered the skeleton of an auroch, the wild cattle that once roamed the forests of northern Europe. A final bonus was a small keyhole excavation near the Cathedral which provided a good example for the students.



Figure 2. *The 'Sea stallion' replica longship being repaired (Image Copyright: J. Grant).*

Day 2 was spent at the National Museum in Copenhagen. It is probably the best museum in the world if you are interested in the Mesolithic, and a day was not nearly enough. The first few galleries cover the first post-glacial reindeer hunters in Scandinavia and Maglemosian foragers from the early Mesolithic. Exhibits include bone and antler harpoons, hooks, axes and the skeleton of an elk. The exhibition is all labelled in English but you do need to know a bit about the period to really appreciate what you are

seeing. Nevertheless, we gained a real insight into the sophistication of technology and the nature of the economy from this time. It provides a great contrast with the rather pitiful display in the British Museum of a couple of finds from Star Carr. Moving further into the Mesolithic, towards the final Ertebølle Culture from 5300-4000BC, a much wider range of artefacts are available. These include those made from organic materials such as wood, plant fibres and skins, which survive so well in Danish peat bogs and underwater in the Baltic shallows. The world's oldest bow, woven fish-traps and canoe paddles are amongst the standout finds. Cut-marks on animal skulls demonstrated skinning while figurative and abstract engravings on antler, bone and amber testified to the rich cultural life of the Mesolithic.

Later galleries track the arrival and development of farming, metal working and ritual practice. It was particularly interesting to compare this with the knowledge students had from the British Isles. The human and artefact remains were highlights for most students, particularly the Gundestrup Cauldron and the 'Egtved Girl'. There is a particularly impressive gallery on 'Sun worship' during the Bronze Age. We also spent time in the early medieval galleries looking at the development of towns and trade, but also continuity and change in religious practice. Inevitably we ran out of time. I don't think more than a handful of students got beyond the Vikings or upstairs to the excellent ethnographic collection of Inuit artefacts. These are interesting to students of the Mesolithic as sources of analogies for interpreting technology and ritual.

On Day 3 we took the train and bus to the Vedbaek Finds Museum. This was actually out in the countryside at Gl Holtegaard, a small stately home with a baroque garden. Anne, the curator, gave us a really interesting talk, a tour of the main finds and the areas of current research. The finds come from the shore of the Maglemose Fjord, and in particular, during excavations ahead of the construction of a school. We had all read about some of the burials from the Ertebolle cemetery but had not realised the extent of the midden deposits, which provided a rich source of information about diet and technology. The museum itself was designed in the 1970s to engage all senses in understanding the Mesolithic. Galleries are organised so you feel as if you are moving between the trees with some excellent dioramas depicting aspects of life around the Fjord. Many displays invite you to touch, and there are collections of different furs that enable you to appreciate the different properties of materials. Anne stressed that most visitors are kindergarten or primary classes, but our 17-18 year olds loved this aspect too. There was even a 'smell tube' so that you could experience the aroma of the midden. Artefacts and recreations are juxtaposed so that you can understand how things (leisters, bark containers) would have actually looked. The highpoint for most students, as ever, were the human remains. Several of the graves including the famous 'Swan Wing' burial were laid out so that you could look down into them and appreciate the care that had been taken with the corpses of over 6000 years ago. It provided a good contrast with the National Museum in terms of presentation.

Day 4 was largely spent in transit, moving from Copenhagen to Aarhus in Jutland. By the early afternoon, we had checked into our new home at Aarhus Danhostel, set in woodland to the north of the city. Then we went back into town in time to visit Viking Aros, which is an interesting piece of developer-led archaeology. Whilst building a new bank, houses from the Viking period were discovered. The bank has allowed finds to be displayed on the site in its basement. For our students who had visited Jorvik, it provided an exercise in 'compare and contrast', including many familiar aspects of housing, trade and manufacturing.



Figure 3. Diorama at Vedbaekfundene Museum (Image Copyright: Old Tage Hartmann/Rudersdal Museums).

For Days 5 and 6, we ventured out into more remote areas. On Day 5, we headed for the Limfjord of Northern Jutland meeting Bjarne, the curator of the Vesthimmerland Museum on the way. He had kindly agreed to guide us and began by taking us to two amazing Neolithic tombs. Voldstedlund reminded us of Wayland's Smithy – only better preserved and much bigger. It is about 25m long and up to 3m high with two remarkably intact chambers accessed by short passages. Both of these were large enough to stand in. Outside, kerbstones ran the length of the monument. A short drive away, and equally impressive, was the double-passage grave of Sniphøj. This is the best preserved of at least three passage graves. We were able to access both chambers.

Moving on to the Limfjord itself, we came to the most famous Mesolithic location of them all at Ertebølle. The Visitor Centre here is in a state of flux, having recently been taken over by Vesthimmerland Museum, and there are plans to radically rework the displays. Currently, they rely on re-constructions to supply an

impression of Mesolithic life. A short walk away, a slight rise on the edge of the shore meadows is what remains of the great shell midden. As with most Danish sites, some good signage in three languages helped with interpretation of the area.

This is something we rarely achieve in the UK. It is a fabulous location. Even though the levels in the Limfjord have changed much over the millennia, it was still possible to understand why this had been such a favoured spot for foragers. Driving on up the Limfjord, we passed the remains of the Bjornholm Midden before arriving at Aggersund.



Figure 4. *Voldstedlund neolithic long barrow* (Image copyright: J. Grant).

Our guide had been particularly keen for us to visit this, the largest of the Viking fortresses built by Harald Bluetooth. While the earthworks are not dramatic, the location certainly is. The site dominates what was once an inland water-route through Jutland and north-south land access. The sheltered anchorage of the Limfjord and the fort, which could also hold 4000 warriors, possibly has a link to our own history. If you sail west out of the Limfjord, your next landfall is England, which was where Bluetooth's son Svein Forkbeard headed to claim a second crown after deposing his father. At Aggersund, we saw a number of metal detectorists in a nearby field. They are a group who work with the museum to plot finds, which are then added to maps of activity around this site. Further archaeological research is planned along the shore to try and identify the Viking era port.



Figure 5. *Students standing on the remains of the Ertebølle shell midden* (Image copyright: J. Grant).

Vesthimmerland Museum in Aars is close to the sites of many of the most famous bog-finds, including the Gundestrup Cauldron. The excellent local museum has a first-rate facsimile of the silver cauldron and displays of other artefacts which put it in context. Additional displays cover the archaeology of Jutland from the first hunters, but it is the Iron Age finds which really grab your attention here. The extensive collection includes many wooden artefacts from the bogs, including a cart, clothing and a leather shield. One of the most amazing is a Shaman's bag looking exactly like a Doctor's 'Gladstone bag'. Also present are the finds from the fortified village of Borremose where we were headed next. This was accessed after a short walk through the bog. Although restored after excavation, the walls, foundations and atmospheric bog location still gave us a good insight into the nature of the settlement.

Day 6 was mid-Jutland with our first stop being the lakeside of Bølling Sø. This peat cutting area has recently been restored to a lake, and is one of the key locations in Danish Archaeology. Right at the end of the Palaeolithic it was visited by reindeer hunters, then was repeatedly used during the Maglemose Period with camps such as Klosterlund and hunting stands scattered along the shore, rather like the contemporary sites, including Star Carr, around Lake Pickering in Yorkshire. During the Bronze Age, wooden platforms had been used to deposit votive offerings in a similar manner to Flag Fen in Peterborough. On the far side of the lake were the find sites of a number of bog bodies including Tollund Man. In common with several Danish sites, the information panels featured QR codes enabling those with smartphones to pan across the landscape while getting a commentary about the archaeology.

Heading into Silkeborg, we visited the museum, which is now the home of Tollund Man. The museum itself was a little disappointing (although the recreations of Roman Armour and equipment were of interest to some), but Tollund Man alone is worth the trip. In a chamber behind a number of displays of Iron Age life, the preservation of his face is astounding even though you may have seen images of him dozens of times before. Many of our group said it was the highlight of the trip. However, there was more to come. A short drive through the Lake District, we came to Skanderborg and another provincial museum. This had two small, but fascinating displays of finds from Ringkloster (Mesolithic) and Illerup (Iron Age), both of which were excavated locally. The museum is currently excavating the exciting site of Alken Enge. This is a lakeside location where the butchered remains of a defeated army were brought and literally thrown into the water as part of a ritual. Originally it was thought that these might be the men whose equipment had been sacrificed at Illerup, but these were 200 years earlier in around 0AD. Ejvind Hertz, the curator, had set up a talk for us by Morten Rasmussen, a Biological Anthropologist who is working on the skeletal remains of the hundreds of warriors being slowly revealed. This was an amazing session, providing real insights into the work of a specialist, but also into what is being learned about the nature of Iron Age armies and the way in which this is transforming notions of social organisation at the time. This was a proper army, largely composed of physically large young men, although curiously, few bore the tell-tale signs of healed wounds from earlier conflicts.



