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## **List of Abbreviations**

RIB: Roman Inscriptions of Britain

CSIR: Corpus Signorum Imperii Romani

CIL: Corpus Inscriptionum Latinarum

CIMRM: Corpus Inscriptionum et Monumentorum Religionis Mithriacae

AE: L'Année épigraphique

# 1 Introduction to Carrawburgh

Carrawburgh, a Roman fort situated on Hadrian's Wall *c.* AD 130-400, is known for its dense concentration of religious structures rather than its militaristic characteristic. This paper will focus on the religious landscape of the fort *c.* AD 196-400 during the time of the Batavian cohort. The Batavians are the best documented unit from Carrawburgh, and were responsible for prominent changes in the religious landscape. While relatively little is known about the *vicus* or fort, three temples discovered outside the fort walls have produced important artefacts that have improved our understanding of religion in Roman Britain. This paper will advance this discussion by considering the site holistically.

Carrawburgh has not been fully excavated, but from the limited excavations it has been shown that the area changed many times within the Roman period and became an important local religious centre. The site began as a temporary camp that predated the *vallum*, followed by the creation of the *vallum* and curtain wall *c.* AD 122-130. Finally the *vallum* was levelled and filled to construct the fort.<sup>1</sup> Signs of *vicus* settlements are seen on the west and south sides of the fort which is where the religious area was also located. The fort was a raised platform, situated on top of the *vallum*.<sup>2</sup> Some of the most significant changes to the area occurred on the South and West sides of the fort where the religious landscape was defined along the stream. The shrines were built at various times within different political and social circumstances during the Roman period. The open-air temple of Coventina's Well was built by the Aquitanians during the building of the fort. It was the first, largest, and likely most important religious site at the fort based on the number and quality of finds. The *mithraeum* was built shortly after the arrival of the Batavian cohort. The open-air Shrine to the Nymphs and Genius Loci is the third religious structure, built before AD 213 and after the first *mithraeum*. The shrine appears to have been the least important temple at Carrawburgh due to the limited finds and short amount of time it was used. When examining the religious landscape of Carrawburgh at the time of the Batavian cohort, it is important to note that the available data is not exhaustive, and there is likely more evidence waiting future excavations. Regardless, research of the fort would benefit by considering the space holistically, as it is known today.

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<sup>1</sup> Birley 1961, 176; Breeze 1972, 87-94.

<sup>2</sup> Breeze 1972, 83.

Time Period	Hadrian's Wall	Carrawburgh Fort	Coventina's Well	Mithraeum	Shrine to Nymphs and Genius Loci	Troops
Iron Age		Occupation Evidence <sup>3</sup>				
AD 120-195	<p>Building of Hadrian's Wall starting in 122 and Antonine Wall starting in 142<sup>4</sup></p> <p>158-170 Antonine Wall is deserted and troops fall back to Hadrian's Wall<sup>10</sup></p> <p>170-180 invasion and wars along Hadrian's Wall<sup>12</sup></p>	<p>Before 122 Evidence of a temporary camp<sup>5</sup></p> <p>122-133 Vallum constructed</p> <p>133 Fort built, likely contemporaneous with the curtain wall<sup>7</sup></p>	<p>c. 128-130 built to help control water flow<sup>6</sup></p> <p>c. 133 became a sacred area<sup>8</sup></p>			<p>133 Coh. I Aquitanorum built fort<sup>9</sup></p> <p>Second Century Coh. I Tungrorum and possibly Coh. I Cugernorum<sup>11</sup></p>
AD 196-295	<p>286/287 Carausius and then Allectus gained control of Britain<sup>18</sup></p>		<p>Coin hoard deposited late second century<sup>13</sup></p>	<p>Early third century Mithraeum, I built<sup>14</sup></p> <p>222 Mithraeum II built, went through two renovations<sup>17</sup></p>	<p>Built before 213 after the first Mithraeum<sup>16</sup></p>	<p>Coh I Batavorum<sup>15</sup></p>
AD 296-399	<p>296: Constantius Chlorus regains Britain for Rome<sup>19</sup></p>		<p>Limited use in the fourth century<sup>20</sup></p>	<p>296-297 Mithraeum II destruction layer<sup>21</sup></p>	<p>300 Destruction layer<sup>22</sup></p> <p>Materials from the shrine used in rebuilding of Mithraeum<sup>23</sup></p>	<p>Coh I Batavorum</p>

<sup>3</sup> Breeze 1972.

<sup>4</sup> Hist. Aug. Hadr. 11.2.

	<p>306 Constantine became emperor, in 315 took the title Britannicus Maximus<sup>25</sup></p> <p>367 Sack of Hadrian's Wall by various groups including Picts<sup>27</sup></p> <p>369-383 Theodosius restored Britain's defenses and became emperor in 379<sup>28</sup></p> <p>391 Theodosian Edicts against paganism<sup>30</sup></p>			<p>297-305 Mithraeum III built<sup>24</sup></p> <p>Destroyed before 350<sup>26</sup></p>		
AD 400+	<p><i>Notitia Dignitatum</i> composed</p> <p>Troops Withdrawn<sup>31</sup></p>	<p>Batavian unit recorded in the <i>Notitia Dignitatum</i><sup>32</sup></p>				<i>Coh I Batavorum</i>

<sup>5</sup> Most likely a temporary fort. Breeze 1972, 87-89.

<sup>6</sup> Allason-Jones and McKay 1985, 11-12.

<sup>7</sup> RIB 1550; Birley 1935, 97-98.

<sup>8</sup> Allason-Jones and McKay 1985, 12.

<sup>9</sup> RIB 1550.

<sup>10</sup> Breeze 2006, 28; Breeze 2007, 16-17.

<sup>11</sup> RIB 1524, AE 1966, no. 222.

<sup>12</sup> The army was strengthened in AD 175, Cassius Dio mentions the invasion of the Wall. Cass. Dio 73.8.2; Breeze 2006, 22.

<sup>13</sup> Allason-Jones and McKay 1985, 12.

<sup>14</sup> RIB 1545. Earliest altar AD 198-211, Richmond and Gilliam 1951, 37.

<sup>15</sup> Other troops: *Coh. I Cugernorum* (RIB 1524), *Coh. I Frixivones* (RIB 1523), *Coh II Nerviorum* (RIB 1538). Holder 1982 mentions these troops may not have been stationed at Carrawburgh. Philips in CSIR i.1 mentions the Nervians as being stationed in the third or fourth century, while Davies 1978 places the Nervians at Carrawburgh in Pius's reign.

<sup>16</sup> Birley 1988, 184.

<sup>17</sup> RIB 1544. Second altar AD 213-222, Richmond and Gilliam 1951, 37.

<sup>18</sup> Carausius comes to power in either AD 286 or 287, dies in AD 293, then Allectus takes control. Casey 1994.

<sup>19</sup> Breeze 2006, 33.

<sup>20</sup> Allason-Jones and McKay 1985, 12.

<sup>21</sup> Richmond and Gillam 1951, 28.

<sup>22</sup> Richmond and Gillam 1951, 65.

<sup>23</sup> Likely out of use before *Mithraeum* II was built or incorporated into Mithraic worship. Smith 1962, 69.

<sup>24</sup> RIB 1546, Third altar, Richmond and Gillam 1951, 37.

<sup>25</sup> The name Britannicus Maximus could indicate warfare. Breeze 2006, 33.

<sup>26</sup> No Constantinian coins were found at the *mithraeum* so it was likely not to have been used for very long. Richmond and Gillam 1951, 39-42.

<sup>27</sup> Breeze 2006, 33.

<sup>28</sup> Time of the 'Barbarian conspiracy.' Theodosius fights with the Batavi to London and later restores all defences. Amm. Marc. 27.8.1-10, 28.3.1-9.

<sup>29</sup> Allason-Jones and McKay 1985, 12.

<sup>30</sup> CTh.16.10.10-12.

<sup>31</sup> Breeze 2006, 34.

<sup>32</sup> *Not. Dign. Occ.* XL 39. Breeze 1972 states the fort was occupied until the last quarter of the fourth century.

There are a few problems with the research on Carrawburgh and future research would benefit by using the approaches of sensory and landscape archaeology to better understand the site. One problem with research on Carrawburgh is the lack of a comprehensive overview of the fort and its environs, likely due to limited excavation. The religious structures have not been interpreted in their many contexts, such as their relationship to each other, or their relationship within the landscape, and also the broader religious landscape of Roman Britain. Another problem with the current studies of Carrawburgh is that they focus on the appearance of the site but do not attempt to understand the relationship between the structures and the units stationed at the fort. Examining the religious landscape in this way, by focusing only on the archaeological materials, utilizing only sight and no other sense, excludes important information. If we truly endeavour to understand the past, we must also consider landscape and sensory studies. Such approaches consider not only the placement of objects but also the meanings and values attached to them from experiencing the area.<sup>33</sup> As space is constructed by social, cultural, and political values it is important to understand what the term ‘religious landscape’ means here.<sup>34</sup>

The ‘religious landscape’ encompasses a set of culturally constructed variables that refer to nature, define sacred spaces, the placement of temples, ritual practices, movement inside the environment, as well as the interaction between man-made objects, nature, and people.<sup>35</sup> Inside this landscape, a person is able to experience some supernatural power that is held within the divine realm and ‘funnelled through’ the sacred landscape. This experience happened in a variety of locations, but the *templa*, or religious area, usually contained some natural element that was made important due to the cultural meanings placed upon it.<sup>36</sup> In the ancient world religion infiltrated most aspects of society. Landscape was considered divine and various features contained spirits. A famous example of characterising landscape as a deity is from the Iron Age with the Paps of Anu in Ireland or river gods like that depicted on Trajan’s Column.<sup>37</sup> Because such natural elements were regarded as religious, the ancients tried to preserve the environment as it was presented unless alterations provided a gain.<sup>38</sup> The religious landscape is related to the natural, but ultimately is manmade. The

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<sup>33</sup> See *An Archaeology of the Senses*, Skeates 2010, *Making Senses of the Past* ed. Day, 2013 and *Senses of the Empire; Multisensory Approaches to Roman Culture* ed. Betts, 2017.

<sup>34</sup> Gupta and Ferguson 1992.

<sup>35</sup> There are likely other definitions of a religious landscape, but this is what I refer to throughout this paper when using the term.

<sup>36</sup> Hughes 1980, 47.

<sup>37</sup> Koch 2006, 78.

<sup>38</sup> Hughes 1980, 50.

sacred area typically preserved the natural order, but could contain cult images, a temple or shrine that served as protection.<sup>39</sup> The religious area would be distinct and easily recognized by the ancient viewer. The area could be enhanced by various sensorial elements such as the burning of incense, visual programs, and particular sounds which would be associated with the sacred and experienced by moving through the landscape.

The aims of this paper are to explore the religious landscape of Carrawburgh by using facets of both landscape and sensory archaeology to examine the relationship between the shrines and the spring. This paper uses the approaches of landscape and sensory archaeologies largely because landscape archaeology is concerned not only with the environment but the lived experiences of the people within it. It looks at the choices of the people and how their choices were shaped by their location as well as their personal beliefs and actions.<sup>40</sup> However it does not focus on the body itself. Sensory archaeology makes up for this lack by examining the body inside the landscape because space is meant to be moved around and experienced. The religious space of the fort was meant to be experienced, and that is what gives it meaning as a place of ritual. This paper intends to take a holistic approach examining the relationship of these three temples to the source of the water associated with all three shrines. Research has also not delved deeply into the landscapes context of British *mithraea*, specifically the relationship between Mithraic shrines, other temples, and water. I thus provide a comparative study of other sites to better understand the *mithraeum* at Carrawburgh. I will also examine the units that worshiped at Carrawburgh to investigate the nature of their religious observance. Religious activity not associated with religious structures is not considered here, as no archaeological evidence has been preserved for it at the fort. Rather, the focus is on the religious area outside of the fort along the stream. Finally, I will argue that sensory archaeology is an important way forward in understanding religious landscapes such as that at Carrawburgh, and that this approach can be augmented by 3D modelling.

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<sup>39</sup> Hughes 1980, 48.

<sup>40</sup> David and Thomas 2008, 38.

## 2 Religious Landscapes

The study of ancient religion can benefit from the use of both landscape and sensory archaeology by understanding what it was like to move around the ancient environment and experience ritual. Within these frameworks more thought is given to the agency of natural and manmade items inside the landscape. Christopher Tilley's work on phenomenology has both been influential and severely criticized within archaeology.<sup>41</sup> The criticism is largely related to the treatment of Welsh megalithic tombs.<sup>42</sup> This is due to the fact that it is impossible to fully reconstruct the ancient experience that was embedded in a specific cultural context which cannot be fully recognized today. This critique also brings out the fact that we cannot understand the reasons for the creation of these tombs. However, these disciplines can further our understanding of the religious landscape at Carrawburgh because religion was experienced and it incorporated much more than what has been left behind thousands of years later. The senses would have been inundated by stimuli from various rituals, creating specific memories that would attach meaning to cult practices. All three shrines worshipped gods that had a strong Roman influence. Despite the variation in deities, the consistent factor in the religious landscape of Carrawburgh is the stream from Coventina's Well. Here it is necessary to understand the importance of water before discussing religion at Carrawburgh.

### 2.1 Water

The importance of water at a fort might seem self-explanatory; water is needed to survive and forts would need a good supply of water for their garrisons. However, this does not fully appreciate the value of water in the ancient world. The most valuable feature of water was that it linked the physical world with the divine and was primarily worshipped because it was a life source. Gods such as Tiberus, Oceanus, and Fons, were known as the personification of water. In regards to the flooding of the Tiber, Pliny the Elder states that 'it is looked upon rather as a prophet of warning, its rise being always constructed rather as a call to religion than as a threat of disaster'.<sup>43</sup> Servius writes that all springs are to be considered as sacred.<sup>44</sup> Springs occur when an aquifer is filled with water, and the overflow spills out onto the earth's surface. The spring at Carrawburgh produced a stream that supplied water to the fort, temples, vicus, and bathhouse. The water served many purposes

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<sup>41</sup> Tilley 1994.

<sup>42</sup> For the best articulated criticism of phenomenology see Fleming 1999, 2005, 2006.

<sup>43</sup> Plin. *HN* 3.5.55.

<sup>44</sup> Serv. 7.84.



and likely had some ritualistic element such as a source for purification. On initiation into the cult of Isis, Apuleius mentions the use of water for purification including being escorted to the baths before going to the temple.<sup>45</sup> In this example water is a communal feature not only in the baths but also in the use of water for ritual. This brings forth another important feature of water, it's integration into society.

Water was present in the built spaces of Roman society such as temples, baths, and homes. Features such as wells or cisterns played a vital role in society and were also important in cultic rituals. For Apuleius, the space in which ritual was practiced included the presence of others, a temple and baths, where water was the material object linking the physical with divine, and these all made it a place flooded with specific meaning. It is therefore necessary to consider cultic ritual as being associated with material objects like water, but also with people inside a specific religious context that itself is situated within broader contexts such as landscape, society, etc. The landscape, both natural and manmade, would have shaped the meanings attached to an area, thereby shaping the religious setting. At Carrawburgh water appears to have played a significant role in the religious landscape as all three temples were built along the stream, even though at different dates and to different deities.

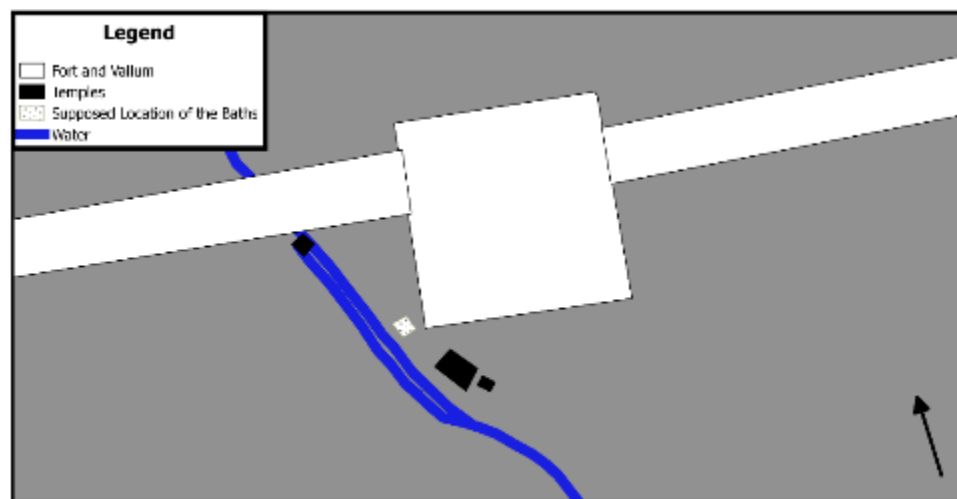


Figure 1: Overall plan of Carrawburgh based on Ordnance Survey Map.

The specific role of the stream in each cult is unknown, but each of the shrines are related to the spring that rises at Coventina's Well (Figure 1). This suggests that the cultic practices were intimately associated with the water. The baths, a place of social activity, were also a place where religion could be performed, and were located between the *mithraeum* and

<sup>45</sup> Ap. *Met.* 11.10.20-10.23.

Coventina's Well.<sup>46</sup> An altar to Fortuna was found at the bathhouse and could be related to the gambling that took place in the baths or as a protection from danger.<sup>47</sup> The stream was an important feature and its divine nature may have been a reason why the temple and shrines were placed in their specific locations.

However, even though the stream had a divine nature, it was also a constant problem. Richmond and Gillam state that in order to drain the water for excavation, the stream at Carrawburgh demanded 'a straightening and deepening of the stream-bed, and it must be supposed that comparable measures had to be taken in Roman times to keep the valley floor dry and viable'.<sup>48</sup> If the Romans did change the landscape to maintain a presence in the area, these alterations could have social and religious implications for the place. It would be futile to suggest what the implications of changing the stream were as little evidence has been left behind. It is likely that if any changes were made, they were intended to benefit the people at the fort, and this was presumably considered to be a valid reason to alter the religious landscape. This brings us to the final consideration regarding water: it is highly sensory and is experienced in various ways.

Water must be experienced. It is heard flowing over the ground in the form of waterfalls or rivers, or falling from the sky; the visual aspect of water changes as one moves throughout the landscape. The physical touch of water was used for cleansing in rituals such as those in the *mithraeum*.<sup>49</sup> The smell and taste of water are important to consider, but cannot be included in this present discussion. Water even elicits an emotional response causing distress when there is too much or too little. While all water could be considered sacred, the divine nature of water was particularly strong at places such as at its source, whether it was permanent or seasonal, or changed speed.<sup>50</sup> These were places where the sensory experience was heightened by the creation of a drastically different environment. For example, where the current in a river decreases speed, the noise level changes as the rushing water slows down and this creates a different visual and auditory perception. At a spring, the water suddenly appears as it rises from under the ground. At these highly sensorial places, ritual veneration was more common.

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<sup>46</sup> RIB 1537.

<sup>47</sup> Whitmore 2013, 226.

<sup>48</sup> Richmond and Gillam 1951, 1.

<sup>49</sup> Clauss 2000.

<sup>50</sup> Burgers 2001, 23; Edlund-Berry 2006, 163; Aldrete 2007, 217; Taylor et al 2010.