Figure 6. *Human remains talk at Skanderborg Museum (Image copyright: J. Grant).*

Our final destination was Jelling, a key 'place of power' for the first Kings of Denmark. Within a huge enclosure, close to a number of Bronze Age barrows, two massive monuments were erected by Harald Bluetooth. One for his father Gorm, and one perhaps intended for himself, which was never used. We were joined by Charlotta Lindblom, curator of Vejle Museum, who gave us a talk about the archaeology and the significance of the site. She was able to describe finds associated with the massive lines of oak posts and the Viking-era hall which predated the first Christian church in Denmark. The site is also famous for the two massive runestones erected by Harald Bluetooth describing his unification of Denmark and conquest of Norway. It seemed a fitting place to end our trip.

Our final day involved a return by coach, this time via catamaran across the Kattegat, complete with dolphin spotting opportunities, and then direct to Copenhagen Airport. This was our most logistically complex trip ever, but everything worked like clockwork and we encountered incredible generosity from staff at the museums, to whom we are really grateful. For anyone interested in prehistory, Denmark is a great destination, but for those interested in the Iron Age/Viking period, and particularly the Mesolithic, it is a must.

Public perceptions and attitudes to the ‘Southampton’s Titanic Story’ exhibition at the Sea City Museum

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Introduction

When the Titanic sank during its maiden voyage in April 1912, the tragedy, in which more than 1500 passengers and crew died, gripped the newspaper headlines all around the world. The disaster stands out as a momentous event from the early 20th century, and it has been baptized as “our century’s first collective nightmare” (Heyer 1995, ix). The actual and symbolic importance of the Titanic’s disaster has haunted subsequent generations up to today. Its tragedy has been commemorated worldwide, inspiring a wealth of creative responses ranging from novels, poems, paintings, films and memorials, as well as becoming an object of scientific enquiry (Bergfelder 2004).

The sinking of the Titanic has had special meaning and memories in two cities of the United Kingdom: Belfast, where the ship was built, and Southampton, from where it set sail and from where the majority of its crew came. In 2012, both of these two cities established museums to commemorate the 100th anniversary of its sinking. Whereas the Belfast museum reveals the birth of Titanic in its docks, the objective of Sea City Museum is to tell visitors about Southampton’s perspective of the Titanic story, and the story of the crew. Both of the museums attempt to bring memories and the meaning it had for the local communities into the public collective memory of their visitors. Therefore, investigating how the memory of the Titanic, as it is produced in the exhibited objects and verbal histories affects the visitors of these museums, is an interesting area of research. What impressions, experiences and knowledge do visitors take away from the museum? This is the question addressed in this study. Due to the limited scope of this paper, I will try to answer it by investigating the perception of the ‘Southampton’s Titanic Story’, which was visited by about 137 thousand visitors during its first year of existence.

1. Museums - where memory meets history

According to Pierre Nora, we create *lieux de mémoire*, the “embodiments of a commemorative conscious that survives in a history” (Nora 1996, 6), because the memory is no longer part of our everyday life. As memory, contrary to history, is in constant evolution and subject to the dialectic of remembering and/or forgetting, the main objective of the *lieux de mémoire* is the intention of remembering (Nora, 1989). Nora argued that memory and history should be understood as opposites, as memory is alive, absolute and in permanent evolution that is vulnerable to manipulation, whereas history is a representation of the past, a secular production that claims universal authority. However, understanding museums as potential sites of

memory enables us to see how history can have a flexible relationship to the collective memory that it frames in the present (Rivera-Orraca 2009, 35).

A museum is a cultural institution where individual expectations and institutional, academic intentions and objectives interact. It is a place where a range of personal memories are produced, and where collective memories are shared among the visitors (Crane 1997, 46). In collecting objects and putting them on exhibition, museums define both what history is, and what should be remembered and “incorporated into the extra-institutional memory of the museum visitors” (Crane 2000, 2). Moreover, contemporary museums are not only the permanent memory store. Curators and museum organizers display and interpret the material evidence to construct and transmit specific messages. ‘One the other hand, visitors are not passive recipients of the museums’ displays’ (Cubitt, 2007; Henning, 2006; Prown, 1993). When they visit museums, they have both their pre-existing knowledge and life experience which they bring with them to the museum. In Crane’s term, the visitors have the “distortion of expectation” (Crane 1997). When engaging with the exhibited material and non-material objects, they add new content to their existing knowledge and understanding. They construct their own perception and meaning, transforming the history transmitted by museums into their own subjective understanding of the represented past. What is most important, their construction might not necessarily be the same as the objective of the curators or the perception of historians (Watson 2010, 205).

2. Methodology and data

In order to answer our research questions, we decided to conduct semi-structured interviews with the museum’s visitors. We asked the following open-ended questions that were standard across all the participants:

1. Why did you decide to come to this museum and see this exhibition?
2. Has this exhibition met your expectations? Did you enjoy it?
3. What was the highlight of this exhibition for you?
4. Is there anything in particular that you will remember after your visit?

Depending on the responses, further open-ended questions were asked to elaborate on the emerged topics. Interviews were generally undertaken on a one-to-one basis as people left the exhibition. The study took place over three days, the 27th, the 28th and the 30th of December 2013.

In total, we conducted 53 interviews (28 women and 25 men). The majority of our respondents were aged 36-40 and above 60 (Figure 1). Thirty-three of our participants indicated England as their place of origin, among whom 11 were from Southampton. The second group constituted Polish residents of England (9 individuals). Three of the participants were from Australia, whereas eight participants were from other parts of the globe (Table 1).

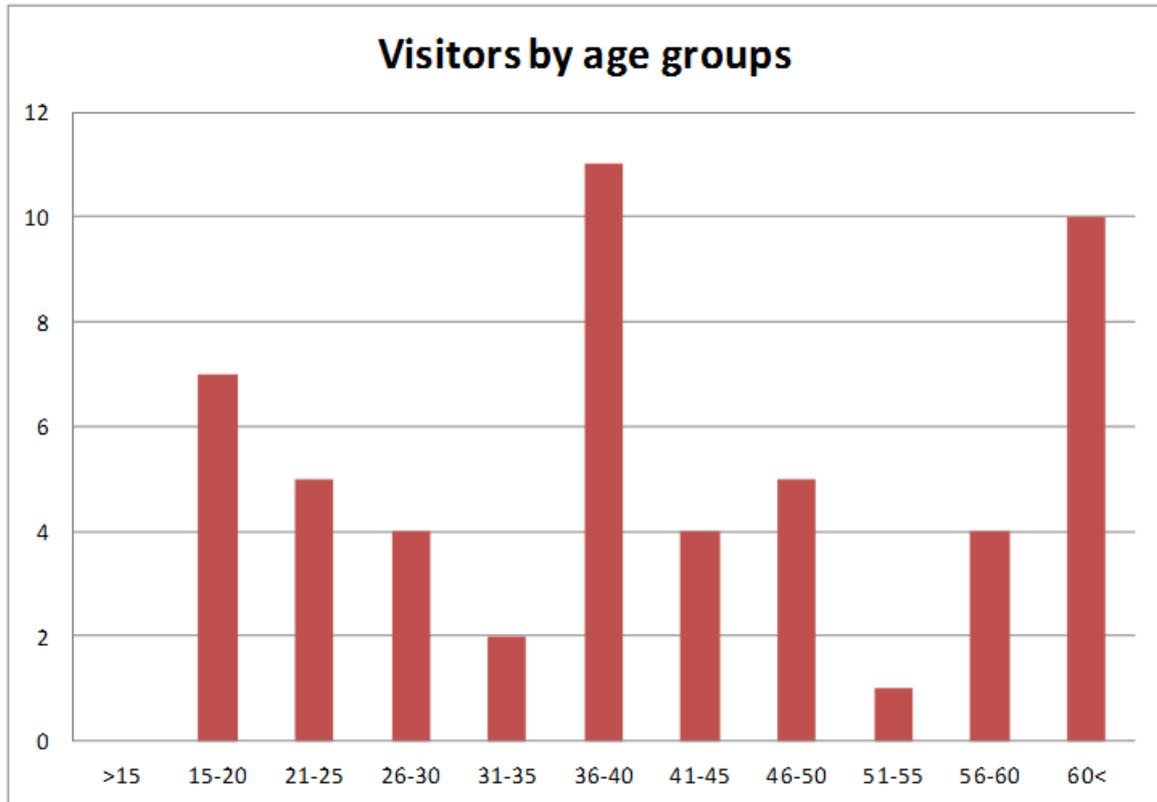


Figure 1. A graph showing the number of visitors surveyed from each age group (Image copyright: M. Radomska).

Place of origin	Number
England (Southampton)	33 (10)
Poland	9
Australia	3
Oman	1
Kirgizstan	1
China	1
Japan	1
Bulgaria	1
Greece	1
South Africa	1
Middle East	1

Table 1. A table showing the places of origin of visitors surveyed (Image copyright: M. Radomska).

3. Visitors' perceptions of the exhibition

There were various reasons and circumstances that made our respondents come to see the Titanic exhibition. For the majority, the exhibition visit was a form of entertainment when enjoying some free time. However, their interest in history and the story of the Titanic was also significant, next to the general interest in the newly opened Sea City Museum.

In the opinion of our visitors, the exhibition holds three main functions, which we have labeled as: informative, carrier/transmitter of emotions, and educational. The majority of our respondents stressed that this is a modern, hands-on exhibition that gathers all the information in one place, revealing some of the usually neglected facts. This especially concerned the technical information about Titanic and its visual representations. The exhibited paintings, artefacts, or the Titanic's interactive model reconstructed in 1:25 scale, underline the impressive scale of the ship, and influence visitors' imagination giving them a feeling of being *"somehow close to it"*. Words such as *'big', 'massive', 'huge', enormous', 'an engineering marvel'* were mentioned often when visitors were asked about their afterthoughts. Moreover, it was appreciated that the information was visually presented well, and that visitors were engaged in discovering some interesting information when participating in the activities prepared for them. To quote some of the respondents:

"opening some of the doors and reading some of the information in there was interesting, [...] I did not know how much food and stuff to take on the ship ... lots of chicken [...] I had no idea about that, that was interesting, you did not think about that you know, you focus on the disaster ... not on the amount of stuff to govern such a huge ship"

(Man, 40, England)

"it was really good, exciting... many things to do, you have videos, artefacts ...you can see there you have the steering wheel where you can drive the ship, you can imagine what it is like to be a captain [...] I think it is fabulous, the way it is structured is amazing"

(Man, 28, Greece)

"it was really good yeah, I like the interactions that you can try out that were on the ship, it is really, really excellent, much better than I had anticipated, because you never know before you come to the museum"

(Woman, 55, England (Southampton))

The organization of the exhibition was highly evaluated by the visitors, who indicated its informative and learning aspects as their favourite part of the exhibition. However, another point of reference of our respondents was their personal experience when listening to the recorded testimonies of those who survived the Titanic's disaster. Their voices, describing every single detail of this tragic event, made a significant impact on the visitors. It is through the survivors' verbal testimonies that this tragedy became personalized. Their expressed emotions, feelings and memories were passed onto the visitors of the

museum who started to identify themselves with the victims of the Titanic's disaster. They shared the traumatic memories of this event, making them collective memories (Halbwachs 1992). For instance, to quote some of our respondents:

"I just felt as if I was there with them, you know [...] I had this feeling [...] they were on a very safe ship, now they might die, drown any minute... so they need to rush to the lifeboats, get into the boats and ...you know sail away from the sinking ship ...so you get that feeling and then it goes, the lights are going down the water and then ... the explosion and then everything is quiet, screams and everything goes ... quiet gave me shivers [laughs] yeah, I mean imagining this picture, people trying to save their lives and suddenly everything goes quiet again...dark, middle of the night, freezing cold"

(Man, 46, Middle East)

"These voices...yeah this is what I will remember mostly...it was heard as if you were on this ship"

(Woman, 35, Poland)

"I think it highlights the loss, the loss of the people...I think it is the impact it had on Southampton you know ...that map when you see where everybody lived, the whole town was affected ...when you see how many people lived in Southampton...and what a shock it was to everybody because nobody knew it was possible...yeah that's what it highlights, massive disaster and a massive loss...massive loss because it could have been prevented, couldn't it?"

(Man, 50, England)

The personal tragedy of those, both who died and survived, will be something that will be remembered most of all by the visitors. 'Survivors' testimonies', 'the tragedy of the Titanic', 'memories of those people', 'big loss of people' were words that often reoccurred in response to the question of what memories the visitors will take with them from this exhibition. However, in the opinion of our respondents, the Southampton's Titanic exhibition goes beyond both the informative function and as the carrier of emotions. For our visitors, the exhibition highlights the mistakes made when directing and managing the ship, including lack of precautions that, if they had been taken, could have prevented this tragedy. Even though they admit the traumatic consequences this event had on many families and cities, they simultaneously stressed the educational aspects of this tragedy. As our respondents emphasized:

"merely...it is about the titanic and people who died there, and secondly the people that...the lesson I have learned also that people improve...mistakes can be made and things can be corrected and learned ...people learn from their mistakes"

(Man, 31, England)

“people understand a bit more about this iconic story [...] I liked the inquiry, what they learned after the disaster, something silly which is trivial for us now, but not at that time at their level of intelligence ... it gave me a bit of insight into how we learn and develop”

(Man, 24, England)

Our respondents perceived Titanic’s tragedy as an educational event that positively contributed to general human development, and that triggered the production of our contemporary knowledge. The sinking of Titanic was for them a symbol, a turning point in our history, through which lens the development of our civilization is measured. It is an event from which we have learned.

Conclusions

The object of this paper was to investigate how the memory of the Titanic, as manifested in the exhibited objects and verbal histories at the ‘Southampton’s Titanic Story’ exhibition, affect the visitors of this museum. Based on the collected data, we have been able to indicate three main functions the exhibition plays for our respondents. Firstly, it is an informative function, as the exhibition provides visitors with interesting and unknown information that is visually well presented, encouraging the acquisition of knowledge. Secondly, the exhibition is a carrier/transmitter of emotions, as verbalization of the survivors’ testimonies contributed to visitors’ identification with the victims and survivors of the Titanic tragedy, which consequently enabled the passing on of the memory of this tragic event. Lastly, it plays an educational function, as for our participants its meaning goes beyond the Titanic tragedy by highlighting the positive contribution of this tragic event to general human development, and the production and circulation of knowledge.

Because of the limited scope of this paper, we are aware that our small-scale research does not close the discussion of the meaning and role of the Southampton’s Titanic exhibition. For instance, to what extent has the Southampton’s Titanic exhibition, which aimed to show Southampton’s story of the Titanic, the story of its crew, met its objectives? To what extent does it give a “voice to the disenfranchised, the oppressed and the silenced” (Gable and Handler 2007, 60), passing on the memory of the crew? These and other questions still require further investigation.

Bibliography

Bergfelder, T., and Street, S. (Eds). (2004). *The Titanic in myth and memory : representations in visual and literary culture*, London: I.B.Tauris.

Crane, D. (1997). Memory, Distortion and History in the Museum. *History and Theory*, 36, pp. 44-63.

Crane, S. A. (2000). Introduction. In Susan A. Crane (Eds). *Museums and Memory*, Stanford, CA: Stanford University Press.

Cubitt, G. (2007). *History and Memory*. Manchester: Manchester University Press.

Gable, E., and Handler, R. (2007). Public History, Private Memory. In Amy K. Levin (Eds). *Local museums and the construction of history in America's changing communities*. CA: Walnut Creek.

Halbwachs, M. (1992). The Reconstruction of the Past. In A. Lewis Coser (Eds). *Maurice Halbwachs on Collective Memory*. Chicago: The University Press of Chicago.

Henning, M. (2006). *Museums, Media and Cultural Theory*. Maidenhead: Open University Press.

Heyer, P. (1995). *Titanic legacy: disaster as media event and myth*. Westport, CT: Praeger.

Nora, P. (Eds). (1996) *General Introduction: Between Memory and History. Realms of Memory*, 1, pp. 1-20.

Nora, P. (1989). Between memory and history: les lieux de memoire. *Representations*, 26, pp. 7-25.

Prown, J. D. (1993). The Truth of Material Culture: History or Fiction? In S. Lubar and W. D. Kingesly (Eds). *History from Things: Essays on Material Culture*. Washington: the Smithsonian Institution, pp. 1-19.

Riviera-Orraca, L. (2009) Are museums sites of memory? *The New School Psychology Bulletin* 6(2), pp. 32-37.

Watson S. (2010). Myth, Memory and the Senses in the Churchill Museum. In S. H. Dudley (Eds). *Museum Materialities: objects, engagements, interpretation*. Oxford: Routledge, pp. 204-223.

It's all Fun and Games to You, isn't you? The New Technology by the 'New Generation' in Archaeology

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Improvements in technology have been aiding archaeologists since the birth of the modern profession. But never has the pace of development been so fast and so far-reaching in its application. As a result, the onus today is not just on long-standing professionals, but on the new generation of archaeologists to understand this technology and to apply it to archaeology, so that our profession remains vibrant and in touch with today. Furthermore, those outside the subject still perceive our subject as antiquated and reluctant to use new technologies. Today I will show you how this technology has been adapted to archaeology by the New Generation. The aims of this paper are to show how the new generation are looking to apply new technologies to their work, to critique their use in relation to older applications of technology, and to look towards future technologies and their viability.

Gary Lock noted the distinction between automation and innovation ten years ago, and it remains vitally important (Lock 2003). Automation is the computerisation of methods and techniques that are already apparent, and innovation is the use or invention of new ideas, methods or equipment. The distinction between the two can seem very blurred to begin with; at what point does the use of a Geographic Information System in an excavation become innovative, for example? While it may look innovative by bringing the museum into the household, are these features simply automating tasks that are already being done by the museum? Technology actually becomes a threat when used incorrectly, especially when a technology becomes very popular and becomes the norm in society.

The second problem is preservation and dissemination in the modern day. In particular, with climate change, the likelihood of natural events exposing archaeological sites, but also destroying them, is becoming more common, and conventional methods of recording sites are becoming too time-consuming or unaffordable. There are a large number of sites that were exposed over the winter of 2014 in Britain alone that went potentially unrecorded. So can archaeology adapt to this? The third problem is the rise of the internet. Archaeology has not embraced the internet's potential, which is now used by a third of the world's population and practically 99% of the UK's population. Many of us don't blog about our work which is a missed opportunity. Furthermore, internet technologies which are free or affordable, particularly in relation to photogrammetry, have become very common but simply aren't known (Galt 2014). There are so many ways the internet can help us, but we leave the potential to computer scientists, so their work trickles down to us. So what is the new generation doing about these problems?