Perhaps these highly sensory places created an obvious choice for a site for cultic practices. The use of the spring as a ritual site is easily understood, but the water then moves out of the shrine towards the baths and *mithraeum*; here the ground becomes lower and prone to standing water. Perhaps the association of the ground with water made the site a choice to build a temple, but it also caused damage to the building.<sup>51</sup> The *mithraeum* was rebuilt several times and it is possible this was due to water damage. The rising water level at the site also relates to the amazing condition of the temple when it was excavated. The *mithraeum* and the Shrine to the Nymphs and Genius Loci had systems in place to divert excess water.<sup>52</sup> These drainages systems would create extra streams of water during certain periods which may have affected the normal movement pattern of both people and water in the landscape.

The ancient people at Carrawburgh would have been intimately familiar with their landscape, their movement habitual as they would have understood where water stood, and which route to take around the environment. Any alteration to the environment had the potential to shift this movement pattern thereby changing the relationships between people, landmarks, and even deities. In the Roman period, many changes were made to the Iron Age landscape such as the addition of the *vallum*, Military Way, curtain wall, fort, and shrines. It was a gradual process and the fort and its environs likely changed many times under military presence. With each change new values and meanings would have become associated with the land, and importantly changing the way people walked around and experienced the site, which could change their conception of the deities. In the Roman Period the gods became more personified and less ambiguous, had their names written in stone, and were given stone shrines helping them become part of a more permanent social memory. This is drastically different from the Iron Age which provides much less physical evidence for religious structures in Britain.<sup>53</sup>

## 2.2 Iron Age Ritual and Coventina

It has been thought that Coventina was a Celtic goddess and was adopted into a Roman context.<sup>54</sup> She may have had certain Celtic attributes, but this can neither be confirmed nor denied. During the Iron Age in Britain gods were thought to occupy certain aquatic environments and there is evidence of ritual depositions, some of which date back to the

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<sup>51</sup> Richmond and Gillam 1951.

<sup>52</sup> Richmond and Gillam 1951, 5-14; Smith 1962, 70-89.

<sup>53</sup> Webster 1997.

<sup>54</sup> For example: Clayton 1880; Henig 1984, 47; Green 1986; Adkins and Adkins 1996, 54.

Bronze Age.<sup>55</sup> The water source, undeniably linked with religious and social constructs, would have influenced the space and in return shaped what was constructed there.<sup>56</sup> In Britain, early depositions to the chthonic gods are well attested: materials have been found in aquatic environments such as the Thames, or the hot springs at Bath. However, the deities are not well known due to the nature of the evidence. Names of deities were rarely written down until the Roman Period with the introduction of epigraphy, while the depictions of the gods in Celtic Art are more abstract, which does not give a clear indication of how the particular god functioned in society. Iron Age ritual was performed at areas such as ‘hillforts, springs, bogs, mountain tops, and caves’.<sup>57</sup> This shows a strong preference for natural places in their religion. Buildings were not necessary for Iron Age religion, rather the gods took more natural forms and were intertwined with the landscape.<sup>58</sup> Water depositions were a frequent ritual activity, and a common Celtic practice due to the chthonic nature of the gods. Depositions could include materials such as weapons, jewellery, torcs, and human sacrificial victims. Due to the varied locations of ritual depositions it was likely that it was the association with water rather than a specific geographical location that prompted sacred depositions. Strabo mentions that the lakes of the Tectosages, near the Pyrenees, were filled with silver and gold, confirming the importance of water for ritual in the Iron Age.<sup>59</sup> Since Carrawburgh is a rather boggy site it could have been possible that it was a site associated with the gods, but during the Iron Age Carrawburgh was used for agriculture and no evidence has been found of pre-Roman depositions.<sup>60</sup> It is more likely that any supernatural association came with the Romans, which is when the material evidence of Coventina appears in the archaeological record.

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<sup>55</sup> Fitzpatrick 1984; Green 1986; Cunliffe, 1993; Webster 1995; Yates and Bradley 2010.

<sup>56</sup> Edlund-Berry 2006, 162; Rogers 2013, 6.

<sup>57</sup> Koch 2006, 1752.

<sup>58</sup> Ross 1967, 19-21.

<sup>59</sup> This of course may not have directly related to Britain, but material culture evidence has found various depositions in lakes in Britain. Strabo *Geog.* 4.1.13.

<sup>60</sup> Breeze 1972, 85.

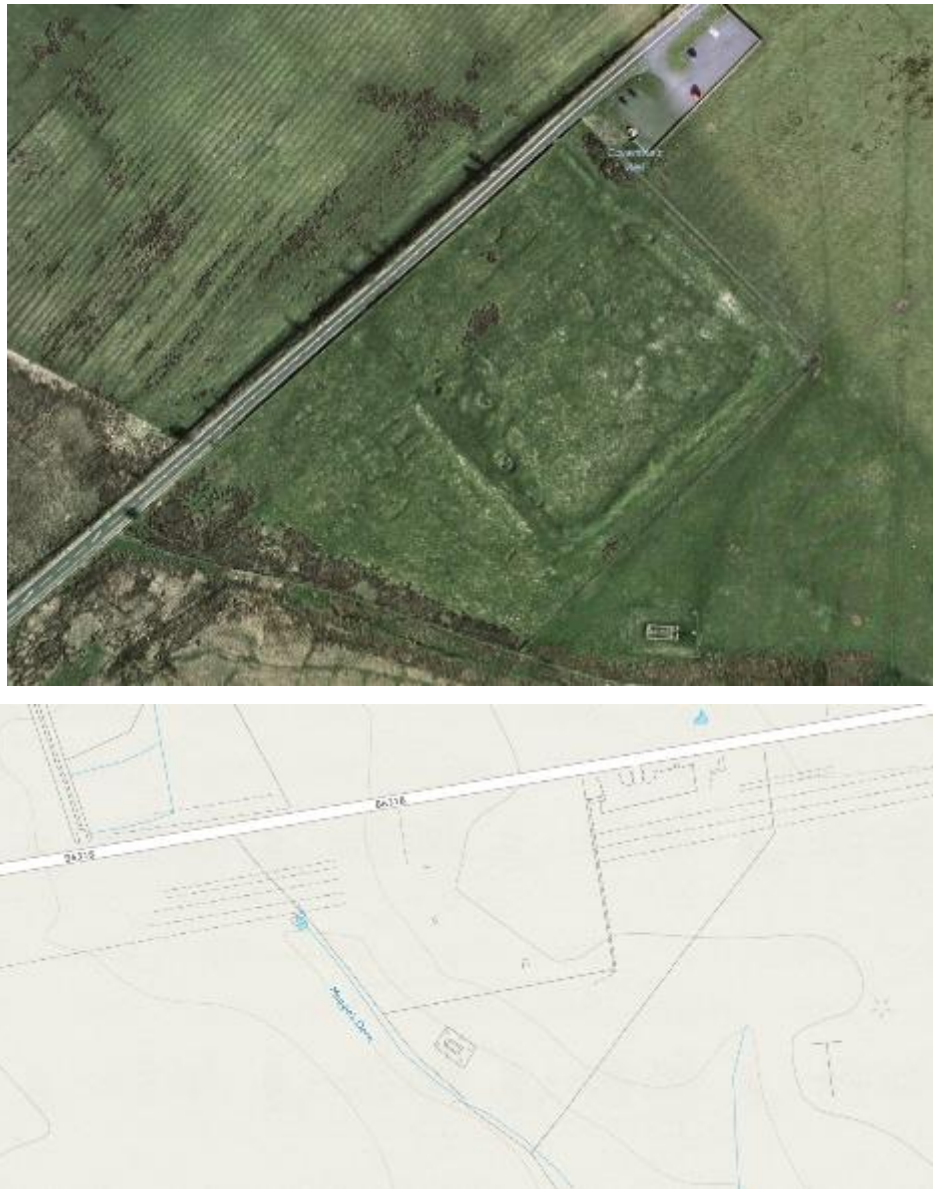


Figure 2: Top: View of Carrawburgh from Google Earth 2017. Bottom: Ordnance Survey Map of Carrawburgh 2017.

Coventina's Well was an important cultic site that was built by the *Coh. I Aquitanorum* c. AD 133, but the goddess is not well known and appears to be unique to Carrawburgh. Only three altars have been found elsewhere in the Empire that may be identified to Coventina, two in Spain and one in France, however it is unlikely to be the same goddess.<sup>61</sup> At Carrawburgh, Coventina was certainly a goddess of the spring, but her exact function and attributes are unknown. The well measured 2.54m x 2.18m, and was inside an external enclosure measuring 12.2m x 11.6m. The proximity of the *vallum* to the well, suggests it was not a site of ritual veneration before Hadrian's Wall was built. Instead it is likely that the well was placed to control water levels and later became religious.<sup>62</sup> Due to its

<sup>61</sup> Allason-Jones and McKay 1985, 4. See the Appendix for inscriptions.

<sup>62</sup> Allason-Jones and McKay 1985, 11-12.

functionality, there may have been a period in which water was drawn out of it and objects were lost inside it rather than placed there in veneration, but its cultic association soon became widely recognized.<sup>63</sup>

The numerous objects from the well confirm Coventina's importance. Inscriptions from the well describe Coventina as *nimpha*, *augusta*, and *sancta*, the last two being rare titles outside the Roman Pantheon.<sup>64</sup> Other artefacts from the well comprised of materials such as coins, bronze, silver, and gold objects, inscribed and uninscribed altars, leather, jet, bone, glass, and pottery. The inscriptions were made by an *optio* of the First Cohort of Frixiaones, a soldier from the First Cohort of Cubernians, an unidentified soldier, a Decurion, two Germans, and two prefects of the first cohort of Batavians.<sup>65</sup> These all attest to the popularity of the goddess, but give no indication of her function. The name of Coventina also reveals little information about who she was. It is possible that the name had an Iron Age origin, but it is equally possible it was Roman.<sup>66</sup>

Below are the various suggestions that have been given about Coventina's meaning, but the etymology is not clear.<sup>67</sup> Clayton suggests that the name is from Convenae, referring to people from Aquitania. They lived in an area filled with springs, and the people were 'addicted to the worship of water deities'.<sup>68</sup> It could be that Coventina was imported from Aquitania; however, no evidence of the goddess has been found there. Clayton also considered other suggestions for the meaning, including: Dr. Wake Smart, who thought that Coventina is a variation of Gover, which means rivulet, or head of a rivulet; Dr. Hooppell, who suggested that *cof* means memory, and *cofen* is a memorial; and Carr-Ellison, who proposed a Greek origin.<sup>69</sup> Jackson suggests that *co* is the Celtic form of *cum* which was spelt as *kow*- making the spelling of Coventina's name Kowentina or Konwentina. The *-in* is a typical Celtic suffix, and *-a* is the nominative, singular, first declension, however this explanation gives no meaning for *-vent*.<sup>70</sup> Norah Jolliffe has argued that the name should be Conventina, and is related to a *conventus* or community.<sup>71</sup> This appears to be the most plausible meaning, stemming from *conventus* or *conventio*. The communal aspect of the well may support this. The well could hold a large gathering, and the inscriptions were not limited

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<sup>63</sup> Van Haasteren and Groot 2013.

<sup>64</sup> RIB 1526, 1527, 1531, 1533.

<sup>65</sup> RIB 1523, 1524, 1525, 1526, 1528, 1529, 1534, 1535.

<sup>66</sup> Clayton 1880; Henig 1984, 47; Green 1986; Adkins and Adkins 1996, 54.

<sup>67</sup> This is all discussed in Allason-Jones and McKay 1985 3-6.

<sup>68</sup> Clayton 1880, 5, 21-22.

<sup>69</sup> Clayton 1880, 21-22.

<sup>70</sup> Allason-Jones 1985, 4.

<sup>71</sup> Jolliffe 1941, 58.

to a specific cohort or time period. Rather, the well was in use from the beginning of the fort and until c. AD 380, and even has dedications from troops that were likely not stationed at the fort. While the name is elusive, it is possible that it refers to a Celtic practice and this Iron Age link has been supported by pointing to the relief below (Figure 3).



Figure 3: Relief of three deities pouring a water. It is debated whether these were three nymphs or a triplicate of Coventina.<sup>72</sup>

This relief has been the source of much discussion about whether it represents Coventina or nymphs or both, but is ultimately ambiguous. The represented person in this relief has been described as a triplicate of Coventina pouring out water, but it is more likely that the relief was hidden inside the well for protection. The reasons it is thought to be Coventina are that it comes from the well and ‘triplism’, or the representation of something as a set of three, is a common feature in Iron Age practice.<sup>73</sup> However, other depictions of Coventina only show a singular goddess, and while it is possible that Coventina was both a triplicate and a singular goddess like the Mother goddess(es), this is unlikely. Just because the image came from the well, does not prove it *is* Coventina. An altar to Minerva, a silver ring to the Matres, and possibly a depiction of Mithras were also found in the well.<sup>74</sup> It has also been suggested that the relief depicts Coventina and two attendants, but this idea is highly unlikely.<sup>75</sup> If it were Coventina and two attendants, presumably Coventina would be larger or be distinct in some way. The only figure that is different is the one on the right, and it would be standard to depict Coventina as the central figure. It is more likely that this relief belonged to the Shrine of the Nymphs and Genius Loci and was concealed in the well. A base inscribed to the nymphs found ‘near Coventina’s Well’ may be evidence for this.<sup>76</sup> It is my opinion that the relief did not belong to Coventina, and was related of the Shrine to Nymphs and Genius Loci

<sup>72</sup> Photo taken on April 15, 2017 at the Clayton Museum at Chesters Roman Fort.

<sup>73</sup> Green, 1986, 208-216.

<sup>74</sup> Allason-Jones and McKay 1985, 18, 20, 21.

<sup>75</sup> Budge 1907, 310.

<sup>76</sup> Allason-Jones and McKay 1985, 13; RIB 1547.

although there is no clear evidence to support this theory. If it was from the Shrine it could be that Coventina's Well provided a place for safe keeping for the other cult's objects, at a time when the shrine was under attack.

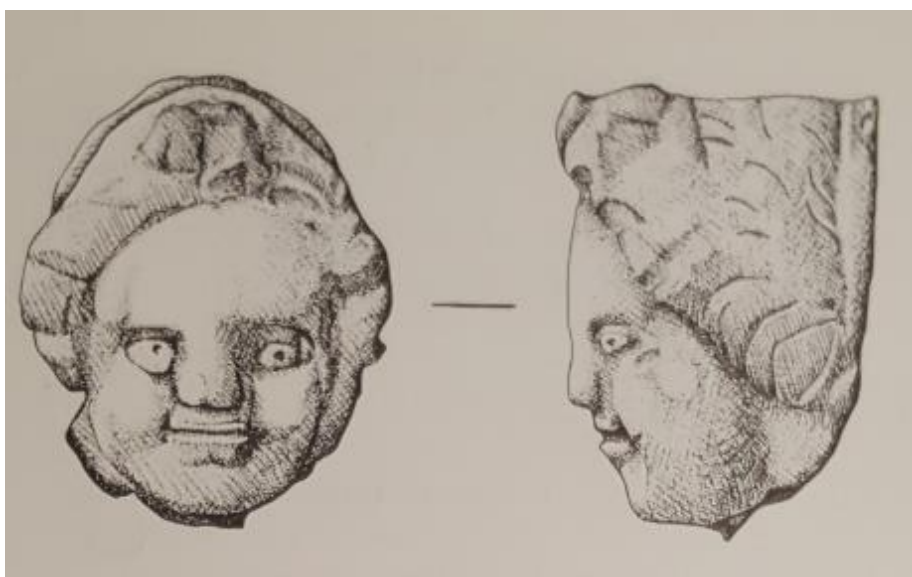


Figure 4 Bronze mask from Coventina's Well.<sup>77</sup>

Another object that may have been hidden in the well, is a bronze mask that has been identified as Atys or Mithras, as the top knot was interpreted as part of a Phrygian cap (Figure 4).<sup>78</sup> If it is Mithras, perhaps the mask was deposited after the *mithraeum* was destroyed, and thrown in for safe keeping. Clearly Coventina was important in the Roman period, and this may have stemmed from importance relating to the land in the Iron Age.

Springs were areas that both Celtic and Roman religions revered, and were places where the religions of these cultures could coalesce. Even though the shrine was built in the Roman period, it is likely that some Iron Age mythology made the site a choice for veneration in the Roman period.<sup>79</sup> If Coventina's name is derived from *conventio*, the meaning of 'coming together' or 'meeting' is particularly apt here. If Coventina was an Iron Age goddess, the well could symbolize a coming together of different cultures or cults. Her function in society is unknown, but by the number of dedications in her well, she certainly was a prominent deity. However, even if Coventina had her origins in the Iron Age, at the point where she appears in the material record, she is no longer an Iron Age goddess, but a Roman one. It is possible that the use of these myths was a way to manipulate social memory to understand

<sup>77</sup> Image adapted from Allason-Jones and McKay 1985, 22.

<sup>78</sup> Green, 1978.

<sup>79</sup> Ross 1967, 30-33.



the shifting nature of the provinces.<sup>80</sup> This manipulation would benefit the Romans by integrating themselves into local customs, it also could have benefited the native population as they tried to negotiate this invasion. The use of local deities may be a way to legitimize the Roman presence in the area by connecting the Romans to the history of the area, as well as a way of trying to stay in favour with the local gods. Objects of veneration were placed by the Romans into the water source, which was similar to cult practice during the Iron Age. The ritual depositions at Carrawburgh cannot be clearly assigned to either the Roman or Iron Age ritual, and it is likely that it was some combination of the two. Coventina was the only deity with a shrine outside the headquarters building for almost 100 years before another god was adopted at Carrawburgh. At this time, the religious landscape changed to incorporate Mithras and the Shrine to the Nymphs and Genius Loci.

## 2.3 Shrine to the Nymphs and Genius Loci

Here it is necessary to briefly mention the Shrine to the Nymphs and Genius Loci before discussing the *mithraeum*. The Shrine was built after the *mithraeum* and before AD 213. It included an apse like structure, well, and a free standing altar.<sup>81</sup> The Shrine was likely the least important of the religious buildings on the site and may have later become incorporated into Mithraic activity (see below). After a destruction layer dating around AD 300, the stone was used in the building of the third *mithraeum*. The Shrine's well appears to have been used into the fourth century, thus coinciding with the *mithraeum*.<sup>82</sup> It is likely that it was used for Mithraic purposes and reinterpreted in a Mithraic context at that time. This leaves a brief time period when it is uncertain if the Shrine was in use during the period of the second *mithraeum* or its use stopped at the building of the second *mithraeum* in AD 222 (Table 1). It is likely; that due to its association with water, the Shrine to the Nymphs and Genius Loci was able to be translated into a Mithraic context, and continued in use within the rituals of the *mithraeum*.

## 2.4 Mithras

The *mithraeum* at Carrawburgh is one of the most well known in Britain, and seems to be rather unique in its context. Carrawburgh is well known for its *mithraeum* and Coventina's Well, but these two are rarely discussed in relation to each other or their landscape. The first *mithraeum* measured 7.9 m x 5.6 m and is one of the smallest known in the Roman Empire.

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<sup>80</sup> Alcock 2001; 2002.

<sup>81</sup> Smith 1962, 60.

<sup>82</sup> Smith 1962, 60.

The only worshippers, known by inscriptions, were the Batavian cohort. Dedications from this cohort have been found in all three religious sites at Carrawburgh, showing that they used each religious site. The combination of various deities inside a religious landscape is not uncommon; however, the strong correlation between these cults and water is more rare. The question here becomes: what is the significance of the placement of these shrines? Are there any other *mithraea* placed in similar landscape and religious contexts? How does landscape affect the choices made about where to place the shrines?

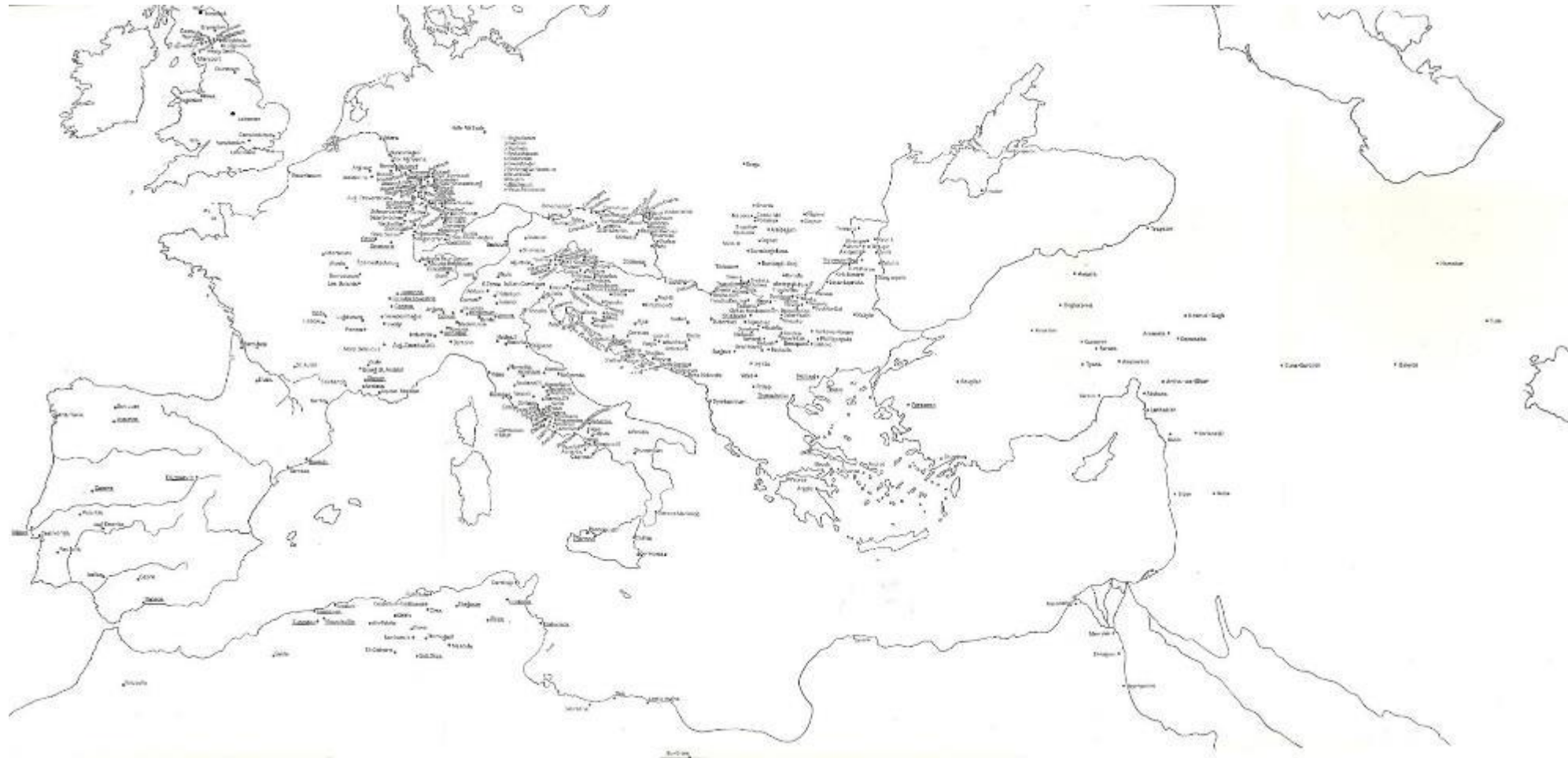


Figure 5: Locations of all the Mithraea in the Roman Empire. Image adapted from the CIMRM.

*Mithraea* have been found across the Roman Empire and they are usually associated with the presence of the military (Figure 5).<sup>83</sup> Most *mithraea* have similar features but there is no standard Mithraic context. Of the known Mithraic inscriptions found on Hadrian's Wall, five were made by prefects; two by centurions; one *beneficiarius*; a detachment of the sixth legion Victrix; and two altars were heavily eroded with no ranking readable. It has been argued that the worshippers at *mithraea* joined for political reasons rather than religious.<sup>84</sup> As the cults were small, it is likely that a *mithraeum* was a place that could offer career advancement. However, not much is known about the practice of Mithraism in Britain, and often the evidence is taken from other provinces. In doing this, it must be remembered that there is no single form of Mithraism, the cult could change and adapt depending on its context.<sup>85</sup> Overall, most knowledge of the Mithras cult is drawn together from the myriad of material evidence found across the Empire. However, there are a few elements that are similar in *mithraea* Empire wide. This is the presence of the cult statue, (the so-called tauroctony), and the Mithraic temple symbolizing a cave. To understand Mithras, it is necessary to first look at the iconography of his cult.

It is important to note that the Mithraic mysteries are loaded with symbolism that cannot be clearly defined today. These symbols are apparent in the buildings used by worshippers as well as the elements found inside these temples. The Roman Mithras borrows elements from Persian religion, such as his Phrygian cap, but he was not a Persian god in the Roman Period; his iconography distinctly shows Roman ideals of the East rather than adopts styles of Eastern self-identification in art.<sup>86</sup> This Roman-Eastern style is found in the other figures, Cautes and Cautopates, that usually accompany Mithras. The torch bearers represent opposites: day and night, life and death, light and darkness.<sup>87</sup> Mithras himself is known as *deo Invictus* and also became Sol in some circumstances. The temple was created so one end was associated with darkness, while the other end with the tauroctony symbolized light. The temple was also organized so it was representative of the cosmos.<sup>88</sup> Jerome writes that there were seven grades of initiation; raven, nymphus, soldier, lion, Persian, sun-runner, and father, probably representing the seven planets.<sup>89</sup> In combination with the iconography of the cult it is thought that as the initiate proceeded up the grades he became closer to the god Mithras. Perhaps the cave provided the opportunity of the initiate to 'leave' the earth to meet

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<sup>83</sup> Allason-Jones 2004.

<sup>84</sup> Beard, North, and Price 1998, 287.

<sup>85</sup> Beard, North, and Price 1998, 249.

<sup>86</sup> Beard, North, and Price 1998; Clauss 2000; Beck 2006; Adrych et al. 2017.

<sup>87</sup> Beard, North, and Price 1998, 286.

<sup>88</sup> Porphy. *De antr. nymph.* 6; Beard, North, and Price 1998, 285.

<sup>89</sup> Jer. *Ep.* 107; Beck 2006, 30.

the god.<sup>90</sup> If this were the case, the setting and iconography of the cave were important links to the divine, and this included the use of water.

Water appears to have an association with Mithraic ritual, but as of yet no thorough study has been conducted on the relationship of *mithraea* and water.<sup>91</sup> Porphyry mentions that the first cave dedicated to Mithras was in an area with springs.<sup>92</sup> While many *mithraea* were located near springs or water, the significance of this is unknown. The more important connections with water occur inside the temple, iconographically through representations of water gods or pitchers, and also physically in the form of springs and cisterns. One water image is the so-called ‘water-miracle’ of Mithras, where Mithras shoots a rock with an arrow causing water to spurt from the rock to an awaiting person. Depictions of water gods from Mithraic contexts in Britain include a statue of Oceanus in London, while nymphs were found close to the Mithraic sites at Carrawburgh and High Rochester. Adrych et al. suggest that the tauroctony also has some relation with water.<sup>93</sup>

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<sup>90</sup> Beard, North, and Price 1998, Beck 2006, 44.

<sup>91</sup> The lack of this survey has been criticized by various authors, for example: Beck 2007; Minos, 2014; Adrych et al. 2017.

<sup>92</sup> Porph. *De antr. nymph.* 6.

<sup>93</sup> Adrych et al. 2017



Figure 6: Mithras display at Great North Museum: Hancock in Newcastle. Cult image of the tauroctony displayed above the other sculptural displays.<sup>94</sup>

The tauroctony depicts the image of Mithras in the cave slaying the bull which appears to give life to everything around it. In this scene Mithras is depicted with a dagger in hand, looking away from the bull (Figure 6). The bull struggles beneath Mithras as blood gushes out of his wound and his tail sprouts an ear of wheat. A dog jumps up to lap the blood pouring from the wound while a snake slithers on the ground near the bull, and a scorpion grasps at the bull's genitals. As in the Housesteads tauroctony, Cautes and Cautopates frequently appear in the cult image sometimes accompanied by Sol and Luna.<sup>95</sup> It has been suggested that the figures represent constellations.<sup>96</sup> This would create a more complete picture of the cosmos inside the cave if the initiate rank related to the planets. There are many variations on the tauroctony, but it always is an image of Mithras slaying the bull, which in turn brought life and fertility to the world, and especially in the Rhineland contains a clear association with water.<sup>97</sup> The most obvious link between the tauroctony and water is the idea of its life giving. Some depictions of the tauroctony also have various scenes from Mithras' life, including the water miracle. This suggests that Mithras, the giver of life, also is the provider of water; an element needed to access the divine, however this has not been studied as of yet. Only three full tauroctonies have been found in Britain at Housesteads, York, and

<sup>94</sup> Image taken April 16, 2017.

<sup>95</sup> Beck 2006; Adrych et al. 2017.

<sup>96</sup> Beard, North, and Price 1998, 285.

<sup>97</sup> Adrych et al. 2017.

London, and a piece of the bull's stone horn is said to have been found at Carrawburgh.<sup>98</sup> Excluding York, each of these were located in areas with springs and a water source. Nothing can be said about the symbolism of water and the tauroctony until further research is conducted, except that the specific setting of the cave was required.

The cave is representative of the cosmos, inside of which the mysteries of Mithras can be understood. If the ritual did include symbolic 'celestial' travel, perhaps water was a necessary mediator between the worlds, and needed for cleansing before and after travelling. In order to be part of the cult, initiates faced various trials such as hunger, cold, darkness, fear, and heat. Initiates may have had to perform certain rituals in order to join the cult, as well as move up the grades.<sup>99</sup> Carrawburgh had an ordeal pit 'in shape and size the feature strongly resembles a coffin' that may have been used for such initiation rites.<sup>100</sup> These highly symbolic rituals mean Mithraic activities were very sensorial. Initiates would eat together, incense was burned, the darkness of the cave was heightened with lighting effects such as the cut out halo on the altar at Carrawburgh, and the visual program inside the cave. While some significance is placed on the location of the temple, it is the inside of the cave, surrounded by iconography and laden with atmosphere, that is its most important feature. In order to understand the inside of the cave, it is necessary to briefly understand the setting in which the temple is located.

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<sup>98</sup> Adrych et al. 2017.

<sup>99</sup> Beck 2007, 9

<sup>100</sup> Richmond and Gillam 1951, 19.



Figure 7: Left: Front of an altar to Mithras at Carrawburgh, showing the halo. Right: Back of Altar to Mithras, showing the shelf where a light source could be placed, red box highlighting halo.<sup>101</sup>

The Mithraic temple was meant to emulate the cave, and was highly reliant on sensory experience. Most *mithraea* identified in Britain are above ground, although notably the *mithraeum* at Housesteads was partially underground.<sup>102</sup> The interior was dark, with light largely provided by lamps and torches. In the front of the temple at Carrawburgh, one of the three altars at the apse of the temple has punched out holes as a representation of a halo surrounding Mithras's head. A light would have been placed on the back of the altar in order to have the appearance of light emitting from the head (Figure 7). Pinecones and an incense shovel were found near the altar, and were used to stimulate the senses.<sup>103</sup> The pinecones would have created a strong odour which would be distinct in this context. The bull slaying scene would have been positioned above the three altars, as the focal point of the temple. The high sensory stimulation inside the temple would of course be augmented by the temple's placement in the landscape at Carrawburgh near the stream. Many *mithraea* are also located near a water source. In Britain, the Walbrook *mithraeum* is located near the Walbrook and contained a well, the Rudchester *mithraeum* was located near a spring, Leicester's temple to Mithras was located next to the River Soar, and at Housesteads a cistern inside the temple was filled by the spring that rose in the nave. Housesteads, London, and

<sup>101</sup> Images taken April 15, 2017.

<sup>102</sup> Gillam and MacIvor 1954, 188.

<sup>103</sup> Richmond and Gilliam, 1951.



Carrawburgh would have had issues with flooding and retaining water as evidenced by the renovations of their temples following rising ground levels. These three sites are also located within areas where other gods were worshipped.

## 2.5 Worshipping of Other Gods in a Mithraic Cult

As noted above, the Carrawburgh *mithraeum* was located near Coventina's Well that had been in use around 65-78 years prior to the building of the Mithraic temple.<sup>104</sup> It is known that there was tolerance for other cults within Mithraism, as other *mithraea* around the Empire also have materials that reference other deities. It is possible that the members of the Mithraic cult could worship at this popular shrine as well as in the temple to Mithras. While the wider religious landscape is related to Coventina and water, inside the temple, perhaps this was interpreted in a Mithraic way. This redefinition of meanings may also relate to the statue of the Mother Goddess that was found inside the *mithraeum* and the Shrine to the Nymphs and Genius Loci. The Mother Goddess, only has a parallel in one other *mithraeum*, that at Dieburg.<sup>105</sup>



Figure 8: Mother Goddess statue from Carrawburgh Mithraeum<sup>106</sup>

Both an altar to the Mother Goddess and a statue of a Mother Goddess were found inside the Carrawburgh *mithraeum* (Figure 8). Both had prior uses before being added to the temple, which is evidenced by their appearance.<sup>107</sup> Since they were a later addition to the *mithraeum* perhaps they had been given a new Mithraic context in order to belong to the cult. The same may have been done to Coventina's water and the Shrine to the Nymphs and *Genius Loci*.

<sup>104</sup> The theological importance of this will not be discussed here, but it is noted that the association with Coventina's water may have created different associations with the water.

<sup>105</sup> The Mother Goddess, either singular or triplicate, is an Iron Age deity also is associated with fertility and water. Ross 1967, 20.

<sup>106</sup> It has also been suggested that this is an image of Apollo and a harp by Hunter et al. 2016. Image taken April 16, 2017.

<sup>107</sup> Richmond and Gillam 1951, 30-33.

Since the Shrine was built directly outside the entrance to the *mithraeum* and in use until the fourth century, it is likely the shrine was incorporated into Mithraic cultic ritual.<sup>108</sup> The presence of nymphs at a *mithraea* is also seen at High Rochester.<sup>109</sup> If other deities were reinterpreted in a Mithraic context, it must be asked if this was done at many *mithraea* or only a select few. Are there many *mithraea* in Britain that are located next to water and shrines to other deities?

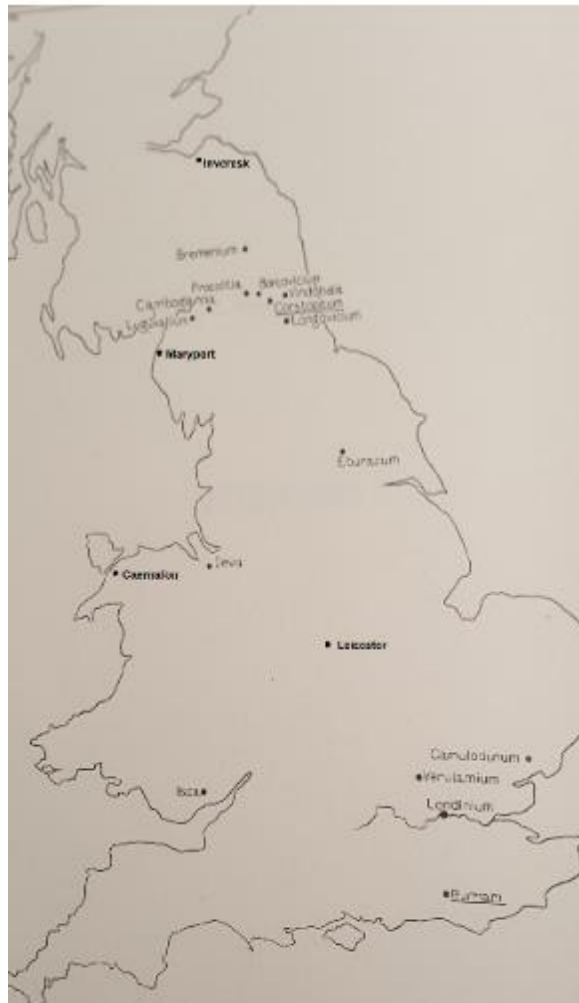


Figure 9: Map of Mithraic activity in Britain<sup>110</sup>

## 2.6 List of *Mithraic* Activity in Britain

The *mithraea* in Britain roughly share the same chronology, but the distribution of ideas and the changing of a culture and religion is not a quick and simple process. Ritual practices were flexible, and individuals were able to incorporate several deities in their religious activities, but the decision to start or join a cult is elusive in the material record. Although

<sup>108</sup> Richmond and Gilliam 1951; Smith 1962 both argue for a period of disuse at the *mithraeum*. I think it is more likely that the elements of the Shrine were incorporated into the Mithraic context.

<sup>109</sup> RIB 1228.

<sup>110</sup> Image adapted from the CIMRM.

the reasons for creating Mithraic cults and specific details about their ancient worship are unknown, the following is a two part list of Mithraic activity. Where possible it will look at relations with water and evidence relating to other gods found near Mithraic temples. The first part of the list contains information about the known *mithraea* and will attempt to understand the area they were situated in. The second part lists places where Mithraic materials have been found, but as of yet have no associated temple. This all is summarized in Table 2.

Location	Identified Temple	Type of Artefacts	Near Water	Near Spring	Near Other Religious Sites
London	Yes	1, 2, 3	Yes	Yes	Yes
Housesteads	Yes	1, 2, 3	Yes	Yes	Yes
Leicester	Yes	3	Yes	Yes	Maybe
Inveresk	Yes	1	Unknown	Unknown	Unknown
Rudchester	Yes	1, 2	No	Yes	Maybe
Caernafon	Yes	1	Yes	Yes	No
Colchester	Yes*	5	Yes	Yes	Yes
Burham	Yes*	5	Yes	Yes	Unknown
High Rochester	No	1	Yes	No	Yes
Maryport	No	1	Unknown	Unknown	Yes
Castlesteads	No	1	Unknown	Unknown	Yes
York	No	2	Yes	Unknown	Yes
Lanchester	No	1	Unknown	Unknown	Yes
Caerleon	No	2	Unknown	Unknown	Unknown
St. Albans	No	2, 3	Unknown	Unknown	Unknown
Corbridge	No	4	Unknown	Unknown	Yes
Chester	No*	2	Yes	Unknown	Yes

Table 2: Summary of Mithraic Activity in Britain. **Key:** 1: Altars, 2: Statuary, 3: Small Finds, 4: Other inscriptions, 5: No known evidence. \*: Probably not Mithraic, but have been identified as such.