Noble-Shelley was inspired by the use of the “excavation in a box” activity (a sandpit to teach children how archaeologists excavate sites) by the Hampshire and Wight Maritime Archaeological Trust to adapt the *Xbox Kinect* into its use (Noble-Shelley 2013). This involves using a projector and a *Kinect* in tandem to both capture the movements of participants, the movement of sand, and to also project an image of the site, which helps with stratigraphic interpretation and the visualisation of a site, thus creating an “augmented reality” (which can also be seen on a separate screen for other participants) (Figure 1). Originally, the software (which is free) for the *Kinect*’s use in this way, was developed by Oliver Kreylos from the University of California Davis, for explaining geological and hydrological principles by using sand as a “tapestry” for modelling water. The innovation comes in taking this technology and making it into an archaeological game that allows people who otherwise can’t get involved, such as children, or those with a disability, to participate in an excavation. It allows for people to be immersed into the excavation. The *Kinect* also stands up well against older “virtual reality” excavations, which were primarily on websites. These shouldn’t be considered true virtual digs as there is no interactivity, they are not as engaging, and are often very unwieldy websites to use, such as the Grand Pre excavations in Canada (<http://www.grand-pre.com/en/8b30-36.html>). Furthermore, other uses of the *Kinect* in archaeology, such as the Roskilde “Experience Cylinder”, charting the 2007 voyage of a Viking ship from Denmark to Ireland, have not focused on the teaching of excavations. But, it is very limited in its further educational value at the moment; there is no further use beyond the activity itself, as of yet, except in videos, though there is scope to develop it so that a user could use their *Kinect* at home to excavate a virtual site, without the need for a sandbox.

Arch Aerial is combining innovations from multiple fields. Based in Texas, they design drones which allow archaeologists to take aerial photographs (and they are currently working on installing LiDAR into these). It is innovative because it uses a 3D printer in the design process; this allows the trial and error stage of creating the product to be done wholly in the office, cutting costs significantly without compromising on quality, and making the product accessible to archaeological projects. The idea came from an Italian excavation where the expensive use of helium balloons meant that there were only a few aerial photos to show for a whole season’s work. The drones have multiple advantages over other techniques; mainly the versatility and the reusability of the drones, but also their durability in many environments and climates, making them reliable. The drones are quite small, and are built out of polymer (AVS plastic). They can be easily integrated into any site. They can fly between 20 and 300 metres to capture sites of basically any size within one picture. Compared to conventional drones, which cost between £15 and £35,000, *Arch Aerial* drones can be hired out for less than £1,000 for 3 months. Drones themselves are innovative because you can easily use the photographs from the drones to create photogrammetric plans and models in about 20 minutes from downloading the photos into the software; they can be used to help with the day-to-day interpretation of the site; a kind of “interpretation at the lens edge”? Although the drones have only been used on a few archaeological sites, they have already significantly increased our

understanding of the sites they have visited. For example, in Belize, they discovered a whole number of new sites by flying around the canopy of the Belize rainforest. Today, we can also use photogrammetry for variety of applications in archaeology, using software like *Agisoft*. But, you can also use free software such as *Sketchfab* to publish these models for free (Barratt 2013).

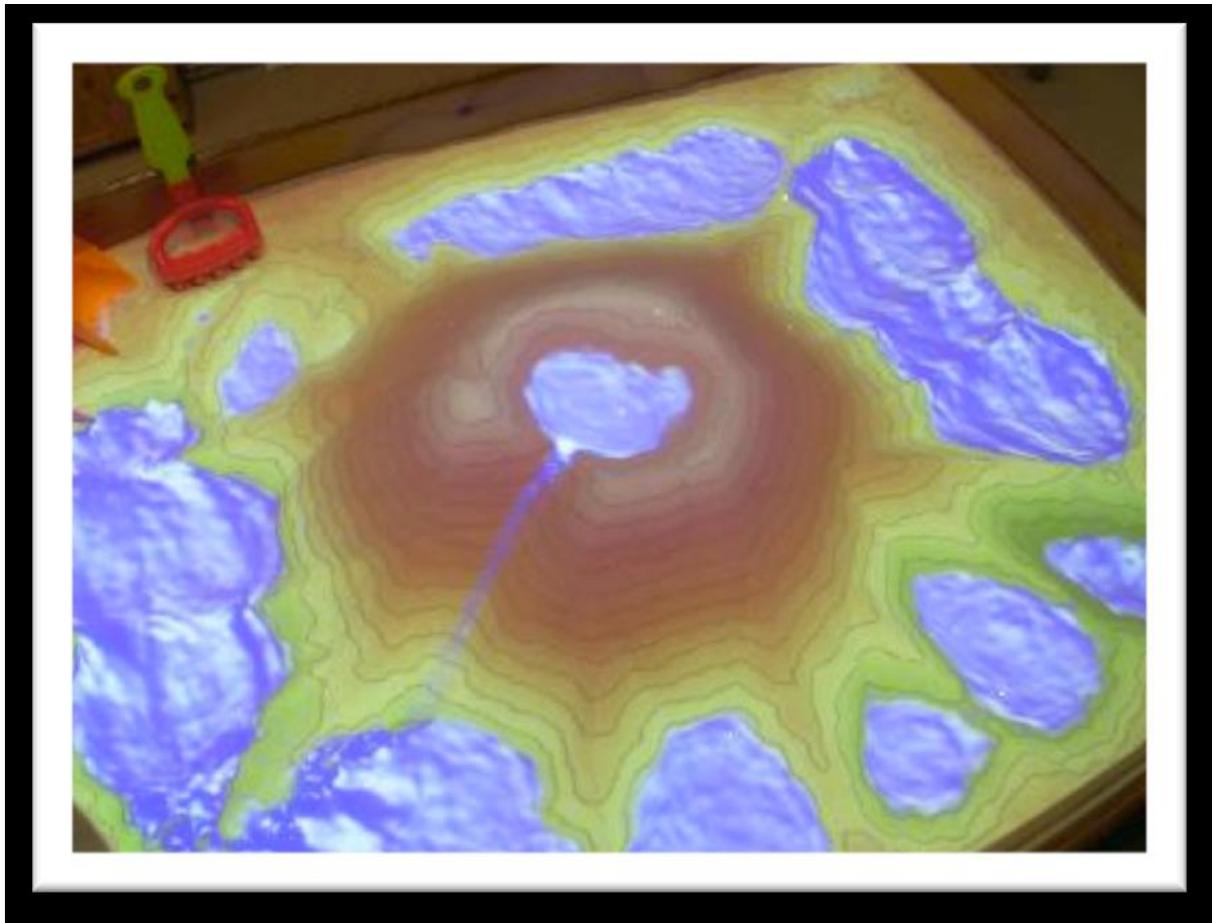


Figure 1. *The use of the projector and Kinect, showing hydrological processes in action. The “layers” can be used as a rough guide to explaining stratigraphy in the “excavation in a box” practical (Kreylos 2013).*

At the same time *Arch Aerial* is automating the process of aerial photography, making it easier to take repeatable, high quality photographs of the site. However, very little in the way of theory has been applied to drone usage on sites. To me, it is primarily a question of scale: is it just about photographing the site, or placing the site into a pattern in a landscape? The act of zooming into an image can be interpreted as a top-down interpretation of a site, while zooming out of an image could be construed as a bottom-up approach. Aerial photography was the domain of air survey specialists, and to some extent, this leads to the archaeologist’s knowledge of aerial photography being sketchy at best. This has led to the limited use of aerial photography, sometimes using photography for economic or ergonomic reasons rather than for genuine archaeological enquiry. This has also led to a lack of critique of the theory and method, not in the sense of interpreting features. As an analogy, how we came to understand how to use GIS properly in archaeology was only really done when we critiqued how statistics were being used within GIS. For example, Figure 2 and 3 explicitly shows the degrees of distortion, where the 45 degree angle in

the corners represents a 1.44 times increase in the length of the distance between the camera and the ground (Wilson 2000).



Figure 2. Aerial photograph taken by a quadcopter drone by Arch Aerial for the Poggio Civitate project (Tuck, Kreindler and Huntsman 2013).

The use of the internet in recent years has expanded almost exponentially. With the expansion in technology, this has also allowed new and innovative methods of practising and publicising archaeology; for example, any archaeologist who uses social media to engage with a wider audience than their peers. Many archaeologists have blogs and social media accounts, and mention their work, research, and other articles, discussing among their peers about current issues, and so on. This is not just broadcasting however; this is also a one-to-one engagement with the public, our main audience. Effectively, the excavation or museum exhibit can come to them without the expense of travelling.

I would argue that social media is changing the very way that we as archaeologists are teaching people, and by definition, it is also changing the way the entirety of academia is being taught by breaking down barriers created through centuries of tradition. But this is on a whole new scale; affecting people from all walks of life, finally offering a viable alternative, for all ages and abilities, by being relatively cheap and accessible. This brings me to the crux of my argument: it is my sincere belief that every archaeologist should, if they haven't already, be given basic training in social media so they can reach their target audience of the public. Why is one-to-one engagement more important than just presenting articles to

the public? Because we are simply not doing enough to keep the public engaged with archaeology. Social media provides a simple and under-valued solution to this fundamental issue. This is not just a case of “keeping up with the times”; our *raison d’être* is at stake; if we cannot inform the public of our work, then why does our profession exist? While other professions exploit this technology in many ways, we struggle to keep up.