## Part One: Mithraic Temples

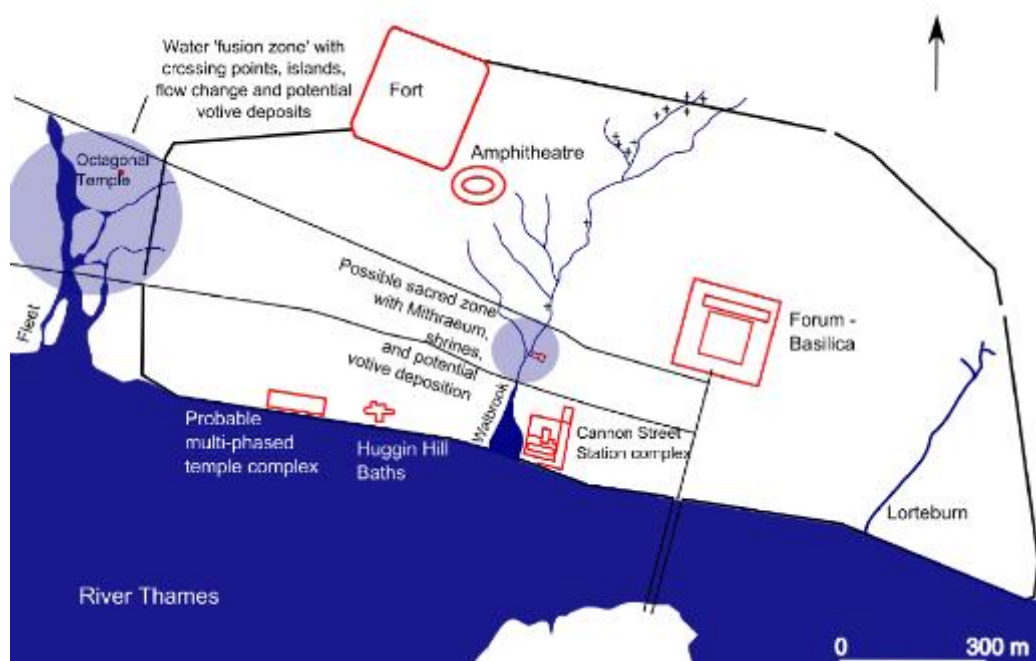


Figure 10: Plan of Londinium showing religious areas.<sup>111</sup>

### London (*Londinium*) CIMRM 810-826

London provides the first example of a *mithraeum* situated near water and possibly inside a religious area that will be discussed (Figure 10). In this area depositions dating to the Bronze Age have been found.<sup>112</sup> The Walbrook *mithraeum* may have been part of a greater building complex. It was built in AD 240-250 on unstable ground, flanked on two sides by the diverted stream and bridges, and is possibly part of a greater building complex.<sup>113</sup> This may mean that the area was already a site laden with religious significance, but the data are inconclusive. Inside the Walbrook temple, carvings of other gods have been found, including Bacchus, a Genius, Mercury, Minerva, Oceanus, and Serapis.<sup>114</sup> The position of the *mithraeum* is next to a place where the water in the Walbrook changes pace.<sup>115</sup> This visible change in the current accompanied by the change in sound would provide a different effect to the worshipper. As previously stated, areas where water changes speed are places that are

<sup>111</sup> Image from Ingate 2014.

<sup>112</sup> Ingate 2012, 142.

<sup>113</sup> Both the diverting of streams, and crossing of a bridge were activities that were related with religion. Shepherd gives three explanations for the temple: It was built in a religious zone and part of a greater complex, the area was not a religious zone, and finally it was a free standing temple. Shepherd 1998, 220-221; Aldrete 2007; Ingate 2012.

<sup>114</sup> CSIR i.10: 1, 2, 3, 4, 5, 6, 7, 16.

<sup>115</sup> Ingate 2012, 142.

likely to be venerated, and this would mean that the *mithraeum* was in an ideal location despite the flooding issues. Excavations found that the floor was raised eight times after initial construction as the water table rose making additions necessary, and may also have caused its demise in the later third century before being used by a cult of Bacchus.<sup>116</sup>

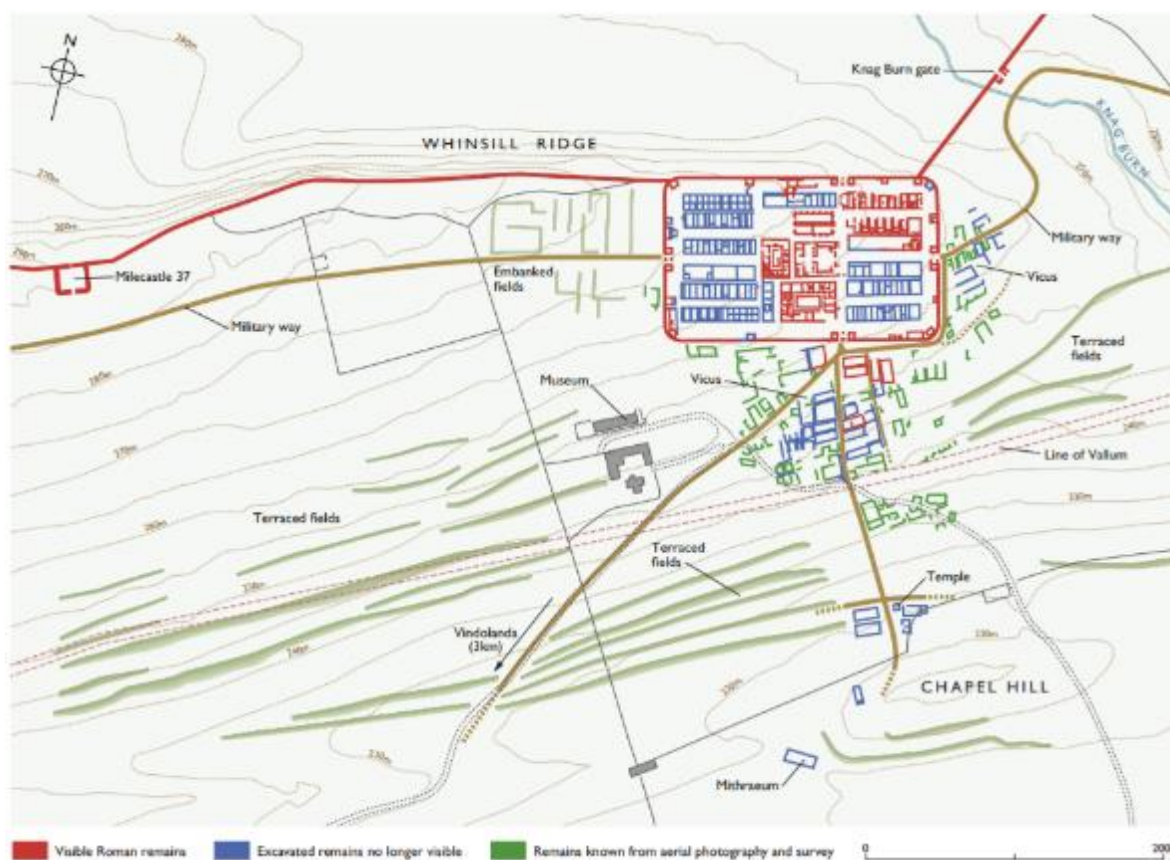


Figure 11: Plan of Housesteads<sup>117</sup>

### Housesteads (*Vercovicium*/ *Borcovicium*) CIMRM 852-869

Housesteads provides the next closest example, having signs of Iron Age occupation and temples on the Chapel Hill area.<sup>118</sup> The Iron Age occupation is not well understood, and not much can be said about the religious characteristics of the landscape. The name *Vercovicium*, may mean the place of effective fighters, and be related to a local description.<sup>119</sup> However, the area is a very hilly and is a complicated site both archaeologically and topographically (Figure 11). Brunaux, has argued that natural landmarks are always sacred, and landscape becomes immersed with tribal mythology.<sup>120</sup> If this is the case, the landscape would have already been suffused with meaning and significance. The *mithraeum* is located 275 m south west of the fort on top of a spring that

<sup>116</sup> Shepherd 1998, 221-229.

<sup>117</sup> Image from Historic England Archive, permission number 6002.

<sup>118</sup> Rushworth and Allason-Jones 2009, 31.

<sup>119</sup> Rushworth 2009, 3.

<sup>120</sup> Brunaux 1988, 4.

risers in the nave. It is assumed that the temple was built in the early third century. The Housesteads *Mithraeum* contains a Mithraic altar dated to 252, which makes it the latest altar found in Britain. The altar is associated with a refurbishment of the temple.<sup>121</sup> An altar to Jupiter Optimus Maximus, Cocidius, and the Genius Loci were found inside the *mithraeum*. Nearby on the Chapel Hill area, other evidence of religious activity has been found. This includes an unlocated shrine to Nemesis, sculptures of Matres and Mother Goddesses, a shrine to the *Genii Cucullati*, and a well and shrine to Mars Thincsus. The shrine to Mars Thincsus was located within 150 meters north of the *mithraeum*, dating to the mid-third century.<sup>122</sup> Mars Thincsus, may have been related to the Germanic god Tyr who was concerned with war.<sup>123</sup> Like Carrawburgh, the Chapel Hill area had religious connotations, containing a *mithraeum* and shrines to potential pre-Roman gods (the Mother Goddesses and Mars Thincsus) but no materials have been dated to a pre-Roman period.

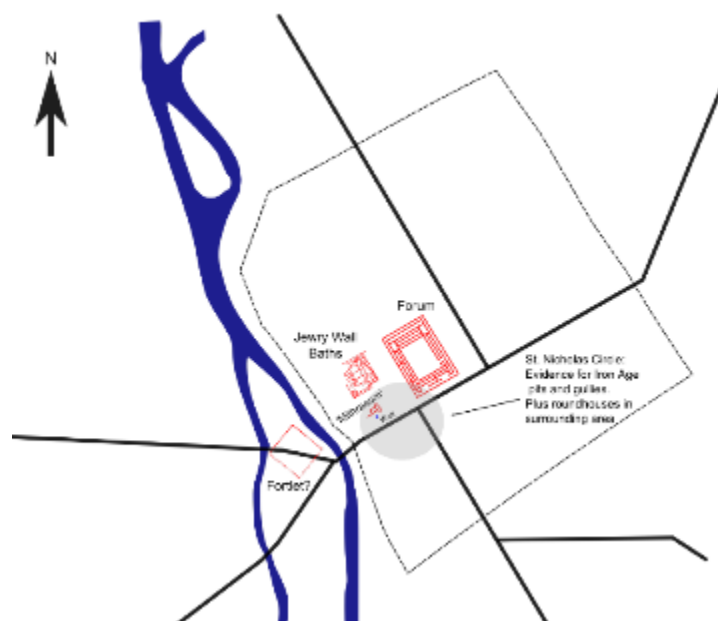


Figure 12: Plan of Ratae showing religious area.<sup>124</sup>

### Leicester (*Ratae*)

The earliest settlement at Leicester has a secure Iron Age date of the 1<sup>st</sup> century BC, and was located within St. Nicholas's Circle (Figure 12).<sup>125</sup> Not much is known about the Iron Age settlement, but it could be that this area was an important religious center in the Iron Age as well. Leicester was occupied by the Roman army after the conquest of AD 43 and the *mithraeum* has been identified by small finds evidence.<sup>126</sup>

<sup>121</sup> Breeze 2006, 247; RIB 1600.

<sup>122</sup> Rushworth and Allason-Jones 2009, 234.

<sup>123</sup> Davidson 1969, 74.

<sup>124</sup> Image from Ingate 2014.

<sup>125</sup> Cooper and Buckley 2004, 34.

<sup>126</sup> Sauer 2004.



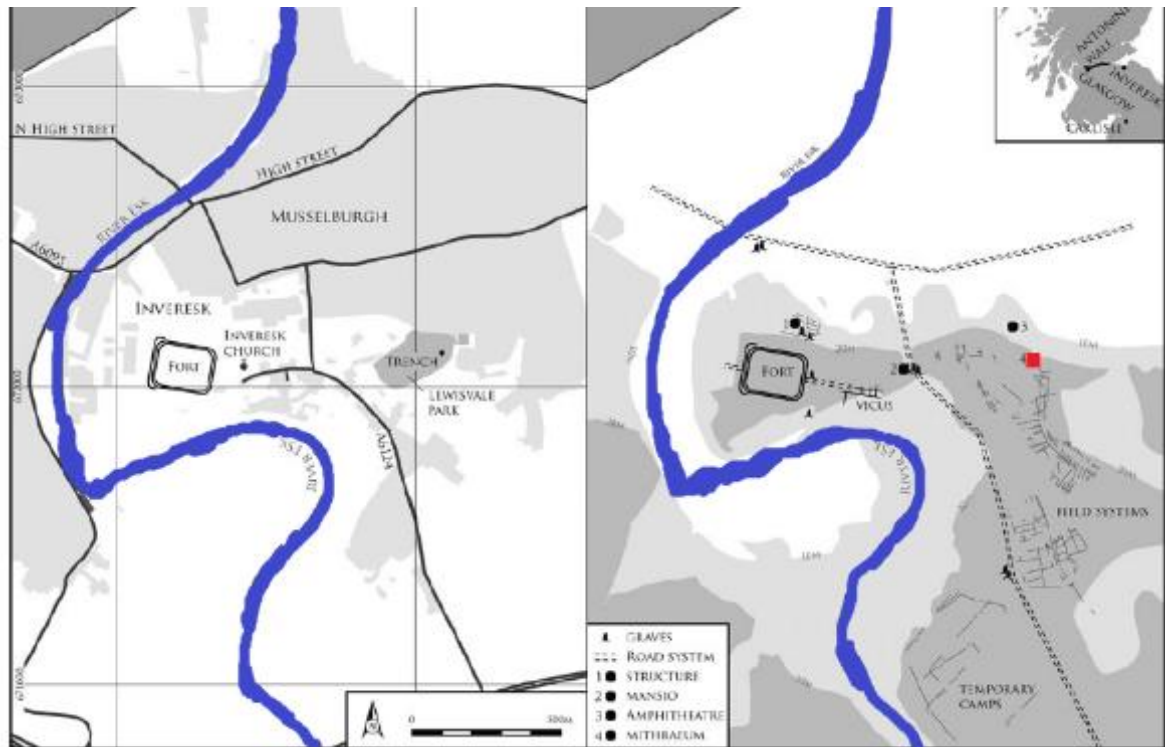


Figure 13: Map of Inveresk, Mithraeum in Red.<sup>127</sup>

### Inveresk

In 2010, Scotland's only recorded Mithraic temple was found, this is the earliest temple known from Britain. Due to the limitations of the excavation, not much detail is known about the building itself or its immediate environment, rather the focus of the excavation was upon the two altars. It is not known if the *mithraeum* was located near a stream, or if there was a well. There was a gully found in the immediate vicinity which may well have been a drain as water would have been a problem at the site.<sup>128</sup> Inveresk is located near the Firth of Forth and the temple was found 750 m east of the fort (Figure 13). The site was occupied in the Bronze age, but whether there was continuous occupation is unclear.<sup>129</sup> The temple here was surrounded by a ditch, which may have marked its territory.<sup>130</sup> This is similar to the placement of the Carrawburgh *mithraeum*, which also was located on low lying ground on a natural contour.

<sup>127</sup> Image adapted from Hunter et al 2016.

<sup>128</sup> Hunter et al. 2016.

<sup>129</sup> Hunter et al. 2016, 122.

<sup>130</sup> Hunter et al. 2016, 126.

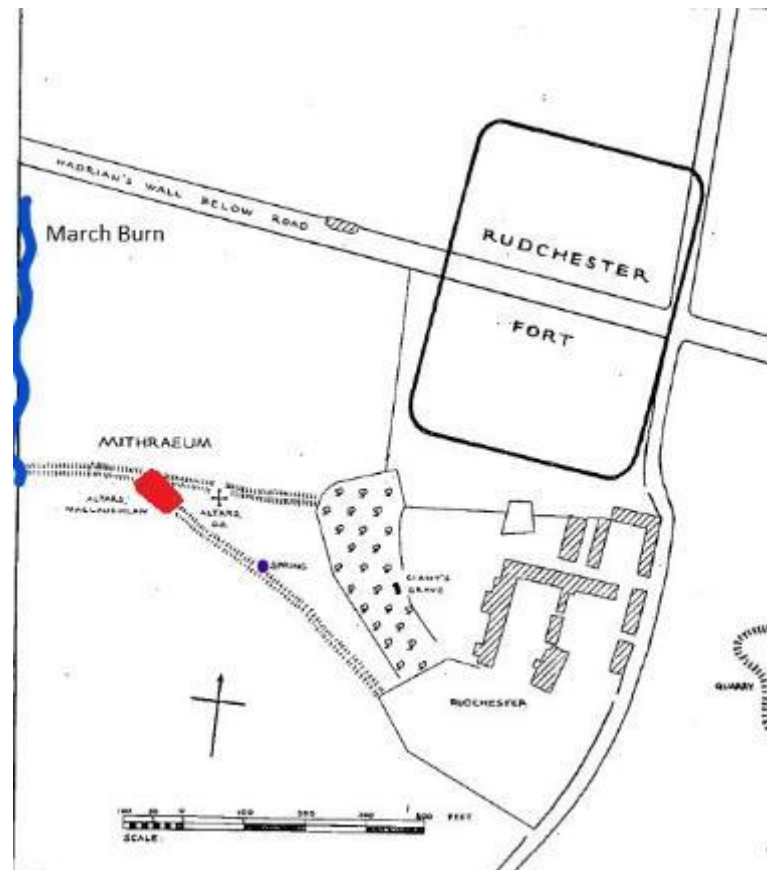


Figure 14: Rudchester Mithraeum. Distance to March Burn is not to scale.<sup>131</sup>

### Rudchester (*Vindobala*) CIMRM 838-843

The Mithraic temple was built in the second or third century upon earlier remains, 100 m from the fort (Figure 14). Due to stone robbing it is impossible to tell what the previous structure was.<sup>132</sup> Altars to Mithras, Sol Apollo Mithras, and Sol were found at Rudchester, as well as two stone *dadophori* (Cautes and Cautopates) heads, a limb of a *dadophoros* and an unidentified Mithraic statue, likely part of a *dadophoros*.<sup>133</sup> After two building phases, the temple fell to disuse.<sup>134</sup> It is located 150 yards away from the nearby cistern, 'Giant's Grave.' The first cohort of Frisiavones occupied the fort in the third or fourth centuries.<sup>135</sup> Outside the fort a statue to Hercules was also found, as well as a coin hoard but this cannot be identified as being a religious deposition.

<sup>131</sup> Image adapted from Gillam and MacIvor, 1954.