Figure 3. *The same as image 2, but zoomed in.* Is this act a literal example of a top-down approach to archaeology (Tuck, Kreindler and Huntsman 2013).

In having said this, the near future may well bring us a new medium to interact with the public: *Minecraft* and the ‘gamification’ (definition from Ng 2014 – using elements of games in non-game settings) of social media. Charlie Brooker’s documentary *Videogames Changed the World* shows us that the future may well lie in the gaming industry, in particular with social media and games that can exploit this. *Minecraft* is a cheap “sandbox” game that allows you to create and destroy blocks to your desire, and is often used to recreate objects from real life, like cities. Because of its community element, where several people can be on the same server, real-life skills like team work, communication, and creativity can be developed in a safe environment. It has become a very powerful tool in educating children and adults alike, from fields as diverse as architecture, town planning and human geography. In schools, there is a version of *Minecraft* called *MinecraftEDU* (<http://minecraftedu.com/page/>), which is designed to complement a school’s curriculum, although the link between archaeology and schools is still a work in progress. *Minecraft* has thousands of “mods”, which add additional content to the game, but as of yet, the closest thing to archaeology is a comedy version of archaeological excavations which is designed for fun, and not to be taken seriously. This is a resource that could be developed for future generations of people to enjoy archaeology, much like Jasmine’s Xbox is treated like a game by children at the Hampshire and Isle of

Wight Maritime Trust; but also as a tool for presenting and educating the public in general. This is not to say that it should replace conventional methods of displaying archaeology, but that it should be treated as a complementary resource.

In conclusion, the innovative solutions to real world problems can be found in new technology, not just in academia. Much of the technology presented here is now becoming free or affordable, allowing archaeology to adapt more easily. However, it should be considered at the start of any research project whether this technology would be useful for you, by putting the archaeology first and not the technology. In many cases it needs to "lose its innocence", with more theoretical critique.

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I must thank Jasmine Noble-Shelley for allowing me to see her dissertation and presenting it at two conferences on her behalf! I would also like to thank Ryan Baker, CEO of *Arch Aerial*, for our informal chat over Google Hangouts in February 2013, and Lucy Shipley, who also gave invaluable time to talk about the use of the 3D-printed drones over the site she was excavating on. Finally I would like to thank Eric Walker of AIS Kuwait school, who provided information about resources relating to *MinecraftEDU*.

Bibliography

Author unknown, *8B30-36*. Société Promotion Grand-Pré. Accessed via <http://www.grand-pre.com/en/8b30-36.html> [Accessed 14 April 2014].

Barratt, R. P. (2013). The Use of Photogrammetric Models for Recording of Archaeological Features. *The Post Hole Journal*, York University. Accessed via <http://www.theposthole.org/read/article/237> [Accessed 14 April 2014].

Clarke, D. (1973). *Archaeology: The Loss of Innocence*. *Antiquity*, 47, pp. 6-18.

Colley, G. (no date). *Best Practice in the use of UAV and Low-cost software for Photogrammetric Surveys of Heritage sites*. Suave Aerial Photographers. Available via <http://www.suaveairphotos.co.uk/newsletters/Newsletter4/SuaveSPRS2011BestUseUAVandLowCostSoftware.pdf> [Accessed 14 April 2014].

Galt, A. (2014). *3D modelling for Archaeologists*. 14 April 2014. Available via www.archserve.blogspot.co.uk [Accessed 14 April 2014].

Lock, G. (2003). *Using Computers in Archaeology: Towards Virtual Pasts*. Routledge: London.

Ng, K. (2014). *UNESCO uses Gamification to Teach Disaster Safety*. Asia Pacific Futuregov. 17 January 2014. Available via <http://www.futuregov.asia/articles/2014/jan/17/unesco-uses-gamification-teach-kids-disaster-safet/> [Accessed 14 April 2014].

Nilsson, D. (2010). *The Usage of Unmanned Aerial Vehicles and Their Prospects in Archaeology*, Master's Thesis, Institute of Archaeology, Lund University, Sweden.

Noble-Shelley, J. (2013). *The Kinect: Potential and Application Within Archaeological Education and Outreach*. Unpublished undergraduate dissertation, Southampton University.

Rempel, D.E. (2013). *Gaming for Mastery: Using a Content-Specific Video Game to Increase Student Engagement and Self-Efficacy in English Criterion A: Content*. Research Report in Fulfilment of SCED 695.

Videogames Changed the World. Channel 4, Endemol UK, 30th November 2013, Television.

Wilson, D. R. (2000). *Air Photo Interpretation for Archaeologists*. Tempus, Stroud.

Appendix

Image 1: Kreylos, O. (2013). *Augmented Reality Sandbox*. Fig.1: Sandbox table when turned on, showing a mountain with a crater lake, surrounded by several lower lakes. Available via

<http://idav.ucdavis.edu/~okreylos/ResDev/SARndbox/> [last accessed 14 April 2014].

Images 2-3: Tuck, A. Kriendler, K and Huntsman, T. (2013). *Excavations at Poggio Civitate (Murlo) During the 2012-2013 Seasons: Domestic Architecture and Selected Finds From the Civitate A Property Zone*. Fig 3: Civitate A: Overhead View of the Area of Excavation. (Photo by Ryan Baker and Nathan Palacios, Courtesy of Poggio Civitate Excavation). In *Etruscan Studies*, 2013; vol. 16(2), pp.287-306.

Dialoguing with the Gods: the Liver Models from Mari

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“When the country rebelled against Ibi-Sin, the liver appeared like this”

Inscribed on Mari Liver Model number 7 F II (Figure 1).



Figure 1. A single liver models from Mari (no.18) - Musée du Louvre – Paris – its inscription can be found in translation in the quote at the beginning of the article (Image copyright: RMN/Hervé Lewandoski).

Divination today is seen as superstition, but in many past cultures of the Near East, it was seen as a way to communicate with the divine. Such belief is connected to the production of liver models, like the ones found by the French archaeologist André Parrot at Mari, Syria, dated to the 19th and 18th century BC. These 32 clay models (Figure 1 and 2) were excavated, with other tablets, during the French campaign of 1935–36 in room 108 of the Royal Palace of Mari. These objects are clay models representing livers from sacrifices, and are thought to represent real examples, reproduced shortly after the ceremony had taken place. It is quite common for them to have inscriptions describing the meaning of the features the liver had. The ancient Babylonians believed in fact that the liver was the seat of thought, and that the gods would manifest their answer in the healthy liver of a sacrificial animal (Collins 2008, 320).



Figure 2. *Liver Models from Mari – Musée du Louvre – Paris - AO 19829, AO 19830, AO 19831, AO 19832, AO 19833, AO 19834, AO 19835, AO 19836, AO 19837, AO 19838, AO 19839, AO 19840* (Image Copyright: C. Larrieu).

Liver models are related to the wider practice of extispicy – the study of animal entrails – but hepatoscopy – the study of the sole liver – was regarded as a higher discipline (Pardee 2000). According to various legends, it was the gods who brought extispicy to humans (Koch 2011), and although our first attestations of this practice are the Mari models, evidence from liver omens suggests that it was already performed in the third millennium BC (Benoit 2007).

The actual ritual was complex and expensive. By the first millennium BC, four sacrificial animals were needed. A less studied aspect is the ‘mechanics of sacrifice’ (Robson 2011), which links these objects with various strata of the ancient population, for example in tracing who supplied the animals, how they were chosen, and who paid for them.

Liver models can help us gain a glimpse into Mesopotamian society in almost any period, as the practice survived for millennia, as can be testified by various liver omens and models from different periods. Liver models were found in Babylon (see Figure 3), Mari, Hattusa and Etruria. The geographical spread of hepatoscopy and its influence on Greek and Roman divination (Collins 2008), allows us to see how these cultures influenced each other, and how, with traded goods, beliefs were spread as well.



Figure 3. *The Liver Tablet – inscribed model of a sheep liver, Old Babylonian - British Museum, London – BM92668 (Image copyright: E. Passera).*

The Mari models are strongly linked with religion, which in ancient Mesopotamia had different contexts, ranging from state to private, but hepatoscopy was used in both contexts. We know in fact that it was used for state concerns, but in Mari, we also have more common requests, such as if a man should buy a boy as a slave or not. Hepatoscopy shows that the relationship with the gods was a dialogue, where the diviner asked them to show their will in order to act in the most profitable way (Heeßel 2010). Omens in general show us how the future was conceived; differently from the unchangeable destiny of the Romans, in Mesopotamia the very purpose of divination was to be able to act against future threats, and know the will of the gods. Living in harmony with them was beneficial, and thus extispicy was strongly connected with decision-making, especially in state affairs. This is especially true for the Neo-Assyrian Empire where the abundance of evidence shows how divination played a key role in influencing the king's actions: nothing could be done against a bad omen but postpone the planned project and try again after a reasonable amount of time had passed (Koch 2011). This again stresses how there was little division, if any, between the king, the state, and religion. They were strongly linked together, as the king, as the state, asked the gods an opinion on decisions. During the Neo-Assyrian period in particular, we see how astrology and extispicy played a complementary role, but while astrology was highly debated and various interpretations were given, extispicy was straightforward and diviners never offered more interpretations. Divination was so important that diviners followed the army on expeditions (Koch 2011; Figure 4).