<sup>132</sup> Gillam and MacIvor 1954, 184.

<sup>133</sup> RIB 1395, 1396, 1397, 1398; CSIR i.1 226, 227, 228, 229.

<sup>134</sup> Gillam and MacIvor 1954, 196.

<sup>135</sup> Breeze 2006, 170. An *optio* of this cohort is also recorded at Carrawburgh having placed an altar in Coventina's Well.



### **Caernafon/Caernavon (*Segontium*) CIMRM 2374**

This temple is in a boggy valley near the fort and is dated to the early third century. The temple was in use until AD 290 when the troop was recalled. It is likely that the statuary from inside the temple was removed at that time. There were two reconstruction phases before the destruction layer of 350. From excavations, four altars were identified, but all were damaged and illegible.

### **Colchester (*Camulodunum*) CIMRM 829**

No objects found can be identified as Mithraic, however the underground structure has a ground plan that is similar to *mithraea* and must be considered as part of this survey.<sup>136</sup>

### **Burham CIMRM 808**

No Mithraic objects have been found, the only reason this is identified as a *mithraeum* is because it was underground and carved from a rock, it is more likely this is a store house.<sup>137</sup>

## **Part Two: Mithraic Finds With No Associated Temple**

### **High Rochester (*Breneium*)**

The name of this place can be roughly translated to “the place of the roaring stream”. A dedication slab to *deo invicto et soli* was discovered marking the building of the temple by Lucius Caecilius Optatus of the First Cohort of Vardulli. Optatus also gave a dedication to Minerva and *Genius Collegi* at High Rochester.<sup>138</sup> Reliefs depicting a triplicate of nymphs were found in High Rochester as well.<sup>139</sup>

### **Maryport**

Two Mithraic altars have been found along with 17 altars to Jupiter Optimus Maximus. These inscriptions indicate the presence of a *mithraeum*, and Lewis argues that a building found in 1880 is the *mithraeum*, however this has not been confirmed.<sup>140</sup>

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<sup>136</sup> CIMRM 829; Sauer 1996, 82.

<sup>137</sup> Jessup 1956.

<sup>138</sup> RIB 1268, Optatus is also mentioned on RIB 1265.

<sup>139</sup> CIL VII 1039; RIB 1272; Ross 1967, 31.

<sup>140</sup> Lewis 1966, 106-107; Breeze 2006, 463-464.

### **Castlesteads (*Camboglanna*) CIMRM 872-874<sup>141</sup>**

Possibly occupied by the Fourth Cohort of Gauls in the second century and the Second Cohort of Tungrians in 241, but the fort is not known in the *Notitia Dignitatum*. It pre-dates the wall and *vallum* and has given a wealth of religious materials. These include altars to Jupiter Optimus Maximus from both cohorts, and other dedications to and statues of state gods. Three altars to Mithras were found, but as of yet there has been no temple associated with them.<sup>142</sup> Belatucadrus and the mother goddesses also have dedications, but no known temple.

### **York (*Eburacum*) CIMRM 833-835**

A relief of Mithras slaying the bull was found along with a statue of a headless figure identified as Arimanius by the damaged inscription on the base.<sup>143</sup>

### **Lanchester (*Longovicium*) CIMRM 836**

Two altars were discovered. The first is Mithras, Cautopates, and the invincible sun god (*DEO M CP S I*), the second is to Deo Invicto.<sup>144</sup> Other gods worshipped here are positively identified as Aesculapius, Mars, Silvanus, Jupiter, the Queen Goddess, Victory, Vitiris, the Genius of the praetorium, and the Genius of the cohort.<sup>145</sup>

### **Caerleon (*Isca*)**

An altar to Mithras and a head of a youth wearing a Phrygian cap were found.<sup>146</sup>

### **Carlisle (*Luguvallium*) CIMRM 875**

Two pieces of stone have been found in Carlisle, the statue of Cautes and a relief of Sol.<sup>147</sup>

### **St. Albans (*Verulamium*) CIMRM 827, 828**

Token related to Mithras found dating to the mid to late second century AD has MIΘRAC ΩROMASDHC and ΦRHN incised over a prior inscription. as well as a beaker that depicts a man with a Phrygian cap and bow, perhaps symbolizing the water miracle.<sup>148</sup>

<sup>141</sup> The CIMRM lists 873 and 874 coming from Petrianae, but the RIB lists them from Castlesteads.

<sup>142</sup> RIB 1992 = CSIR i.6 133, RIB 1993 = CSIR i.6 132, RIB 1994.

<sup>143</sup> CIMRM 833, 834, 835.

<sup>144</sup> RIB 1082 = CIMRM 836, CIMRM 837.

<sup>145</sup> RIB 1072, 1075, 1076, 1077-1081, 1083, 1084, 1085, 1086, 1087-1088.

<sup>146</sup> RIB 322 = CIMRM 809, Harris and Harris 1965, 45.

<sup>147</sup> CSIR i.6 483 and 484, CIMRM 875.

<sup>148</sup> CIMRM 827, 828.

### **Corbridge (*Corstopitum*) CIMRM 870**

An inscription to *Sol Invictus*, from c. AD 162-168, thought to be Mithraic. However this link is questionable as it relies on the erasure of the *solī invicto* line being done after Commodus death, and not being related to a cult of *Sol*.<sup>149</sup> The tenuous link is that Mithras was known as *Sol* from the reign of Trajan but it was under Marcus Aurelius and Commodus that the cult began to show support to the emperors, therefore the erasure of *solī invicto* means it was Mithraic rather than a *Sol* cult.<sup>150</sup>

### **Chester (*Deva*) CIMRM 830-832**

Figures and reliefs were found, Vermassen interprets these as Mithraic and relating to Cautopates, however Henig states they ‘are almost certainly funerary figures of Attis (rather than images of *dadophori* from Mithraea) ...’<sup>151</sup> The figures, either Attis or Cautopates are in Phrygian dress.<sup>152</sup>

This survey of Mithraic finds in Britain has produced no sure findings and in the future needs to be compared to empire-wide findings. The temples have some correlation with places of wider religious significance and are often built near water, but it is not known if this was true for all temples. With this data, it cannot be said if other deities were worshipped by Mithraic initiates or if the deities were redefined inside a Mithraic context. While some Mithraic temples are located near a water source, others were not. Most identifiable *mithraea* have a cistern inside but not are found in similar landscapes. In Britain, Carrawburgh is the only *mithraeum* associated with a known sacred spring. Since the significance of the cult had far more to do with the interior of the cave rather than the exterior, perhaps the location of the temple was not particularly relevant, accounting for the various landscapes in which other *mithraea* were found.

The religious landscape of Carrawburgh was anchored to the water source. The spring at Coventina’s Well was divine and produced a steady stream of water. When the Batavian cohort arrived at Carrawburgh, they built a *mithraeum* near that stream. The Mithraic water source would have depended on the water from Coventina’s Well and this may have changed interpretations of some aspects of her cult, but more than likely the outside spring was not as important to Mithras’ worshippers as what went on inside the temple. After a short amount

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<sup>149</sup> RIB 1137.

<sup>150</sup> Clauss 2000, 22.

<sup>151</sup> CSIR i.9 page 7.

<sup>152</sup> CIMRM 830, 831, 832.

of time, the Shrine to the Nymphs and Genius Loci was built directly in front of the *mithraeum*. This could have been due to a period of disuse, or have been an extension of the Mithraic cult. In the third rebuilding of the *mithraeum*, the altar to the Nymphs and Genius Loci was left in place and the well continued to be used. This was either a sign of *pietas*, indicating a tolerance for other religions, or respect for the previous founder of the shrine, perhaps one of the unit's prefects. While there is no direct parallel to the cults at Carrawburgh, many *mithraea* were situated within areas of wider religious significance. This allowed the religion to adapt to various contexts, providing a way to help negotiate identities.

### 3 Religiosity of the Batavians

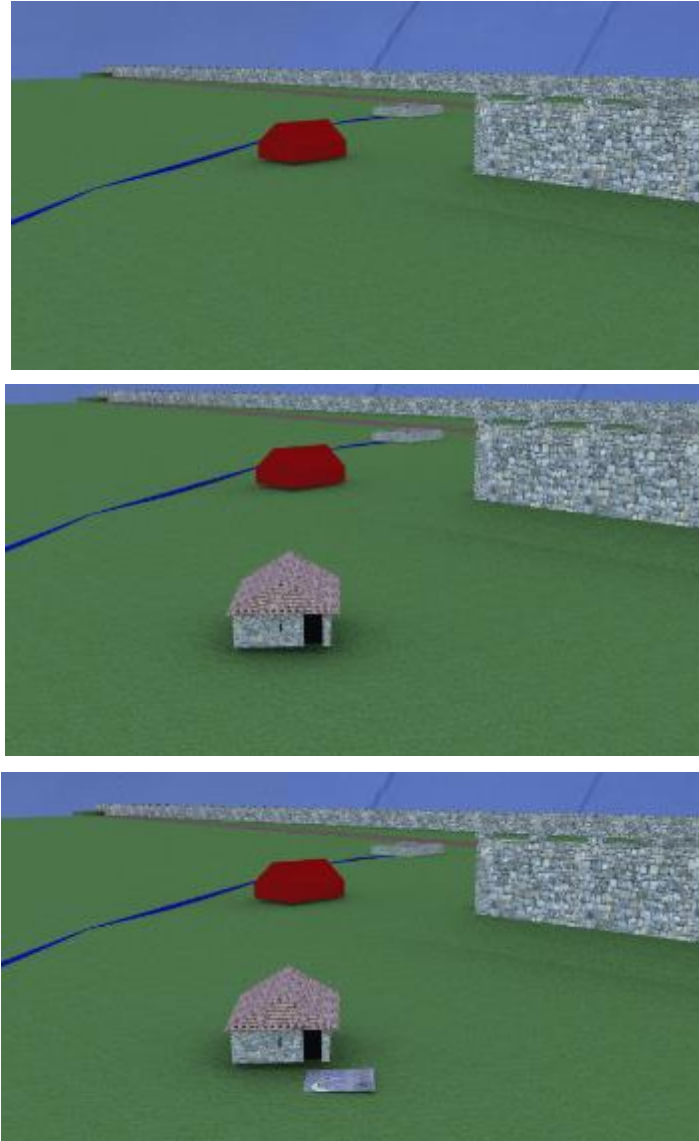


Figure 15: Top: c. AD 133. Well, bathhouse and fort. Middle: Mithraeum added c. AD 198-211. Bottom: addition of the Shrine to the Nymphs and Genius Loci c. AD 213

Coventina's Well saw the height of its popularity in the late second century to the early third century, although it was infrequently used moving into the last quarter of the fourth century. This period of use begins with the arrival of the Batavians at Carrawburgh. Shortly after their appearance, the *Mithraeum* and the Shrine to the Nymphs and Genius Loci were constructed (Figure 15). The *Coh I Batavorum*, was at Carrawburgh from c. AD 198 until the fifth century, after the composition of the *Notitia Dignitatum*. This work lists the forts and units stationed *per lineam valli*. The Batavians, a Germanic tribe, had been fighting for the Romans for roughly 250 years by the time they were stationed at Carrawburgh. Judging by the inscriptional evidence, both the Germanic and militaristic elements of their identity was important. Under the influence of this cohort, the religious landscape at Carrawburgh saw

many changes. The creation of each shrine may have related to a political or social event thereby marking a period of change. For example, the Shrine to the Nymphs and Genius Loci is thought to have been built during a period in which the Mithraic temple was not in use, which may signify a change in cult practice.<sup>153</sup> The altar was a mere 3.6 m in front of the Mithraeum entrance, and was accompanied by an apse like structure and well. This shrine may have been a way for the new *praefectus* to assert his power, making a statement that the previous Mithraic cult was not to be tolerated. When the new *mithraeum* was built, it incorporated elements of the shrine, ending the statement it made with its own re-statement of power, but the altar was left standing. Interestingly, Coventina's Well does not appear to have been altered in its lifespan, and inscriptions from the Batavian cohort have been found there as well. Were the Batavians peculiarly religious? Was the presence of the sacred spring, and its persistence in creating a boggy, wet area a reason that the Batavian's created and curated such a religious space? Or are a combination of these factors in play? The religious landscape at Carrawburgh shows both tolerance and intolerance of other religions, as well as personal and regional preferences. As stated above other places in Roman Britain have similar religious landscapes, where multiple temples or shrines are located in a single area, so it is necessary now to consider the Batavian cohort's religious identities at Carrawburgh and elsewhere.

Ancient religion was fluid and considered to be one facet of self and cultural identity. Therefore religion must be considered as part of a wider context, as ritual can be individual, communal, localized, or globalized.<sup>154</sup> It can incorporate aspects of prior practice into a new way of practicing. Indeed, cult sites frequently have a tradition of being placed inside an area with prior religious significance.<sup>155</sup> Cult sites had the power to provide a place for a mixture of cultures and religions to come together and unify under a new, hybrid nature.

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<sup>153</sup> Smith 1962.

<sup>154</sup> Sanders 2013, 38.

<sup>155</sup> Roymans 2004, 5.

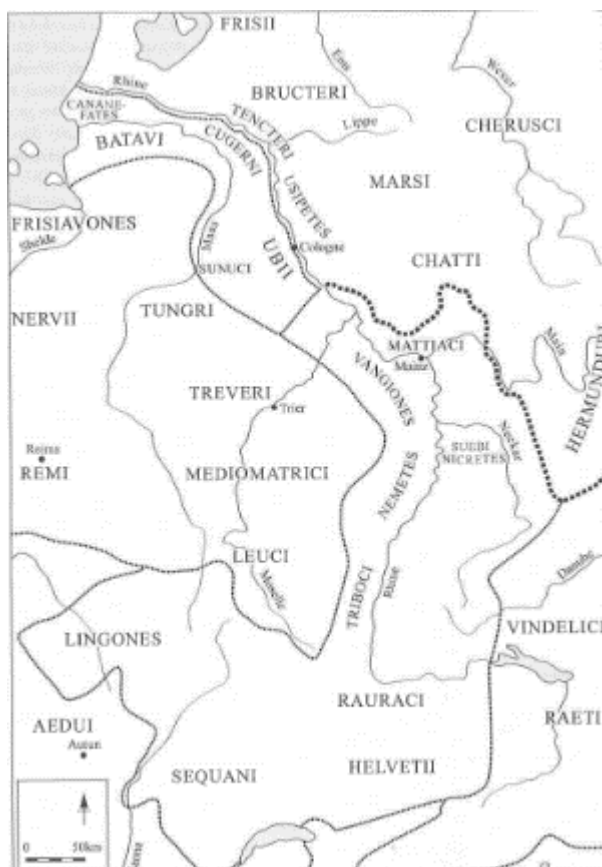


Figure 16: Map of Tribes in Germania.<sup>156</sup>

Who exactly were the Batavians? Identity has become a popular topic in scholarship, and the old idea of Romanization, largely criticized for its dichotomy between ‘Roman’ and ‘Native’ is giving way to more sophisticated and nuanced interpretations of what it meant to belong in antiquity.<sup>157</sup> Certainly, there was no singular Roman identity in the Empire, nor was there a singular ‘other’, in this case, Celtic or Germanic, identity. Certain aspects of Roman life were adopted by provincials and this would have been very prominent in a military setting. Scholars have tried to make definitions into neat categories such as ‘Roman’ or ‘Native’ or some combination of these but this largely neglects the hybrid nature of the artefacts. Culture exchange is not unidirectional; as Horace states, *Graecia capta ferum uictorem cepit et artes intulit agresti Latio*.<sup>158</sup> No matter the conquered people, they would have affected the Roman way of identification and ‘being’. Factors such as status, language, religion, origin, job, age, and gender could be used in both self and cultural identifications. The curation of different aspects of each culture would create new and mixed identities, with various ways of identifying. When the Batavians were at Carrawburgh, they had been in

<sup>156</sup> Image from Carroll 2001.

<sup>157</sup> Millett 1990; Woolf 1998; Ando 2000; Mattingly 2006; Revell 2009; Haeussler 2013.

<sup>158</sup> “Captive Greece captured her uncivilized victor and brought the arts into rustic Latium.” Hor *Epist* 2.1.156.

contact with both Celtic and Roman cultures for hundreds of years. This contact influenced their identity, but the origins of this process are not recoverable from the existing data. In this paper, the Batavians are called ‘Roman’ due to their military status; however in reality they do not fit in such a neat box. Depending on their circumstances, they may have wished to be seen as Roman, German, a soldier, or something else. As their inscriptions show, status (*praefectus*), troop (*Coh I Batavorum*), and religious identity (Mithras, Coventina, Jupiter, etc) are often given equal prominence. While the precise way in which they identified themselves is unknown, and likely changed depending on a given circumstance, there are a few things that are certain about the Batavians.

The Batavians were a Germanic people from the Lower Rhineland, recruited as Roman soldiers, and stationed around the Roman Empire. It appears that there were two sets of nine cohorts, both numbered cohort one through nine.<sup>159</sup> The known locations of the various cohorts are: Pannonia Superior, Pannonia Inferior, Dacia, Noricum, Raetia, and Britain.<sup>160</sup> Roughly 75% of inscriptions naming the Batavians come from either the *auxilia* or imperial bodyguard.<sup>161</sup> In Britain, Tacitus mentioned that Nero withdrew some of the Batavian units in AD 67, and that four cohorts fought at Mons Graupius. Without much physical evidence, these four cohorts have been recognized as Coh. I, Coh. III, Coh. VIII, and Coh. IX.<sup>162</sup> The only unit having multiple mentions in the material record is Coh. I stationed at Carrawburgh, although the evidence is scant. Before they served at Carrawburgh, the epigraphic record shows building inscriptions at Carvoran, and an altar to Mars Cocidius and a Genius found in the foundation of Hadrian’s Wall west of Milecastle 59.<sup>163</sup> Coh. IX was stationed at Vindolanda, evidenced by the Vindolanda tablets and a stamp. This is the only surviving evidence of the Batavians in Britain to date, and overall very little is known about the Batavian cohorts. So it is important to consider their origin to see if that gives any indication of their religious ties.

Of their ethnogenesis, Roymans argues that the Batavians used the cult of Hercules to integrate into the Roman Empire as Hercules was a forerunner to Roman expansion, as he traversed through Celtica to Italy.<sup>164</sup> In order to use this myth they needed to negotiate and redefine their self-identity. This was achieved by anchoring their native gods with Roman

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<sup>159</sup> Holder 1982.

<sup>160</sup> CIL XVI 55, 69; *Tab. Vind.* 22, 23.6; RIB 1823, 1824, 2015, 2401.6, 2401.8, 2445.2, 2445.24; Roxan 1978, 1985, 1994; Bowman and Thomas 1987; Holder 2006.

<sup>161</sup> Derks 2009, 269.

<sup>162</sup> Holder, 1982.

<sup>163</sup> RIB 2015.

<sup>164</sup> Roymans 2004; Diodorus Sic. 4.19.1.



ones, or worshipping their indigenous gods in a more Roman way.<sup>165</sup> Three monumental sanctuaries were dedicated to Hercules Magusanus at Empel, Elst, and Kessel. The excavations of the temple complex at Empel produced 822 Iron Age coins, 251 Roman coins, and over one thousand metal objects in open-air sanctuary with several pits for deposition.<sup>166</sup> At this time in Germania it was not common to worship at such temples, but these were outlined in a Gallo-Roman way, incorporating elements of both native and Roman cultures.<sup>167</sup> This may have been extremely important during the beginning stages of the conquest, as well as after major social or political changes, when identities could be shaken, and needed a more firm redefinition. Nonetheless, the importance of these temples is not just in the common deity, but in the social space that they provide. It provided a place to align both religious and political views, and this tactic, may have been continued at Carrawburgh, especially at the *mithraeum*. The first *mithraeum* would have held about twelve worshippers, and most inscriptions found inside such contexts note the military rank of the soldier. While the reasons or motivations for creating such religious spaces cannot be seen in the archaeological evidence, a broad overview can be attempted.

New cults provided places where people could get together and share common ideologies allowing them to identify in a certain way. The addition of the Hercules foundation myth into the Rhineland was important because it gave the Batavi a communal identity and allowed them to assimilate into the Roman world using religion. However, by the time the Batavians moved to Carrawburgh in the third century, the Hercules Magusanus cult may have no longer been important. However, the same concept of adopting and implementing the worship of new gods was. This framework could create new groups or keep prior factions together, as well as assist with finding individuals a place in new political and social contexts. The Batavians may have adopted Hercules to assimilate into the Roman Empire, but on Hadrian's Wall the adoption of Mithras may have been a way to move up the military ranks and form an elite community inside the military. However, no other *mithraea* mention Batavians in Britain, and none of the forts that the Batavians were stationed at in Britain provide clear religious evidence that can be assigned to the unit. Carvoran was the first site the cohort was stationed, but Birley argues that while there are building inscriptions from the first cohort of Batavians, they 'probably have no bearing on the garrison'.<sup>168</sup> The dedications at this site include Belatucadrus, Epona, Hercules, Jupiter, Mother goddesses,

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<sup>165</sup> Roymans 2009, 220.

<sup>166</sup> Roymans and Aarts 2004; CIL xiii 8771 (Ruimel), 8777 (Domburg).

<sup>167</sup> Roymans 2008, 225-230.

<sup>168</sup> Birley and Vindolanda Trust 1998, 16.

Minerva, nymphs, goddesses, and above all Veteres who appears in thirteen inscriptions.<sup>169</sup> So while many altars have been discovered at Carvoran, and the area appears to have had significant religious connotations, none can be securely associated with the Batavians. As previously mentioned, the only other altar relating to another god by the Batavians is dedicated to Mars Cocidius, a Celtic deity that was paired with a Roman god.<sup>170</sup> While the Batavian's clearly practiced religion, no real evidence of their religious interests has been found within Britain outside of Carrawburgh.

To sum up the findings of this study so far, Carrawburgh was supplied with water from a strong spring that was associated with the goddess Coventina. The reason the *mithraeum* was built is unknown, but it too was located near the spring, in a natural depression of land, and the Shrine to the Nymphs and Genius Loci was likely built at a time of disuse of the *mithraeum*; its location suggests that it was a statement made against the Mithraic cult. These extramural buildings were located close together on the South and West sides of the fort, altering this area over time. Since relatively little evidence for the religious life of the Batavians in Britain currently exists, it is not worth dwelling on these units any longer. Instead we move to the significant alterations made to the religious landscape. These can be explored in a more thorough way by using 3D modelling and especially Virtual Reality (VR).

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<sup>169</sup> Jones and Mattingly 1990, 276.

<sup>170</sup> RIB 2015.

## 4 3D Modelling and Virtual Reality

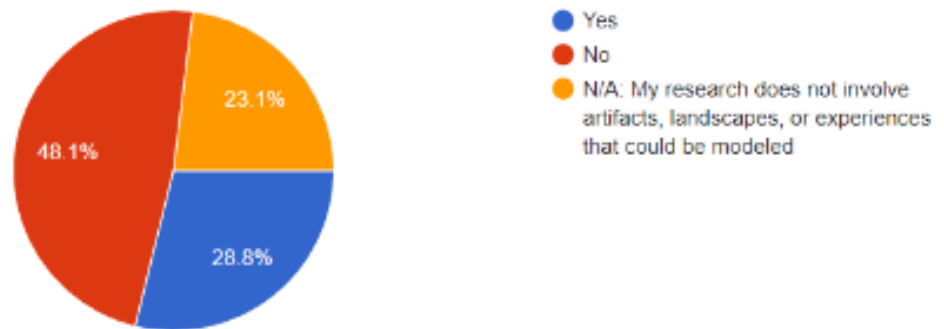
While sensory archaeology looks at the experience of a body within a landscape, it is ironic that this becomes confined to text on paper in a final report. The communication of the five main senses of sight, touch, taste, smell, and hearing, as well as other senses such as movement, cannot fully be accomplished in a textural form, and there is no present way of relaying all the sensorial information available at a given site. However, the use of technology can help augment this approach by providing an immersive visual representation of current knowledge. There are many types of 3D models but this paper is concerned only with reconstructions that try to recreate the history of past sites using experiential techniques. The first such reconstruction was the Temple to Sulis Minerva at Bath in the mid-1980s by John Woodward.<sup>171</sup> Since then, the technology has been increasingly adopted within various academic contexts and is becoming increasingly popular.

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<sup>171</sup> Woodward 1991.

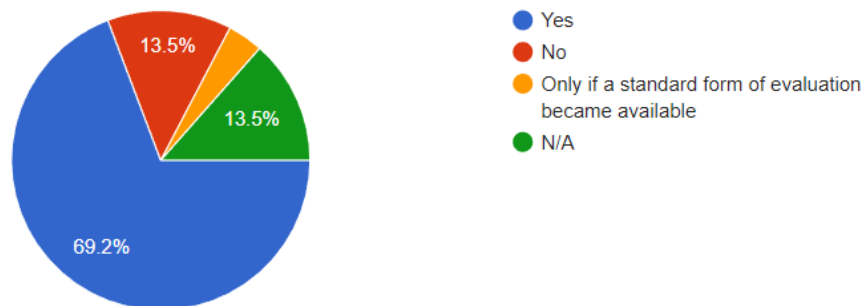
### Do you use 3D models in your research?

52 responses



### Do you think models could be useful for your research?

52 responses



### Would you be interested in learning how to create 3D models?

52 responses

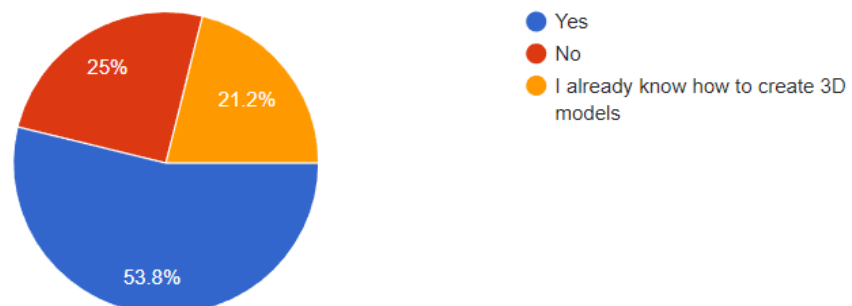


Figure 17: Response from survey

Figure 17 shows the results of a survey distributed by the present author that asked academics about their current views on 3D modelling. While 48.1% responded that they do not use 3D models, 69.2% thought that models would be helpful for their research, and overwhelmingly 75% of academics either know how to create 3D models or would like to learn how to create them. Respondents said that the most important aspect of 3D models is their use in public

engagement. Clearly, there is a strong interest within academia, and with good reason. Although virtual reconstructions have their own limitations, a 3D model allows a more complete comprehension of an archaeological site's character and history, helping with aspects such as the exploration of sight lines, visual impact, sounds, movement, change over time, and spatial awareness. The ancient world needs to be experienced, it was a three dimensional space that was made of objects that had colours, texture, lights, and shadows. Virtual reconstructions can present such complexities of the ancient world and can be viewed from any angle. It helps with understanding the spatial relationships between monuments and the various routes to take to move along or within the landscape. Addition of soundscapes can simulate the aural effects of being inside a particular area. Various projects have also worked on sensorial effects of virtual environments such as the VOID, adding more tactile feedback by introducing real objects that can be touched, while the multisensory VR testing of Silchester has tried to introduce smells.<sup>172</sup> While this technology is new, and has limited testing, it is important to consider. As Greaney said, 'reconstructions put flesh on bare bones of the past by restoring what time has taken away.'<sup>173</sup> Of course, it is not that simple. A 3D model is only one possible interpretation of many, and two models may not look identical even though they represent the same thing. Inside such reconstructions leeway is given to artistic interpretation and while they need to accurately represent current knowledge and archaeological evidence, the precise nature of the model can vary depending on the aims of the project.

Many 3D models strive for photo-realistic effects as a way to enhance a sense of presence within a model. I believe that this idea is erroneous. If it is accepted that the past cannot be truly reconstructed, and that the available data can change, it should follow that a reconstruction need not look realistic, because there is no real and true information to comprehend. Here it is argued that photorealism does help a person feel more present, but it also creates the idea that what is being displayed is absolute truth. It is possible to create multiple versions of an environment (photorealistic or not) varying each slightly to see alternative possibilities. Theoretically, as this has yet to be tested, a model in a more 'game like' style can be just as immersive as a photorealistic style.

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<sup>172</sup> Ewart, 2016; TheVoid 2017.

<sup>173</sup> Greaney 2013, 31.



Figure 18: Left: Screenshot from Realities.io, Right: Screenshot from Smash Hit<sup>174</sup>

This is evident by Figure 18, depicting two experiences in Virtual Reality. Realities by Realities.io and Smash Hit by Mediocre are both immersive, but Realities strives to be Photo-Realistic while Smash Hit uses various visual effects and a more abstract environment to draw in the player. Regarding the reconstruction of ancient sites, this is a very important point to consider. Certain measurements should be taken to be as truthful to the data as possible, it is not necessary to strive for photorealism. However, it is important to be true to measurements, landscape information, known materials, and try to incorporate sounds, movement and interactivity.<sup>175</sup> The first impression from a VR experience is the look of the environment and then its interactivity. If a model fails to keep a user engaged, it will likely fail at both public and research engagement. The most successful photorealistic VR models are those that have scanned images from museums and have put them back into their original context.<sup>176</sup> These models have been displayed in museums and have been successful in their public engagement. They help replace the objects into a more natural setting, and allows the user to interact with it. While the model will never replace the artefact, it helps the user to become more familiar with the object.

<sup>174</sup> Images taken 20 August 2017.

<sup>175</sup> One limitation of the Carrawburgh model is that it does not accurately portray the elevation data.

<sup>176</sup> Soluis Heritage 2015; Etruscanning Project 2011-2014.

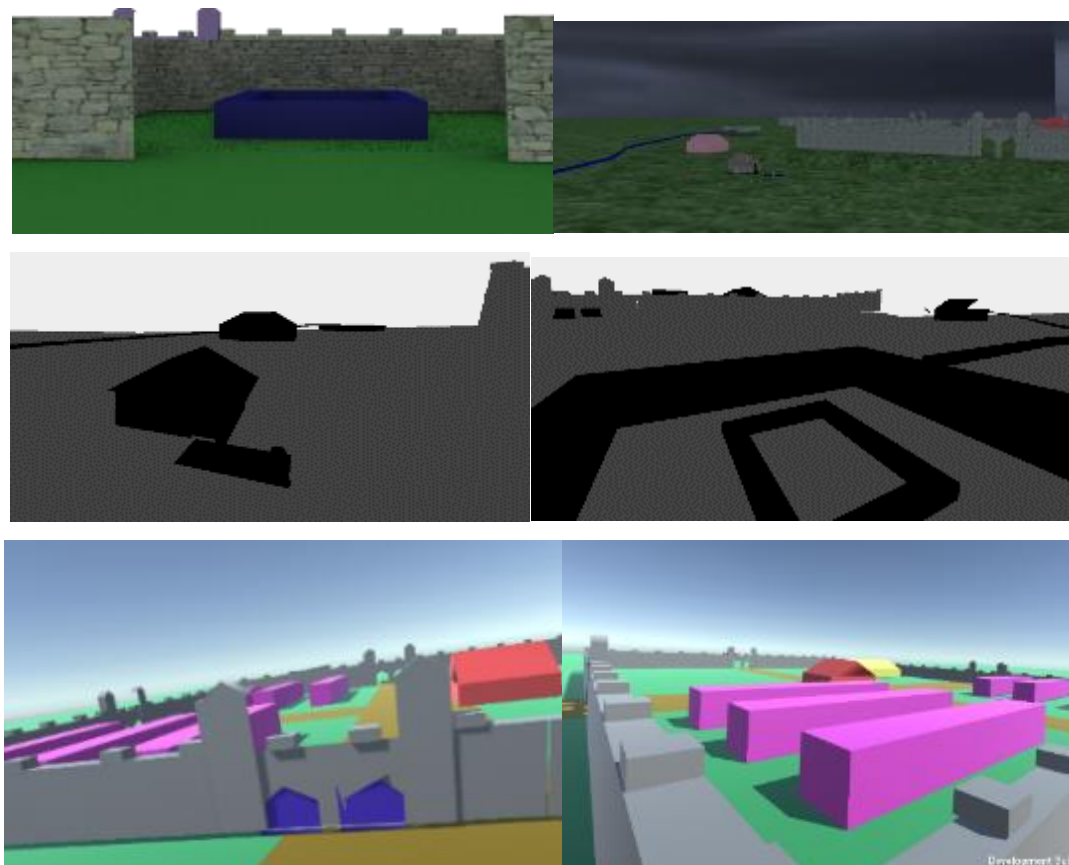


Figure 19: 3DS Max, Three.js, and VR model representations

The Carrawburgh model was quickly made as a theoretical tool. Much is hypothesized as the data is not known, but the ultimate goal was to show change over time, visual impact, and simulate movement throughout the landscape. While the model is not particularly accurate in the portrayal of the elevation of the landscape, it is successful in these goals. The model is to scale, based on the measurements from the archaeological reports of Clayton, Richmond and Gillam, Smith, and Breeze.<sup>177</sup> The Carrawburgh model is depicted in a more ‘game like’ style to emphasise that we do not know precisely how the fort and its environs looked. The ability to move around the model provides the opportunity to look at the religious sites in a new way without thinking that the model represents absolute truth. In the future, such a model can answer questions about sightlines of the *mithraeum* from the south gate of the fort, or Coventina’s Well from the west gate. The model was constructed using Autodesk 3DS Max, put online using the Three.js library, and into VR using Unity (Figure 19). The 3DS Max model is more accurate in textures and colours, but does not allow the user to move around. The three.js model allows the user to move around and experience the landscape, but does not have textures and is not fully immersive. The VR model is fully immersive, the user is able to move around, and experience the site. However, it does not

<sup>177</sup> Clayton 1880; Richmond and Gillam 1951; Smith 1962; Breeze 1972.

have texture. In all three models, the relationships between the three shrines and the other features of the area can be appreciated, but the site would benefit from a more complete reconstruction of the surrounding landscape and the addition of the artefacts that are found decontextualized in museums.

In the present, where time has displaced objects, memory, and meaning for the site, it is imperative that the academic community is involved with the recontextualization of displaced objects in museums and presenting the finds to the public. The objects found at Carrawburgh are either housed in the Clayton Museum or the Great North Museum: Hancock in Newcastle. The fort itself reveals little to the average bystander, and the *mithraeum* is the only temple that is still visible. While the past cannot be reconstructed with exact precision, it must be understood that the value of the past lies within the present.<sup>178</sup> At Carrawburgh, the spring from Coventina's Well has dried up, the Well itself is no longer visible, nor is the Shrine to the Nymphs and Genius Loci. The *mithraeum* is in ruins, Hadrian's Wall is not visible on the site, and the only evidence of the fort is the raised platform. This hinders more complete understanding of the Ancient Past. While we will never be able to disassociate ourselves from modern views, it is important to try and get the complete picture of the past landscape.

The Carrawburgh model can be seen online at [debmayers.com/modellingcarrawburgh](http://debmayers.com/modellingcarrawburgh). It is possible to walk around the environment and look at the spatial arrangement of the monuments. However, it is lacking textures and colour. The model is also accessible in VR. In this model, the user follows a sphere around the environment and the aforementioned aspects of the three.js model are much easier to understand. The use of such technology, especially VR, is an asset to research because it makes data more visible and easy to understand. Because sensory archaeology is focused on the experience of the body, VR can provide a more in depth insight into this area of study. While it is limited because it cannot assess different aspects yet, such as smell, touch and taste, it is important in 'transporting' the user into an environment. While senses were culturally codified, experiencing them as a modern viewer also provides great insights.

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<sup>178</sup> Blockley 1999; Stone and Planel 1999, 1.



## 5 Conclusion

Most research on the fort and its religious structures do not consider them in their wider contexts. This paper aimed to explore the religious landscape of Carrawburgh using facets of both landscape and sensory archaeologies to examine the relationship between the shrines and the stream. It looked to see if any other *mithraea* in Britain had a similar context (i.e. were any other temples situated near water and also near other religious structures). It then went on to look at the Batavians and their religious habits and finally the theoretical benefits of 3D modelling and VR in sensory archaeology.

Religious landscapes such as that at Carrawburgh must be considered using sensory and landscape archaeology to provide a more holistic view. The religious landscape was more than a collection of shrines, it also included the relationship between the shrines, the land, and the people that occupied, experienced, and moved around the space. Religion was fully experienced and lived in the ancient world, and our comprehension of ancient religion is enhanced by a sensory approach. By considering the sensorial properties of water, landscape, and various effects inside each cult, a more complete knowledge of the religious landscape at Carrawburgh can be gained. The three cult sites all had a relationship with the stream from Coventina's Well.

Water had a divine quality in the ancient world, was an important feature inside the community, and had to be experienced. Religion was a multisensory activity that incorporates all the senses including kinaesthesia. Water had both sacred and sensory aspects at Carrawburgh and plays a vital role in cultic practice. Any change to the landscape had the potential to alter the movement patterns inside the landscape and thereby change the meanings and values associated with a particular area. These changes would have been necessary at various times due to the aqueous nature of Carrawburgh, and may have even resulted in a reason to build a shrine.

Coventina was likely a Roman goddess that had some roots in Celtic mythology, but she is only known from the Roman Period. The well provided a place for different groups of people to interact, and was likely the most important and largest religious site at Carrawburgh. It may have been a place where anyone could worship, and that provided a flexibility to the meaning attached to the water which allowed the stream to be reinterpreted in a Mithraic context. In future research, it would be helpful to see if other streams stemming from holy

wells attracted other cults, as this question has been approached here only in relation to *mithraea*.

The Shrine to the Nymphs and Genius Loci was probably built during a period when the *mithraeum* was not in use and was only used for a brief amount of time. Due to its location, and its apparent use until the building of the third *mithraeum*, it is likely that the Shrine was subsequently reinterpreted within a Mithraic context.