Figure 4. Assyrian diviner extracting the entrails from a sacrificial animal (bottom left corner) – Assurnasirpal II's Northwest Palace at Kalhu (Nimrud) - 9th century BC – British Museum, London (Image copyright: E. Passera).

Although the surviving evidence associates divination mostly with the state, divination was probably widely present in people's daily lives. Lesser forms of divination, like lecanomancy (explored in Issue 36 by Alex Loktionov), were generally used for more common matters (Benoit 2007). Omens also had an impact on political, military, economic and cultural state matters, but these would have strongly affected people's lives. Omens for private matters can be studied through Neo-Assyrian *tamitus* texts. Unfortunately they never mention actual sacrifices, thus it is debatable whether we can consider them extispicies.

Liver models also allow us to understand, partially, how the transmission of knowledge worked in ancient Mesopotamia, and how the training of new diviners worked. Liver models are associated with tables and lists of omens. Only these two kinds of written material were at the disposal of the diviners. The fact that hepatoscopy appears in written texts as an already established discipline, points to a very long oral phase, during which it established and shaped itself (Richardson 2010, 328).

Furthermore, models and texts allow us to trace the anatomical understanding that the ancients had developed of the liver, although in this we are still hindered by the poor understanding of many terms (Biggs 1969). While there was not a medical understanding of the liver, whose function was mistaken by the ancients, it is interesting to note how modern terminology of the liver parts has its roots in Babylonian terms (Martins and A. Cavalcanti 2012).

The liver models from Mari are a testimony to a complex and long-lived tradition of hepatoscopy and, more generally, divination in the Ancient Near East. They are very important evidence, along with omen tablets, that allows archaeologists and historians to reconstruct and understand various aspects of the lives of people throughout the millennia. As these beliefs were common to the whole population, not only the elite, the models are a useful tool for social analysis as well as the study of religion. Omens and liver models depict popular beliefs, state religion, and how ancient inhabitants of Mesopotamia saw their relationship with the gods. The conception of the future, and the fact that men could act to prevent negative outcomes, is the reason for the long life of this practice and its presence in almost every aspect of life. It also greatly influenced decision-making, colouring the picture of kings' political and military strategies. Divination was an important "stabilising factor" (Heeßel 2010) and eliminated "disorder in social relationships" (Park 1963). This is true, and is another factor that strengthened the importance of this practice, but we should also see it foremost from an ancient perspective: a way to communicate with the gods and be the good servants of the gods, which humans were created to be. In the light of what has been considered so far, the Mari liver models offer a fascinating insight into ancient Mesopotamian life and religion.

Bibliography

Beckman, G. (1983). Mesopotamians and Mesopotamian Learning at Ḫattuša. *Journal of Cuneiform Studies*, 35(½), pp. 97–114.

Benoit, N. (2007). *Ancient Divination* [online] Available at: <http://www.louvre.fr/en/oeuvre-notices/model-liver-divination> [Accessed 6 December 2013]

Biggs, R. D. (1969). Qutnu, maṣraḥu and related terms in babylonian extispicy. *Revue d'Assyriologie et d'archéologie orientale*, 63(2), pp. 159–167.

Collins, D. (2008). Mapping the entrails: the practice of Greek Hepatoscopy. *American Journal of Philology* 129(3), pp. 319–346.

Heeßel, N. P. (2010). The Calculation of the Stipulated Term in Extispicy. In A. Annus, *Divination and Interpretation of signs in the Ancient World*. Oriental Institute Seminars 6. Chicago: The Oriental Institute, pp. 163–176.

Koch, U. S. (2011). Sheep and Sky: Systems of Divinatory Interpretation. K. Radner and E. Robson (Eds). *The Oxford Handbook of Cuneiform Culture*, pp. 447–469.

Martins, C. and A. Cavalcanti de A. Martins (2012). History of Liver Anatomy: Mesopotamian liver clay models. *International Hepato-Pancreato-Biliary Association*, pp. 322–323.

Pardee, D. (2000). Divinatory and Sacrificial Rites. *Near Eastern Archaeology*, 63(4), pp. 432–234.

Park, G. K. (1963). Divination and its social context. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* 93(2), pp. 195–209.

Richardson, S. F. C. (2010). On seeing and Believing: Liver Divination and the Era of Warring states (II). In A. Annus (Eds). *Divination and Interpretation of signs in the Ancient World*. Oriental Institute Seminars 6. Chicago: The Oriental Institute, pp. 225–266.

Robson, E. (2011). Empirical Scholarship in the Neo-Assyrian Court. G. J. Selz (Eds). *The Empirical Dimension of Ancient Near Eastern Studies*, pp. 603–630.

Rutten, M. (1938). Trente-deux modèles de foies en argile inscrits provenant de tell-hariri (mari). *Revue d'Assyriologie et d'archéologie orientale* 35(1), pp. 36–70.

Cave Imagery in the Non-Olmec Rock Art of Oxtotitlán, Guerrero, Mexico

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Throughout ancient Mesoamerica, caves were perceived as important features of the sacred landscape (Brady and Prufer 2005). Caves were accompanied by a rich set of images and mythic narratives, detailing acts of creation and the emergence of human beings from the underworld (Heyden 2005). Although the origin of these narratives has often been associated with the cave symbolism present in the Olmec-style art of the Formative period (c. 1500-500 BC) Gulf Coast lowlands (Grove 1973; Scott and Brady 2005), the human use of caves in Mesoamerica extends well into the Archaic period (c. 8,000-2,000 BC) (Smith 2005). Archaic period rock art in Mesoamerica, however, is attested at only a handful of sites: the Cauadzidziqui rock shelter (Guerrero, Mexico), Santa Marta cave (Chiapas, Mexico), Loltun cave (Yucatan, Mexico), the El Gigante rock shelter (Honduras), and the Espirito Santo cave (El Salvador). This identification is based on the presence of hand prints, rudimentary anthropomorphic figures, and the presence of abstract geometric art (Gutiérrez 2008; Gutiérrez and Pye 2008; Haberland 1972; Künne and Strecker 2003; Velázquez Valadez 1980).



Figure 1. *Oxtotitlán Cave, Guerrero, Mexico* (Image copyright: Arnaud F. Lambert).

In this brief report, I present evidence for the existence of cave imagery among some of the non-Olmec, possibly Late Archaic period (c. 2000 BC), rock paintings of Oxtotitlán cave in Guerrero, Mexico (Figure 1). The use of cave symbolism at Oxtotitlán, is comparable to the images of caves found on art works from later periods of Mesoamerican history, suggesting that these rock paintings may be one of the earliest portrayals of this common trope in Mesoamerican art.

Archaic Period Rock Art and the non-Olmec Rock Paintings of Oxtotitlán Cave

As noted previously, there have been relatively few examples of Mesoamerican rock art attributable to the Archaic period (Gutiérrez 2008; Küne and Strecker 2003). Most archaeological work has been concerned with the content and technique of Archaic rock paintings due to the lack of direct chronological measures, and the ambiguity of archaeological associations to cultural materials with established chronologies (Coladán 1995). In eastern Guerrero, however, the situation has been somewhat ameliorated by the recognition of an Olmec-style painted mural superimposed on top of much simpler monochromatic rock paintings at the Cauadzidziqui rock shelter, near the Oaxaca-Guerrero border (Gutiérrez 2007). Since the Olmec-style rock paintings of eastern Guerrero have been dated to the Middle Formative period (900-500 BC), based on iconographic comparisons with the sculptures of La Venta, Tabasco (Grove 1970a, 1970b), it has been convincingly argued that the abstract geometric paintings that were superimposed by the Olmec-style paintings probably date to the Late Archaic period (c. 2000 BC) (Gutiérrez and Pye 2008). Similar monochromatic paintings occur at both Oxtotitlán cave and Juxtlahuaca cave in central Guerrero (Gutiérrez 2008, 80), suggesting that they can be stylistically associated with the Late Archaic rock art of Cauadzidziqui.



Figure 2. *The Area A rock paintings from the South Grotto of Oxtotitlán Cave, Guerrero, Mexico (Image copyright: Arnaud F. Lambert).*

Although it is best known for its array of Middle Formative period Olmec-style black paintings and polychromatic murals (Grove 1970a, 1970b; Lambert 2012), Oxtotitlán also boasts a number of red rock paintings in its south grotto that are not as easily attributed to the Formative period. These figures have typically been divided into three panels, known as the Area A, B, and C paintings respectively (Grove 1970a, 1970b). The Area A rock paintings are composed of a number of geometric elements including curvilinear lines, triangles, cruciform motifs, and concentric circles (Figure 2). While it is likely that the majority of these simple red figures date to the Late Archaic period, as do their counterparts at Cauadzidziqui, some of the compositions in this panel, such as Painting A-3, contain elements – e.g. goggle-shaped eyes and protruding fangs – reminiscent of Classic and Post-classic period depictions of

rain gods (Grove 1970a, 77, 1970b, 26). Only one of these red cave paintings, Painting A-1, appears to date to the Middle Formative period, and may have served as a *tepetl* place-sign (Lambert 2013).