The *mithraeum* was likely in use for reasons that were not purely religious, and could not hold many initiates even after its enlargement. It was located inside a religious landscape that already had a connection to Coventina. It is likely that there is some correlation between *mithraea*, water, and the cave, but this needs to be further studied. Due to the symbolic nature of the Mithras cult, it is necessary to look at a multitude of factors when looking at a Mithraic temple. This includes the artifacts found within the temple as well as the wider context. At Carrawburgh, the relation of the temple to the water from Coventina's Well was likely not a big factor in local Mithraic worship as the most important things happened inside the *mithraeum*, and the water could be reinterpreted for a Mithraic context.

The question was raised if it was the Batavi who were very religious, or if it was the landscape itself that promoted such veneration. The Batavians used religion as a means of self and cultural identification. In the lower Rhineland, the cult of Hercules Magasanus was used as a way to integrate into the Roman empire. At Carrawburgh, the cult of Mithras was used to integrate into the established military community. It may have provided a way to make an exclusive cult that could be controlled. However, the evidence for the Batavians in Britain is virtually nonexistent outside of the fort at Carrawburgh, and no clear link could be made with their religiosity.

By using 3D modelling and virtual reality it is possible to have a visual representation of research, show change over time, spatial relations between buildings, sightlines, soundscapes, and ideally movement patterns. These models are a powerful tool to quickly show research and current thinking about an archaeological site, but care must be taken to show all known and unknown evidence. As sensory and landscape archaeology are concerned with experience, a VR application is particularly helpful in thinking about the ways that ancient people may have moved around the landscape. While further research on

the efficacy of these models is necessary, they currently provide an advantage when thinking about being in a landscape such as that at Carrawburgh.

## Appendix

### 1 Altars to Coventina found in Spain and France

As published in Allason-Jones and McKay 1985, 4.

#### Curvenos, Spain:

COVE|TENE| E R N

#### Santa Cruz de Loyo, Spain:

CUHVETENAE | BERRAL|OGE GU | EX VOTO | FLAVIUS VALERIANUS

#### Narbonne, France:

IVCUNDUS CO|VERTINE F MACER| CIRCUM ARAM VOLKTERIO SUO IENSIUM  
DONAVIT

### 2 Inscriptions from Carrawburgh

RIB Evidence taken directly from RIB Online (<https://romaninscriptionsofbritain.org/>):

#### Inscriptions from Coventina's Well:

- **RIB 1522:** *DEAE / CONVENTI/NAE BELLICVS / V S L M P*
  - To the goddess Coventina, Bellicus set this up, willingly and deservedly fulfilling his vow.
- **RIB 1523:** *DE CONVETI / VOT RETV LIT MAVS / OPTIO CHO / P FRIXIAV*
  - To the goddess Coventina Mausaeus, *optio* of the First Cohort of Frixiaones, paid his vow
- **RIB 1524:** *DEAE CO/VENTINE / COH I CVBE/RNORVM / AVR CAMP/ESTER /V.L.*
  - To the goddess Coventina for the First Cohort of Cubernians Aurelius Campester joyously set up his votive offering.
- **RIB 1525:** *DIE COVE/NTINE A/VRELIVS / CROTVS / GERMAN*
  - To the goddess Coventina Aurelius Crotus, a German, (fulfilled his vow).
- **RIB 1526:** *DEAE NIM/FAE COVEN/TINE MAD/VHVS GERM / POS PRO SE ET SV / V S L M*

- To the goddess nymph Coventina Maduhus, a German, set this up for himself and his family, willingly and deservedly fulfilling his vow.
- **RIB 1527:** [...] MPHAE COVENTINAE / [...] TIANVS DEC[...]RI [...] /SLE [] V / [...]M
  - To the Nymph Coventina ...tianus, Decurion, ...deservedly [fulfilled his vow].
- **RIB 1528:** DAE COVEN / VINOMATH/ VS V S L M
  - To the goddess Coventina Vinomathus willingly and deservingly fulfilled his vow.
- **RIB 1529:** DEAE COVEN/TINE P[...]A/NVS ML CHO [][] TTOIN [...] / [] VOTVM [...] BES ANIMO / R ET POSIVIT
  - To the goddess Coventina P...anus, solider of the ...Cohort, willingly paid his vow and set this up.
- **RIB 1530 (Insence Burner):** GABIVN/US / IF / EL/ CSI/ SA/TV/R/NI
  - Gabinius Saturninus (son) of Felix
- **RIB 1531 (Insence Burner):** COVE/TINA AG/VSTA / VOTV / MAN/IBVS SVIS / SATV/RNI/NVS / FECIT / GABI/NIVS
  - For Coventina Augusta Saturninus Gabinius made this votive offering with his own hands.
- **RIB 1532:** DEAE CO/VETINE CR/OTVS VT LB/ ES S[...]LVI PRO M SA
  - To the goddess Coventina I, Crotus, willingly fulfilled my vow for my welfare.
- **RIB 1533:** DEAE SANC / COVONTINE / VINCENTIVS / PRO SALVTE SVA / V L L M D
  - To the holy goddess Covontina Vincentius for his own welfare as a vow gladly, willingly and deservedly dedicated this
- **RIB 1534:** DEAE / COVVENTINAE / T D COSCONIA / NVS PR COH / I BAT L M
  - To the goddess Covventina Titus D(...) Cosconianus, prefect fo the First Cohort of the Batavains, willingly and deservedly (fuliflled his vow).
- **RIB 1535:** COVVEN[...] / AELIVS TE[...] / TIVS P[.....] / COH I BAT / V S L M
  - To Covventina Aelius Tertius, prefect of the First Cohort of Batavians, willingly and deservedly fulfilled his vow.

## Baths

- **RIB 1537:** DAE FOR / VITALIS / FECIT / LIB MER
  - For the goddess Fortune Vitalis willingly and deservedly made this.
- **RIB 1559:** D M [.....] / LONGI[... ..] / BVC C[..... ..] / [. . .]
  - To the spirits of the departed (and) of Longinus ..., trumpeter of the First Cohort of Batavians, ...
- **RIB 1560:** [....] M / [. . .]S MILENI (FILIVS) / [.....]FERO / COHOR I BAT / [.....]
  - To the spirits of the departed ..., son of Milenus: standard-bearer of the First Cohort of Batavians ... .
- **RIB 1562:** [... ..] I BAT / [... ..] HILARIO / HEREDES F C
  - ... of the First Cohort of Batavians ... and Hilario, the heirs, had this set up.

## Center of Fort in a structure:

- **RIB 1538:** GENIO / HVVS LO/CI TE.AND / ET SVVE / VEX COHOR II NERVIOR/VM
  - To the Genius of this place the Texandri and Svevae (?), memberes of a detachment from the Second Cohort of Nervians, (set this up).

## Mithraeum:

- **RIB 1540:** MATRIBVS / ALBINIVS / QVART MIL D
  - To the Mother Goddesses Albinus Quartus, a soldier, dedicated this.
- **RIB 1544:** DEO INV M / L ANTONIVS / PROCVLVS / PRAEF COH I BAT / ANTONINIANAE / V S L M
  - To the Invincible god Mithras Lucius Antonius Proculus, prefect of the First Cohort of Batavians Antoniniana, willingly and deservedly fulfilled his vow.
- **RIB 1545:** D IN M S / AVL CLVENTIVS / HABITVS PRAF / COH I / BATAVORVM / DOMV VLTINA (TRIBV) COLON / SEPT AVR L / V S L M
  - Sacred to the Invincible god Mithras: Aulus Cluentius Habitus, prefect of the First Cohort of Batavians, of the Ultinian voting-tribe, from Colonia Septimia Aurelia Larinum, willingly and deservedly fulfilled his vow.
- **RIB 1546:** DEO INVICTO / MITRAE M SIM/PLICIVS SIMPLEX / PREF V S L M
  - To the Invincible god Mithras Marcus Simplicius Simplex, prefect, willingly and deservedly fulfilled his vow.

### Headquarters Building:

- **RIB 1552:** [... ..]VI / [... ..]VI NER / [... ]VS / [... ]
  - ...of the deified ... of the deified Nerva ... .

### Undocumented locations at Carrawburgh:

- **RIB 1521:** DEO / BELLETI / CAVRO / LVNARIS
  - To the god Belleticaurus Lunar is (set this up)
- **RIB 1536:** FORTVNAE / COH I BATAVOR CVI / PRAEST / M FLACCINIVS / MARCELLVS PRAE
  - To Fortune the First Cohort of Batavians, under the command of Marcus Flaccinius Marcellus, prefect, (dedicated this).
- **RIB 1539:** D M D / TRANQVIL/A SEVERA / PRO SE ET SVI /S V S L M
  - To the Goddess Mother of the Gods Tranquilla Severa for herself and her family willingly and deservedly fulfilled her vow.
- **RIB 1541:** MAT/RIBV/S COM/MVN [...]
  - To the Mother Goddesses everywhere abiding .... .
- **RIB 1542:** MINERVAE / QVIN[..]VS / ARCHITECT / V S L M
  - To Minerva Quintus, an engineer, willingly and deservedly fulfilled his vow.
- **RIB 1543:** DIE M/INER/VE VE/NICO / PR S / P S S
  - To the goddess Minerva Venico for his welfare set this up at his own expense.
- **RIB 1547:** [...]HIS / [.....]LLATIO / [..... ..] VIC
  - To the Nymphs the detachment of the Sixth Legion Victrix (set this up).
- **RIB 1548:** DEO VE/TERI VO/TVM VC/CVS V L
  - To the god Veteris Uccus willingly vowed his vow.
- **RIB 1549:** [.....]S / HVITE/RIBVS
  - To the gods the Hviteres.
- **RIB 1550:** [...]v[...]O LEG/ [..... ..]R COH I AQVIT/ [.....] FECIT / [..... ..]IO NEPOTE/ [.....]EF
  - ...under [...]verus as emperor's propraetorian legate the First Cohort of Aquitanians built this under ... Nepos, the prefect.
- **RIB 1551:** [... ..]AE AD[..... ..] / [.....]O PIO [..... ..] / [.....] M[..]X B[..... ..]
  - ... great-great-great-grandson of the defied Nerva, Marcus Aurelius Antoninus Pius Felix Augustus, Most Great Conqueror of Parthai, Most Great Conqueror of Britain ... .

- **RIB 1553:** [.....] P.....] [....] O / [.....] R MAX/ [.....] MAX/ [.....] RCOS / [.....] [.....] MAXI/ [.....] ARM / [.....] CAES N SVB/ [.....] VCCIANO V C LEG / [.....] COH I B[.] TAVORVM / [.....] ANTE BVRRIO / [.....] STO PRAE[.....] / [.....] ORNELIANO [.....]
  - For the Emperor Caesar Gaius Julius Verus Maximinus Pius Felix Augustus, Most Great Conqueror of Germany, Most Great Conqueror of Dacia, Most Great Conqueror of Sarmatia, pontifex maximus, in his third year of tribunician power, six times acclaimed *Imperator*, consul, proconsul, father of his country, and for Gaius Julius Verus Maximus, Most Great Conqueror of Germany, Most Great Conqueror of Dacia, Most Great Conqueror of Sarmatia, our most noble Caesar, under ...]uccianus, of senatorial rank and emperor's propraetorian legate, the First Cohort of Batavians built this under the charge of Burrius ... prefect, in the consulship of Perpetuus and Cornelianus.
- **RIB 1554:** ALEXAND[...]
- The century of Alexander (built this).
- **RIB 1555:** ANTONI / RVS
  - The century of Antonius Rusticus (built this).
- **RIB 1556:** THRVPO / NIANA / P XXIII
  - The Thruponian century (built) 24 feet
- **RIB 1557:** [...]
- The century [of ...]
- **RIB 1558:** [...] PAVDI RE[.] VLO VIXIT / [....] S XXXIII ET [.] ATENCTE / [....] IVGI PIE VIX ANIS XXX [...] / [...] IANE FILI EORVM VIXIT D / [...] FILIO EORVM / [...] VDIVAITI FIL / [...] PAHICE / [...]
  - ... to ... Regulus (who) lived 34 years and to ... his devoted wife ... who lived 30 years and to ..., thier daughter, (who) lived ... days, and to ... their son and to ... son ...
- **RIB 1561:** D M / AEL COMINDO / ANNORVM XXXII / NOBILIANVS DEC / CONIVGI CAR[.] SS[.] M P
  - To the spirits of the departed (and) to Aelia Comindus, aged 32, Nobilianus, decurion, set this up to his very beloved wife.
- **RIB 1563:** [...] VLPI[...] / [...] SABIN[...]



### 3 Survey for 3D Modelling

#### Uses of 3D models as a form of research presentation and public engagement

This study, conducted by researchers at the University of Glasgow, is looking at academics' views on 3D modeling as a way to present research and engage the public. You are kindly asked to answer questions relating to your research and 3D modeling. You will also be asked to provide anonymous information about yourself such as your age, gender, and how long you have been affiliated with universities.

We do not ask for any information that might identify you.

You must be 18 or older to participate in this study.

The survey is 18 questions long and takes 5 minutes to complete.

If you have any questions about the research, please contact me at [2087887m@student.gla.ac.uk](mailto:2087887m@student.gla.ac.uk).

This project was approved by the University of Glasgow Ethics Committee

1. What is your current institution affiliation?

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2. What is your role at the University?

*Mark only one oval.*

- ☐ Lecturer/Professor
- ☐ Post-Doctoral Researcher
- ☐ PhD Student
- ☐ Researcher
- ☐ Other: \_\_\_\_\_

3. In which department are you based?

*Mark only one oval.*

- ☐ Archaeology
- ☐ Classics
- ☐ Egyptology
- ☐ History
- ☐ Museum Studies
- ☐ Other: \_\_\_\_\_

4. How long have you been working in academia?

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**Example of a 3D model (Rome Reborn by Frischer Consulting)**

5. Do you use 3D models in your research?

*Mark only one oval.*

☐ Yes

☐ No

☐ N/A: My research does not involve artifacts, landscapes, or experiences that could be modeled

6. Do you think models could be useful for your research?

*Mark only one oval.*

☐ Yes

☐ No

☐ Only if a standard form of evaluation became available

☐ N/A

7. Would you be open to using 3D models as a way to present your research?

*Mark only one oval.*

☐ Yes

☐ No

8. Would you be interested in learning how to create 3D models?

*Mark only one oval.*

☐ Yes

☐ No

☐ I already know how to create 3D models

9. Overall, how useful do you think 3D models are to your own research?

Mark only one oval.

	1	2	3	4	5	
Not at all useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very useful

10. Overall, how useful do you think 3D models are at engaging the public with the past?

Mark only one oval.

	1	2	3	4	5	
Not at all useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very useful

11. Overall, how accurate do you think 3D models are as a representation of the past?

Mark only one oval.

	1	2	3	4	5	
Not at all useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very useful

12. What do you think are the best applications for 3D models?

Check all that apply.

- ☐ Use in academia (for teaching or research)
- ☐ To show research visually
- ☐ Use for education
- ☐ Use in public engagement (i.e. museum or heritage site)
- ☐ To provoke emotions in the viewer using effects like seasonality and storytelling
- ☐ To give the option of interacting with a historical site that is no longer present or cannot be visited
- ☐ To preserve historical sites for future generations to see
- ☐ As an interactive feature that allows the viewer to explore the past
- ☐ To create interactive games with historically accurate scenes and storylines
- ☐ There is no use for digitized models
- ☐ Other: \_\_\_\_\_

13. Do you think that 3D models should stick to the data available (thereby showing the limitations of the data), or fill in the unknown data to create a believable and immersive model?

Mark only one oval.

- ☐ Create a model that only shows information that is known
- ☐ Create a model that fills in the unknown information

14. What do you think models need to show about research? (i.e. uncertainty, limitations of data, use of a particular artifact, etc.)

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15. What do you think the future holds for 3D models and academic research? (i.e. using models, Virtual Reality, or Augmented Reality to understand how spaces worked, for use in public engagement, etc)

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16. Do you have any other comments or views to express about 3D modeling?

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17. What is your age?

*Mark only one oval.*

- ☐ 18-25  
☐ 26-35  
☐ 36-45  
☐ 46-55  
☐ 56-65  
☐ 65+  
☐ Prefer not to say

18. What is your gender?

*Mark only one oval.*

- ☐ Male  
☐ Female  
☐ Prefer not to say  
☐ Other: \_\_\_\_\_

## Works Cited

### Primary Sources

- Ammianus Marcellinus. *History*, Trans. J.C. Rolfe. Cambridge, Mass.: Harvard University Press. 1935-1940.
- Apelius. *Metamorphoses*, Trans. J. A. Hanson. Cambridge, Mass.: Harvard University Press. 1989.
- Athenaeus. *The Deipnosophistae*, Trans. S. D. Olson. Cambridge, Mass.: Harvard University Press. 2011.
- Aelius Apartianus. *The Historia Augusta*, vol. 1, Trans. D. Magie. Cambridge, Mass.: Harvard University. 1921.
- Codex Theodosianus*. Trans. P. Krueger. Berlin: Weidmann. 1923.
- Dio Cassius. *Roman History*, Trans. E. Cary. Cambridge, Mass.: Harvard University Press. 1925.
- Diodorus Siculus. *Library*, Trans. W. Heinemann. Cambridge, Mass.: Harvard University Press. 1989.
- Jerome. *Select letters of St. Jerome*. Trans. F.A. Wright. London: Harvard University Press. 1933.
- Notitia Dignitatum*. Ed. O. Seeck. Berolini apud Weidmannos. 1876.  
<https://archive.org/details/notitiadignitat00silvgoog>
- Pliny. *Natural History*. Trans. H. Rackham. Cambridge, Mass.: Harvard University Press. 1942.
- Porphyry. *De antro nymphaeum*. Trans. J. M. Duffy. Cambridge, Mass.: Harvard University Press. 1969.
- Servius. *Ad Aeneid*. Ed. G. Thilo and H. Hagen. Lipsiae: in aedibus B.G. Teubneri. 1881.  
<https://archive.org/details/serviigrammatic02thilgoog>
- Statius. *Thebaid, books 1-7*. Trans. D.R. Shackleton Bailey. Cambridge, Mass.: Harvard University Press. 2003.
- Strabo. *Geography*, Trans. Horace Leonard Jones. Cambridge, Mass.: Harvard University Press. 1917.
- Tacitus. *Annals*, Trans J.C. Yardley. Oxford: Oxford University Press. 2008.
- Tacitus. *Agricola and Germania*, Trans. Harold Mattingly, Rev. J.B. Rives. London: Penguin Classics. 2010.
- Tacitus. *Histories*, Trans. Rhiannon Ash. London: Penguin Classics. 2009.