Figure 3. *The Area B rock paintings from the South Grotto of Oxtotitlán Cave, Guerrero, Mexico.* (Image copyright: Arnaud F. Lambert).

Located to the right of the Area A rock paintings, the Area B rock paintings appear to consist of a series of zigzag lines, triangles, arrows and other linear elements (Grove 1970a, 75-77, Fig.24) (Figure 3). Very little attention has been paid to these red geometric figures. One exception is the naturalistic portrayal of a deer identified as Painting B-2. The deer in this rock painting is rendered in a leaping stance and is accompanied by a series of red lines forming a box around the head of the deer. To the left of the deer, there appears to be a very weathered human figure. Grove (1970b) claims this scene might have served as the basis for rituals associated with hunting magic.

Situated to the right of the Area B panel, the Area C rock paintings are found primarily in the crevices near the ceiling of the cave, towards the centre of the south grotto (Grove 1970a, 76-77, Fig.25). This cluster of rock paintings consists of simple geometric designs, such as curvilinear elements, comb-like motifs, and a schematic, possibly avian, figure formed by several triangles (Figure 4).



Figure 4. *The Area C rock paintings from the South Grotto of Oxtotitlán Cave, Guerrero, Mexico* (Image copyright: Arnaud F. Lambert).

The Cave Imagery in the Area B Rock Paintings of Oxtotitlán

Despite their apparent randomness, a careful examination of the geometric and zoomorphic designs that comprise the Area B rock paintings reveals that this group of images forms a cohesive picture. Using cave symbolism in later Mesoamerican art works as points of comparison, I suggest that the Area B rock paintings of Oxtotitlán portray the cave as a place of emergence and a source of fertility.

In terms of their overall appearance, the Area B rock paintings seem to be organised along two bands of triangular designs (Figure 5). The top band of triangles appear to delimit the relatively flat top of the mountain on which Oxtotitlán is located; while the other band of triangular motifs form a baseline, possibly portraying the cliff face of the cave. Similar bands are found on thrones in Olmec-style art, such as Altar 4 from La Venta, Tabasco, and are used to represent the surface of the earth in relation to cave-like openings in the sculptures (Grove 1973, 131) (Figure 6a). Highly stylized versions of such bands are also observable in the quadripartite depictions of the underworld as a cave in the low-relief carvings of Chalcatzingo. (Figures 6b-c).



Figure 5. Drawing of the Area B rock paintings from the South Grotto of Oxtotitlán Cave, Guerrero, Mexico (Image copyright: Arnaud F. Lambert).

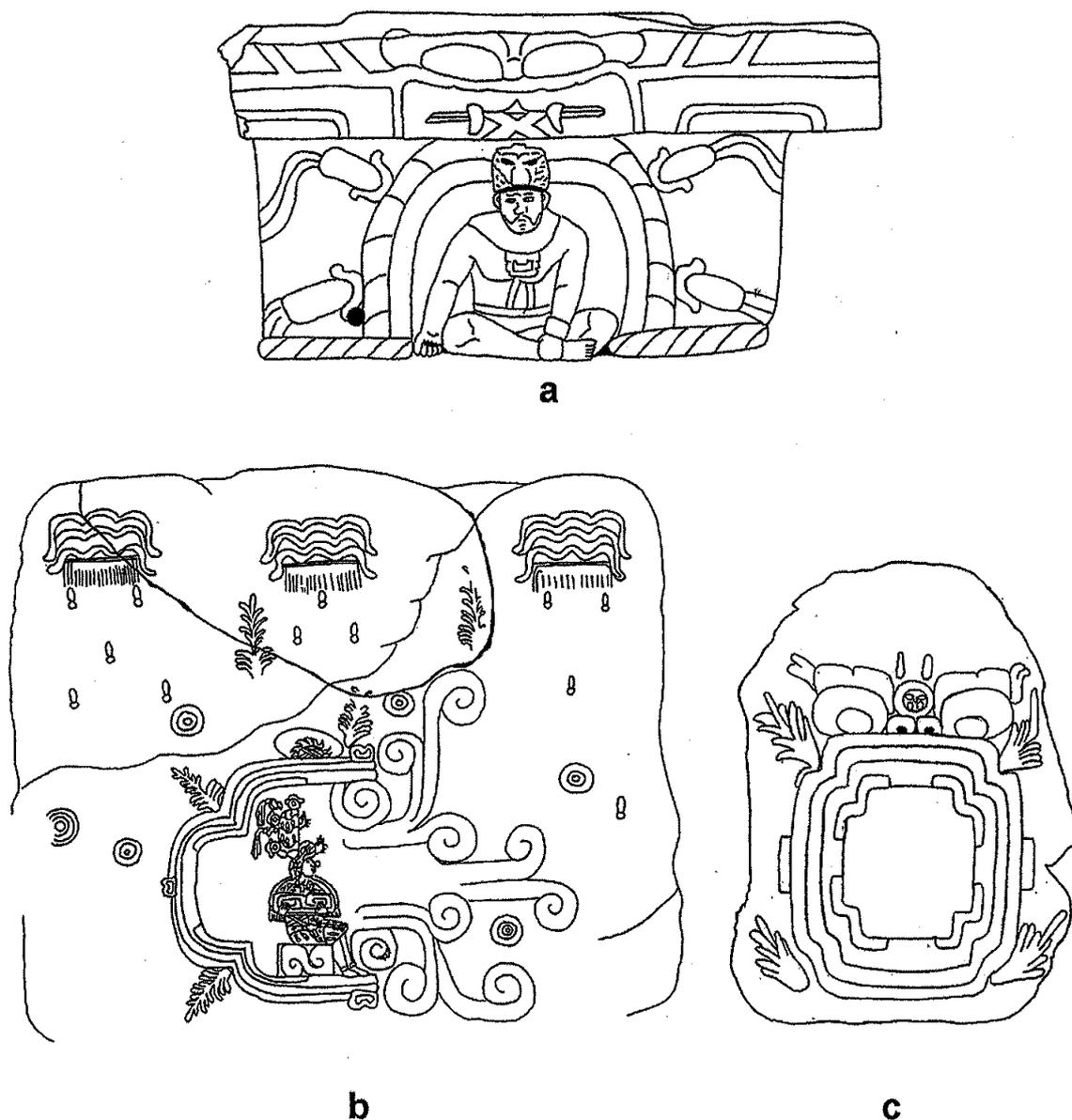


Figure 6. Cave imagery in Olmec-style art: (a) La Venta Altar 4 (Parque Museo La Venta, Villahermosa, Tabasco); (b) Chalcatzingo Monument 1 (Morelos, Mexico); and (c) Chalcatzingo Monument 9 (redrawn after Grove and Angulo 1987:125, Fig. 9.17) (Image copyright: Arnaud F. Lambert).

A small semi-circular opening indicating the cave itself, is represented on top of the baseline formed by the lower band of triangular motifs. The negative space representing the opening is bordered by diamond-shaped designs, and features the outline of an anthropomorphic figure in the centre of the space. This manner of representing caves is quite common in ancient Mesoamerican art, and is seen in the quadripartite imagery of Chalcatzingo Monument 9 (Figure 6c). The diamond-shaped designs may also be precursors to portrayals of the earth as a turtle-like zoomorph in Maya art (Stone 1995, 24-27). Among some of the more well-known examples of this trope are the Late Formative monuments designated as Tak'alik Ab'aj Altar 48 (Figure 7a) and Izapa Stela 8 (Figure 7b), as well as Late Classic codex-style polychrome vessels depicting the resurrection of the maize god from a turtle carapace (Quenon and

Le Fort 1997, Figs. 12, 27, 28, and 30) (e.g. Figure 7c). Above this putative cave opening, there are a series of diagonal meandering lines and a large conglomeration of red paint. These may represent some of the geological features found near the cave, such as the exposed travertine cliff-face above the cave opening (see Figure 1). Underneath the baseline of triangles, the “slopes” of the mountain leading up to the cave are likewise portrayed in the form of zig-zags and meandering lines. At the bottom of the rock painting, two animal figures are recognizable on these “slopes”, and one appears to have antlers or horns. While more commonly addressed through depictions of foliage in later Mesoamerican art (see Figures 6 and 7), it is possible that the representation of caves as sources of water and food was achieved through the portrayal of fauna during the Late Archaic period at Oxtotitlán.