## Secondary Sources

- Adkins, L. and R. Adkins. 1996. *Dictionary of Roman Religion*. New York: Facts on File.
- Adrych, P., R. Bracey, D. Dalglish, S. Lenk, and R. Wood. 2017. *Images of Mithra*.  
Oxford: Oxford University Press.
- Alcock, S. E. 2001. "Reconfiguration of Memory in the Eastern Roman Empire."  
In *Empires: Perspectives from Archaeology and History*, edited by S. E. Alcock, T. N. D'Altroy, K. D. Morrison and C. M. Sinopoli, 323-350. Cambridge: Cambridge University Press.
- Alcock, S. E. 2002. *Archaeologies of the Greek past : landscape, monuments, and memories, W B Stanford memorial lectures*. Cambridge: Cambridge University Press.
- Aldrete, G. S. 2007. *Floods of the Tiber in ancient Rome, Ancient society and history*.  
Baltimore: Johns Hopkins University Press.
- Allason-Jones, L., and B. McKay. 1985. *Coventina's well : a shrine on Hadrian's Wall*.  
Hexham: Trustees of the Clayton Collection, Chesters Museum.
- Allason-Jones, L. 2004. "Mithras on Hadrian's Wall." *Proceeding of the International Conference on Roman Mithraism: the evidence of the small finds*, edited by M. Martens and Guy de Boe. 183-189. Tienen, Belgium.
- Ando, C. 2000. *Imperial ideology and provincial loyalty in the Roman Empire, Classics and contemporary thought*. Berkeley ; London: University of California Press.
- Ando, C. 2003. *Roman religion*. Edinburgh: Edinburgh University Press.
- Ando, C. 2008. *The matter of the gods: religion and the Roman Empire*. Berkeley;  
London: University of California Press.
- Beard, M., J. North, and S. R. F. Price. 1998. *Religions of Rome*. Cambridge: Cambridge University Press.
- Beck, R. 2006. *The religion of the Mithras cult in the Roman Empire : mysteries of the unconquered sun*. Oxford: Oxford University Press.
- Betts, E. ed. 2017. *Senses of the Empire: Multisensory Approaches to Roman Culture*.  
Oxon: Routledge.
- Billington, S., and M. J. Aldhouse-Green. 1996. *The concept of the goddess*. London:  
Routledge.

- Birley, E. 1988. The prefects at Carrawburgh and their Altars. In *The Roman Army. Papers 1929-1986*. Amsterdam: Gieben.
- Birley, E. 1935. "Excavations per lineam valli in 1934." *Durham University Journal* 29.
- Birley, E. 1961. *Research on Hadrian's Wall*. Kendal: Titus Wilson & Son.
- Birley, R. and Vindolanda Trust. 1998. *Magna and Carvoran: The fort at the rock on Hadrian's Wall*. Greenhead: Roman Army Museum Publications for the Vindolanda Trust.
- Blockley, M. 1999. "Archaeological Reconstructions and the Community in the U.K." In *The Constructed Past (experimental archaeology, education, and the public)*, edited by P. Stone and P. Planel, 15-32. London: Routledge.
- Boon, G. C. 1960. "A Temple of Mithras at Caernarvon-Segontium." *Archaeologia Cambrensis* 109: 136-172.
- Breeze, D. J. 1972. "Excavations at the Roman fort of Carrawburgh, 1967-1969." *Archaeologia Aeliana* 4th Series (50):81-144.
- Breeze, D. J. 2007. "The Antonine Wall." *Archaeological Journal* 164. Sup. 1: 11-18.
- Breeze, D. J. 2006. *Handbook to the Roman Wall*. 14th ed. Newcastle upon Tyne: Society of Antiquaries of Newcastle upon Tyne.
- "Bretagne." *L'Année épigraphique* 1966 (1968): 62-65.  
<http://www.jstor.org/stable/25606819>.
- Brewer, R. J. 1986. *Corpus signorum imperii Romani = Corpus of sculpture of the Roman Empire. Great Britain*. Vol.I. Fasc.5: Wales. Oxford: Published for the British Academy by Oxford University Press.
- Brooks, H. 2006. "An archaeological evaluation at the Central Clinic, High Street, Colchester, Essex: May 2006". *Colchester Archaeological Trust Report* 372.
- Brunaux, J. L. 1988. *The Celtic Gauls : gods, rites and sanctuaries*. London: Seaby.
- Burgers, A. 2001. *The water supplies and related structures of Roman Britain, BAR British series*. Oxford: Archaeopress.
- Carroll, M. 2001. *Romans, Celts & Germans : the German provinces of Rome*. Stroud: Tempus.
- Casey, P. J. 1994. *Carausius and Allectus : the British usurpers, Imperial biographies*. London: Batsford.
- Chellini, R. 2002. *Acque sorgive salutari e sacre in Etruria (Italiae regio vii): ricerche archeologiche e di topografia antica*. Oxford: Archaeopress.
- Clauss, M., and R. Gordon. 2000. *The Roman cult of Mithras : the God and his mysteries*. Edinburgh: Edinburgh University Press.

- Clayton, J. 1880. "Description of Roman Remains Discovered Near to Procolitia, a Station on the Wall of Hadrian (with Illustrations)." *Archaeologia Aeliana*, Series 2 8: 1-20.
- Collingwood, R. G., Richard Pearson Wright, Sheppard Sunderland Frere, and Roger Tomlin. 1995. *The Roman inscriptions of Britain*. Vol.1, *Inscriptions on stone*. New ed. Gloucester: Alan Sutton.
- Collingwood, R. G., Richard Pearson Wright, Sheppard Sunderland Frere, Roger Tomlin, and Margaret M. Roxan. 1990. *The Roman inscriptions of Britain*. Vol. II; *Instrumentum domesticum (Personal belongings and the like)*. Gloucester: Alan Sutton for the administrators of the Haverfield Bequest.
- Cooper, N. J., and R. Buckley. 2003. "New Light on Roman Leicester (*Ratae Corieltavorum*)." In *The Archaeology of Roman Towns: Studies in honour of John S. Wachter*, edited by Pete Wilson, 31-43. Oxford: Oxbow Books.
- Coulston, J. C., and E. J. Phillips. 1988. *Corpus signorum imperii Romani = Corpus of sculpture of the Roman World. Great Britain*. Vol.1. Fasc.6: *Hadrian's Wall west of the North Tyne, and Carlisle*. Oxford: Published for the British Academy by the Oxford University Press.
- Crow, J., and English Heritage. 1995. *English Heritage book of Housesteads*. London: Batsford/English Heritage.
- Cunliffe, B. W., and M. G. Fulford. 1982. *Corpus signorum imperii Romani = Corpus of sculpture of the Roman world. Great Britain*. Vol.1. Fasc.2: *Bath and the rest of Wessex*. Oxford: Published for the British Academy by the Oxford University Press.
- David, B., and J. Thomas. 2008. "Landscape Archaeology: Introduction." In *Handbook of Landscape Archaeology*, edited by Bruno David and Julian Thomas, 27-43. Walnut Creek: Left Coast Press.
- Davidson, H. R. E. 1969. *Scandinavian mythology*. London: Paul Hamlyn.
- Davies, R. W. 1978. "Some Troop Movements to Roman Britain." *Kilo* 60 (2):363-370.
- Day, J. ed. 2013. *Making Senses of the Past*. Occasional Paper No. 40. Carbondale: Southern Illinois University.
- Derks, T. 2009. "Ethnic identity in the Roman frontier. The epigraphy of Batavi and other Lower Rhine tribes." In *Ethnic Constructs in Antiquity*, edited by Ton Derks and Nico Roymans, 239-282. Amsterdam: Amsterdam University Press.



- Edlund-Berry, I. 2006. "Hot, cold, or smelly: the power of sacred water in Roman religion, 400-100 BCE." In *Religion in Republican Italy*, edited by C. E. Schultz and P. B. Harvey Jr., 162-180. Cambridge: Cambridge University Press.
- Etruscanning Project 2011-2014. <https://regolinigalassi.wordpress.com>. [Accessed 22 July 2017].
- Ewart, I.J. 2016. <http://gtr.rcuk.ac.uk/projects?ref=AH%2FN00714X%2F1>. [Accessed 23 November 2016].
- Fleming, A. 1999. "Phenomenology and the Megaliths of Wales: A Dreaming Too Far?" *Oxford Journal of Archaeology* 18: 119-125.
- Fleming, A. 2005. "Megaliths and Post-Modernism: The Case of Wales." *Antiquity* 79: 921-932.
- Fleming, A. 2006. "Post-processual Landscape Archaeology: A Critique." *Cambridge Archaeological Journal* 16: 267-280.
- Gillam, J.P., and I. MacIvor. 1954. "The temple of Mithras at Rudchester." *Archaeologia Aeliana Series 4* 32: 176-219.
- Google Earth, version 9.0.33.1, 2017. Carrawburgh Roman Fort, 55°02'00" N 2°13'23"W, 808 m. viewed May 22, 2017.
- Gordon, R. 1994. *Image and Value in the Graeco-Roman World: Studies in Mithraism and Religious Art*. Hampshire: Ashgate Publishing Limited.
- Greaney, S. 2013. "Reconstruction Drawings: Illustrating the Evidence." In *Presenting the Romans: Interpreting the Frontiers of the Roman Empire World Heritage Site*, edited by N. Mills, 31-40. Woodbridge: Boydell Press.
- Gupta, A., and J. Ferguson. 1992. "Beyond 'Culture': Space, Identity and the Politics of Difference." *Cultural Anthropology* 7:1 6-23.
- Haeussler, R. 2013. *Becoming Roman? : diverging identities and experiences in ancient northwest Italy*. Walnut Creek, Ca.: Left Coast Press.
- Harris, E., and J. R. Harris. 1965. *The oriental cults in Roman Britain, Etudes preliminaires aux religions orientales dans l'Empire Romain*. Leiden: E.J. Brill.
- Henig, M. 1984. *Religion in Roman Britain*. London: Batsford.
- Henig, M., G. Webster, T. F. C. Blagg, and British Academy. 1993. *Corpus signorum imperii Romani = Corpus of sculptures of the Roman world*. Vol I. Fasc. 7: *Cotswold region: with Devon and Cornwall*. Oxford: published for the British Academy by Oxford University Press.

- Henig, M., G. Webster, T. F. C. Blagg, and British Academy. 2004. *Corpus signorum imperii Romani = Corpus of sculptures of the Roman world*. Vol I. Fasc. 9: *North West Midlands*. Oxford: Oxford University Press.
- Historic Englad Archive. DMP\_HRF0017 and DMP\_HRF0018. Plans of Housesteads Roman Fort and wider landscape. Permission No. 6002.
- Holder, P. A. 1980. *Studies in the Auxilia of the Roman Army from Augustus to Trajan*. Oxford: B.A.R.
- Holder, P. A. 1982. *The Roman army in Britain*. London: Batsford.
- Holder, P. A. 2006. *Roman military diplomas V*. London: Institute of Classical Studies, School of Advanced Study, University of London.
- Hughes, J. D. 1980. "Early Greek and Roman Environmentalists." In *Historical Ecology: Essays on Environment and Social Change*, edited by Lester J. Bilsky, 45-59. London: Kennikat Press Corp.
- Hunter, F., M. Henig, E. Sauer, and J. Gooder. 2016. "Mithras in Scotland: A Mithraeum at Inveresk (East Lothian)." *Britannia* 47: 116-168.
- Huskinson, J. 1994. *Corpus signorum imperii Romani = Corpus of sculptures of the Roman world*. Vol I. Fasc. 8: *Eastern England*. Oxford: Published for The British Academy by Oxford University Press.
- Ingate, J. 2012. "Hybrid Bridges: An Exploration into how Traditionally 'Romanised' Elements of the Town Interacted with Meaning-Laden Pre-Historic Waterscapes." *Theoretical Roman Archaeology Journal* 22: 133-149.
- Ingate, J. 2014. "Hybrid waterscapes: an examination of meaning-laden waterflow in the towns of Roman Britain." Unpublished doctoral thesis, University of Kent.
- Jarrett, M. 1994. "Non-Legionary Troops in Roman Britain: Part One, the Units." *Britannia* 25:35-77.
- Jessup, R.F. 1956. "The Temple of Mithras at Burham." *Archaeologia Cantiana* 70:168-171.
- Jolliffe, N. 1941. "Dea Brigantia." *Archaeological Journal* 98:1, 36-61.
- Jones, B., and D. J. Mattingly. 1990. *An atlas of Roman Britain*. Oxford: Blackwell Reference.
- Keppie, L. J. F., and B. J. Arnold. 1984. *Corpus signorum imperii Romani = Corpus of sculpture of the Roman world. Great Britain*. Vol.1. Fasc.4: *Scotland*. Oxford: Published for the British Academy by the Oxford University Press.
- Koch, J. T. 2006. *Celtic Culture: a Historical Encyclopaedia*. Oxford: ABC-CLIO.
- Lewis, M. J. T. 1966. *Temples in Roman Britain*. Cambridge: Cambridge University Press.

- Mattingly, D. J. 2011. *Imperialism, power, and identity : experiencing the Roman empire, Miriam S Balmuth lectures in ancient history and archaeology*. Princeton, N.J. ; Oxford: Princeton University Press.
- Millett, Martin. 1990. *The Romanization of Britain : an essay in archaeological interpretation*. Cambridge: Cambridge University Press.
- Millett, Martin, and Simon James. 2001. *Britons and Romans : advancing an archaeological agenda, Research Report (Council for British Archaeology)*. York: Council for British Archaeology.
- Minos, Chase. 2014. "The Unique Nature of the London Mithraeum." *The Post Hole*. 41: 34-45
- Ordnance Survey [TIFF], Scale: 1:2000. Tile: NY8571, Updated April 2017, Ordnance Survey, GB. Using: EDINA Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>. Downloaded: May 2017.
- Ordnance Survey Map. <https://osmaps.ordnancesurvey.co.uk/55.03600,-2.22300,7/pin>. [Accessed 15 August 2017].
- Phillips, E. J. 1977. *Corpus signorum imperii Romani = Corpus of sculpture of the Roman World. Great Britain*. Vol.1. Fasc. 1: *Corbridge, Hadrian's Wall east of the North Tyne*. Oxford: Oxford University Press for the British Academy.
- Realities 2016. <http://store.steampowered.com/app/452710/Realities/>. [Accessed 15 August 2017].
- Revell, L. 2009. *Roman imperialism and local identities*. Cambridge ; New York: Cambridge University Press.
- Richmond, I. A., and J. P. Gillam. 1951. *The temple of Mithras at Carrawburgh*. Newcastle: Society of Antiquaries of Newcastle.
- Rinaldi Tufi, S. 1983. *Corpus signorum imperii Romani = Corpus of sculpture of the Roman World. Great Britain*. Vol. I. Fasc.3: *Yorkshire*. Oxford: Published for the British Academy by Oxford University Press.
- Rogers, A. 2013. *Water and Roman urbanism : towns, waterscapes, land transformation and experience in Roman Britain*. Leiden: Brill.
- Ross, A. 1967. *Pagan Celtic Britain: studies in iconography and tradition*. London: Routledge.
- Roxan, M. M. 1978. *Roman military diplomas, 1954-1977*. London: Institute of Archaeology.
- Roxan, M. M. 1994. *Roman military diplomas 1985-1993*. London: University College London, Institute of Archaeology.

- Roxan, M. M., H. Ganiaris and J. C. Mann. 1985. *Roman military diplomas 1978-1984, Occasional publication (University of London Institute of Archaeology)*. London: Institute of Archaeology.
- Roxan, M. M. and P. A. Holder. Institute of Classical Studies. 2003. *Roman military diplomas IV*. London: Institute of Classical Studies, School of Advanced Study, University of London.
- Roymans, N. 2004. *Ethnic identity and imperial power : the Batavians in the early-Roman empire, Amsterdam archaeological studies*. Amsterdam: Amsterdam University Press.
- Roymans, N. 2009. "Hercules and the construction of a Batavian identity in the context of the Roman empire." In *Ethnic Constructs in Antiquity: the Role of Power and Tradition*, edited by Ton Derks and Nico Roymans, 219-238. Amsterdam: Amsterdam University Press.
- Roymans, N., and J. Aarts. 2004. "Coins, soilders and the Batavians Hercules cult. Coin deposition in the sanctuary of Empel in the Lower Rhine region." In *Ritual and Iron Age Coinage*, edited by C. Haselgrove and D. Wigg, 337-359. Mainz: Akademie der Wissenschaften und der Literatur.
- Rushworth, A., and L. Allason-Jones. 2009. *Housesteads Roman Fort : the grandest station : excavation and survey at Housesteads, 1954-95, by Charles Daniels, John Gillam, James Crow and others*. 2 vols, Archaeological reports. Swindon: English Heritage.
- Sanders, J. 2013. "The sky almost never falls on your head- why ritual rarely fails." In *Ritual Failure: Archaeological Perspectives*, edited by V. G. Koutrafouris and J. Sanders, 37-50. Leiden: Sidestone Press.
- Sauer, E. W. 2004. "Not Just small change- coins in Mithraea." In *Roman Mithraism: the evidence of the small finds*, edited by M. Martens and G. de Boe. 327-353. Tienen, Belgium.
- Sauer, E. W. 1996. *The end of paganism in the north-western provinces of the Roman Empire: the example of the Mithras cult*. Oxford: Tempus Reparatum.
- Shepherd, J. 1998. *The Temple of Mithras: Excavations by W.F. Grimes and A. Williams at the Walbrook*. London: English Heritage.
- Skeates, R. 2010. *An Archaeology of the Senses: Prehistoric Malta*. Oxford: Oxford University Press.
- Smash Hit 2016. <https://www.oculus.com/experiences/gear-vr/942006482530009/>. [Accessed 20 July 2017].

- Smith, D.J. 1962. "The Shrine of the Nymphs and the Genius Loci at Carrawburgh. With a note on M. Hispanius Modestinus." *Archaeologia Aeliana* 40: 59-81.
- Soluis Heritage 2015. <http://www.soluis.com/heritage>. [Accessed 20 August 2017].
- Stone, P. G., and P. G. Planel. 1999. *The constructed past: experimental archaeology, education and the public, One world archaeology*. London: Routledge.
- Taylor, Rabun, Katherine Rinne, Michael O'Neill, and Edward O'Neill. 2010a. "A grotto-shrine at the headwaters of the *Aqua Traiana*." *Journal of Roman Archaeology* 23: 358-375.
- The Void 2016. <https://www.thevoid.com>. [Accessed 22 July 2017].
- Tilley, Christopher. 1994. *A phenomenology of Landscape: Places, Paths, and Monuments*. Oxford: Berg Publishers.
- Tufi, Sergio Rinaldi. 1983. *Corpus signorum imperii Romani = Corpus of sculpture of the Roman world. Great Britain. Vol.1. Fasc.3: Yorkshire*. Oxford: Published for the British Academy by Oxford University Press.
- van Haasteren, Martijn, and Maaïke Groot. 2013. "The biography of wells: a functional and ritual life history." *Journal of Archaeology in the Low Countries* 4 (2):25-51.
- Vermaseren, Maarten Jozef. 1956. *Corpus inscriptionum et monumentorum religionis mithriacae. [With plates.] Eng.* Hagae Comitatus: Martinus Nijhoff.
- Webster, Jane. 1997. "Text expectations: the archaeology of 'Celtic' ritual wells and shafts." In *Reconstructing Iron Age Societies*, edited by Adam Gwilt and Colin Haselgrove, 134-144. Oxford: Oxbow Books.
- Whitmore, Alissa Marie. 2013. *"Small finds and the social environment of the Roman baths."* Unpublished doctoral thesis. University of Iowa.
- Woodward, John. 1991. "Reconstructing history with computer graphics." *IEEE Computer Graphics and Applications* 11 (1):18-20.
- Woolf, Greg. 1998. *Becoming Roman: the origins of provincial civilization in Gaul*. Cambridge: Cambridge University Press.