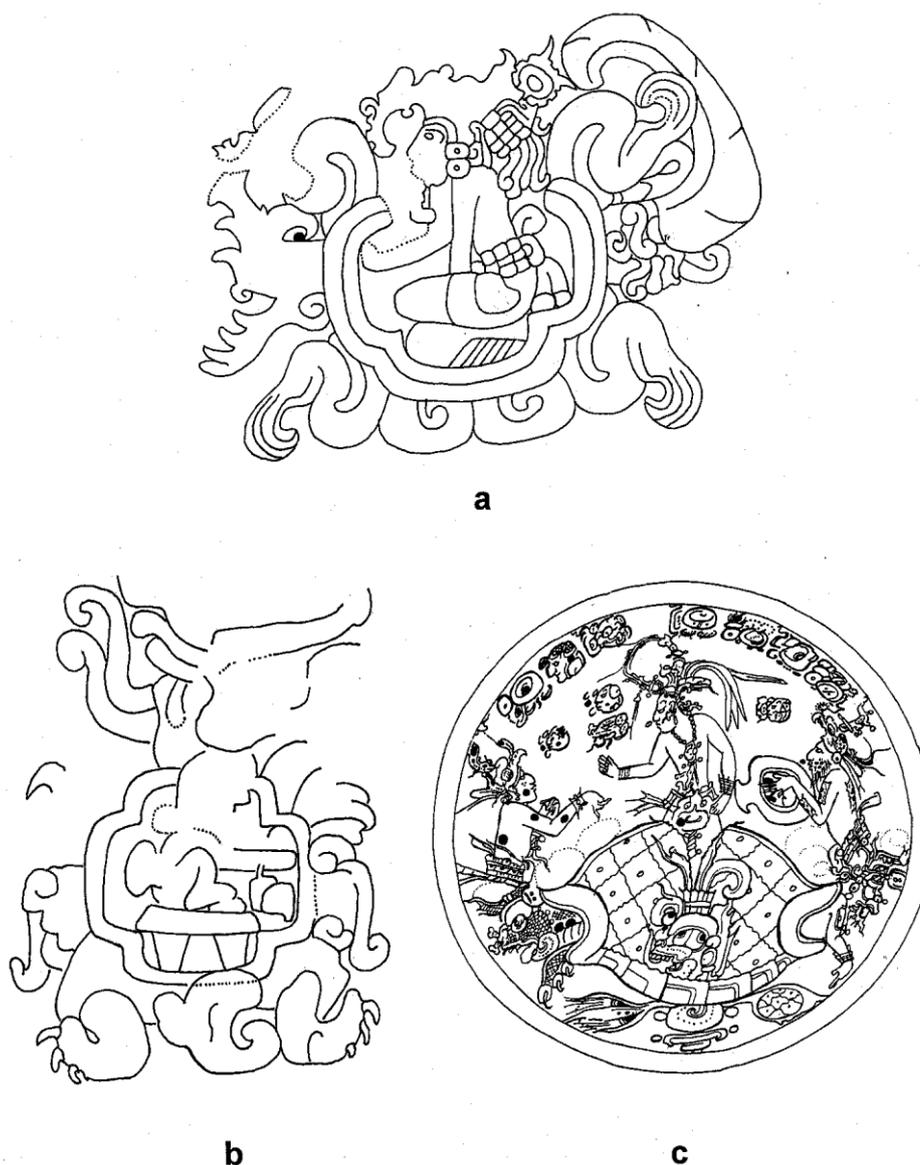


Figure 7. *Cave imagery in Maya art:* (a) Taka'lik Ab'aj Altar 48 (redrawn after Schieber de Lavarreda and Orrego Corzo 2009:463, Fig. 1), (b), Izapa Stela 8 (redrawn after Norman 1973: Plate 16), and (c) a Late Classic period Maya polychrome plate, Kerr No. 1892 (redrawn after Quenon and Le Fort 1997, Fig. 12) (Image copyright: Arnaud F. Lambert).

Conclusions: Oxtotitlán and Cave Imagery in Mesoamerica

This paper has argued that the non-Olmec geometric designs found among the Area B rock paintings of the South Grotto of Oxtotitlán represent a Late Archaic period portrayal of a cave. If this interpretation of the imagery in these rock paintings is correct, then the non-Olmec rock art at Oxtotitlán may represent one of the earliest depictions of a cave in Mesoamerican art, and could provide scholars with a better understanding of one of the most potent motifs in Mesoamerican mythology. Previous research on the Mesoamerican cave trope has demonstrated that these geological features were associated with a number of closely related cosmological relationships linking agricultural production, rainfall, and ancestor veneration with important mythological events (e.g. the earth's creation, the origin of humanity, the residence of the gods, and the origin of the sun and moon) (Heyden 2005). Over time, the meanings linked to Mesoamerican cave imagery were expanded to include references to ancestral rulers and important lineage members, and caves became important places of worship and pilgrimage (Brady and Prufer 2005). This study of the non-Olmec rock paintings from Area B at Oxtotitlán, however, indicates that the portrayal of caves as places of emergence and as sources of food and water may be some of their earliest symbolic associations, and may form the cosmological foundations of later Mesoamerican views of caves.

Bibliography

Brady, J.E., and Prufer, K.M. (2005). 'Introduction: A History of Mesoamerican Cave Interpretation' in Brady, J.E., and Prufer, K.M. (eds.) *In the Maw of the Earth Monster: Mesoamerican Ritual Cave Use*. Austin: University of Texas Press, pp. 1 -18.

Coladán, E. (1995). La gruta del Espíritu Santo (El Salvador). *Tendencias*. 3 (45), 40-42.

Grove, D.C. (1970a). *Los Murales de la Cueva de Oxtotitlán, Acatlán, Guerrero*. Informe sobre las investigaciones arqueológicas en Chilapa, Guerrero, noviembre de 1968. Serie Investigaciones, Núm. 23. Mexico: Instituto Nacional de Antropología e Historia.

Grove, D.C. (1970b). *The Olmec Paintings of Oxtotitlán Cave, Guerrero, Mexico*. Studies in Pre-Columbian Art and Archaeology, No. 6. Washington D.C.: Dumbarton Oaks/Trustees for Harvard University.

Grove, D.C. (1973). Olmec Altars and Myths. *Archaeology*. 26 (3), 94-100.

Grove, D.C., and Angulo, J. (1987). 'Catalog and Description of Chalcatzingo's Monuments'. In Grove, D.C. (ed.) *Ancient Chalcatzingo*. Austin: University of Texas Press, pp. 114-131.

Gutiérrez, G. (2007). *Catálogo de Sitios Arqueológicos de las Regiones Mixteca-Tlapaneca-Nahua y Costa Chica de Guerrero*. Mexico: CIESAS.

- Gutiérrez, G. (2008). 'Four Thousand Years of Graphic Communication in the Mixteca-Tlapaneca-Nahua Region'. In Jansen, M., and van Broekhoven, L.N.K. (eds.). *Mixtec Writing and Society*. Amsterdam: KNAW Press, pp. 67-103.
- Gutiérrez, G., and Pye, M.E. (2008). El graffiti estilo olmeca del abrigo rocoso de Cauadzidziqui, Ocoapa, Guerrero. *Oxtotitlán* 3, 20-26.
- Haberland, W. (1972). The Cave of the Holy Ghost. *Archaeology* 25 (4), 286-291.
- Heyden, D. (1975). The Cave under the Pyramid of the Sun at Teotihuacan. *American Antiquity*. 40 (2), 131-147.
- Heyden, D. (2005). 'Rites of Passage and Other Ceremonies in Caves'. In Brady, J.E., and Prufer, K.M. (eds.) *In the Maw of the Earth Monster: Mesoamerican Ritual Cave Use*. Austin: University of Texas Press, pp. 21-34.
- Lambert, A. (2012). Three New Rock Paintings from Oxtotitlán Cave, Guerrero. *Mexicon* 34, 20-23.
- Lambert, A. (2013). A Possible Place-Sign (Toponym) from Oxtotitlán Cave, Guerrero, Mexico. *The Post Hole*, 27, 17-28.
- Norman, V.G. (1973). *Izapa Sculpture, Part 1: Album*. Papers of the New World Archaeological Foundation, No. 30. Provo, Utah: New World Archaeological Foundation, Brigham Young University.
- Quenon, M. and Le Fort, G. (1997). 'Rebirth and Resurrection in Maize God Iconography'. In Kerr, N. and Kerr, J. (eds.). *The Maya Vase Book: A Corpus of Rollout Photographs of Maya Vases by Justin Kerr*, Volume 5. New York: Kerr Associates, pp. 884-902.
- Schieber de Lavarreda, C. and Orrego Corzo, M. (2009). 'El descubrimiento del Altar 48 de Tak'alik' Ab'aj'. In Laporte, J.P., Arroyo B. and Mejía, H. (eds.). *XXII Simposio de Investigaciones Arqueológicas en Guatemala, 2008*. Guatemala: Museo Nacional de Arqueología y Etnología, pp. 456-470.
- Scott, A.M. and Brady, J.E. (2005). 'Formative Cave Utilization: An Examination of Mesoamerican Ritual Foundations'. In Prowis, T.G. (ed.) *New Perspectives on Formative Mesoamerican Cultures*. British Archaeological Reports, International Series, No. 1377. Oxford: Archaeopress, pp. 147-158.
- Smith, B.D. (2005). Reassessing Coxcatlan Cave and the early history of domesticated plants in Mesoamerica. *Proceedings of the National Academy of Sciences*. 102 (27), 9438-9445.
- Stone, A.J. (1995). *Images from the Underworld: Naj Tunich and the Tradition of Maya Cave Painting*. Austin: University of Texas Press.

Stone, A.J. and Künne, M. (2003). 'Rock Art of Central America and Maya Mexico'. In Bahn, P.G. and Fossati, A. (eds.). *Rock Art Studies: News of the World 2*. Oxford: Oxbow Books, pp. 196-213.

Velázquez Valadez, R. (1980). Recent Discoveries in the Cave of Loltun, Yucatán, Mexico. *Mexicon*, 2, 53-55.

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