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The Digital Pilgrim Project: 3D Modeling and GIS Mapping Medieval Badges at the British Museum

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Perhaps, in six hundred years time, a historian will scan the emoji type-pad and gain a basic graphic overview of the cultural preoccupations of an early twenty-first-century transcontinental community. We too, surveying drawers of medieval badges, or flicking or scrolling through catalogues, find a manifestation of the medieval visual lexicon. The analogy, limited though it may be, is a reminder that, in spite of their material modesty, these image rich and itinerant objects provide a sample of the iconographic language of the Middle Ages, and were on the frontline of its communication in later medieval Christendom.

Between July 2016 and early 2017, the Digital Pilgrim Project uploaded twelve 3D models of lead-alloy pilgrim souvenirs and secular badges to the British Museum's Sketchfab account.[1] For this first phase of the project, we used 3D modeling to showcase a few choice pieces from the British Museum's collection of over 680 medieval badges. The models are designed to accompany the basic re-cataloging and digitization for the British Museum's Collections Online resource, 50% of which has been completed at the time of writing. The project is supported by a Digital Project Grant from the Paul Mellon Centre for Studies in British Art. The pioneering grant encourages experimentation with digital tools for rigorous art-historical research.

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[1] https://sketchfab.com/britishmuseum/collections/digital-pilgrim (accessed Jan. 5, 2017).

Since early 2017, with a second Digital Project Grant, we have been working with the University of Cambridge, using Geographic Information Systems software to create data visualizations of medieval badges' big-data footprint; mapping their find-spots in relation to their likely sites of origin and building up a picture of the reach of medieval saints' cults in Britain.[2] Complementing the micro-perspectives of the 3D models, we are building a dataset of known badge finds across the country to provide a comprehensive spatial description of badge finds. By working collaboratively with CAMPOP (The Cambridge Group for the History of Population & Social Structure), we can compare our findings to datasets of waterways, roads, and demography to understand not only why badges ended up at their find-spots, but also how badge ownership and use was spread through the population and the ways in which badges were part of pilgrimage and travel cultures.

Our findings so far suggest badges are found overwhelmingly in the most densely populated parts of medieval England, but that they also have a complex relationship with archaeological practices and preservation conditions. This is forming the next stage of our research, with assistance drawn from both the Courtauld Institute and the Cambridge Geography Faculty. The fruits of this research will form an animation explaining medieval badges to the broader public and feed into scholarly publications.

Alongside the GIS work, we have filmed pewterer, Colin Torode, casting replicas of the originals according to authentic techniques (**fig. 1**). Appreciating the process behind

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[2] Existing projects concerned with medieval badges include The Religious and Profane Medieval Badge Foundation and Kunera, which has published three volumes: H.J.E. van Beunigen, A.M. Koldeweij, *Heilig en Profaan 1. 1000 laatmiddeleeuwse insignes uit de collectie H.J.E. van Beunigen* (Rotterdam, 1993); H.J.E. van Beunigen, A.M. Koldeweij, D. Kicken, *Heilig en Profaan 2. 1200 laatmiddeleeuwse insignes uit uit openbare en particuliere collecties* (Rotterdam, 2001); H.J.E. van Beunigen, A.M. Koldeweij, D. Kicken, H. van Asperen, *Heilig en Profaan 3. 1000 laatmiddeleeuwse insugnes uit uit uit openbare en particuliere collecties* (Rotterdam, 2012), with a fourth to come. Kunera (www.kunera.nl) is a vast database of medieval badges found in Europe and with which Digital Pilgrim will be collaborating during the second phase of work.

medieval badges' production drives home their potential for mass production and their simple, sparkling beauty when freshly cast.

Figure 1 Screenshot of the Youtube video, "Making a Medieval Pilgrim Badge." Source: https://youtu.be/zGBa2IVgoOo (accessed Dec. 2, 2017).

Nearly all surviving badges appear to have been lost or thrown away by their owners, then, centuries later, discovered by antiquarians and metal-detectorists on river-banks and ancient roads, and in sewers.[3] The Thames has yielded many of the badges in the British Museum's collection which reveals a fascinating glimpse of the travel habits and visual predilections of medieval Londoners and those passing through (especially when compared with the Cluny collection which was largely sourced from the Seine). For thousands of British finds, we have data relating to the object's find-spot and can suggest

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[3] J. Lee, "Medieval Pilgrim Badges in Rivers: the curious history of a non-theory," *Journal of Art Historiography* volume 11 (2014), pp. 1-11.

its place of production from its iconography (especially in relation to badges from popular pilgrim sites).[4]

This report aims to direct *Peregrinations: Journal of Medieval Art & Architecture* readers to the 3D models, inspire further engagement with the British Museum's art historically rich and largely untapped collection of medieval badges, as well as the object-type at large, and inspire researchers to follow the on-going work of the project (search #DigitalPilgrim for Twitter updates online and view our page on the Cambridge History of Art website). At the same time, we hope to show how 3D imaging is unveiling the beauty and variety of medieval badges, which merit a revival in their aesthetic appreciation as micro-sculptural artifacts. This report makes the simple claim that, as a surrogate for a direct encounter, 3D modeling is particularly suited to representing small art objects designed to be handled and scrutinized, allowing for a more authentic and universally accessible view of the original object than has hitherto been possible.

Sketchfab

For the British Museum, and for many other public collections, 2016 was an inaugural year for 3D imaging. Digital Pilgrim is part of this growing movement, which has largely depended on the facility created by the pioneering online platform Sketchfab. Anybody with access to the internet can make an account with Sketchfab and upload 3D models. It is becoming increasingly popular in the heritage sector; museums such as the Cluny Museum in Paris and the Metropolitan Museum of Art in New York, as well as the British Museum, have accounts displaying 3D models of objects in their collections. When we first presented Digital Pilgrim in April of 2016, the British Museum had a total of 34 models uploaded to its account. That number has swelled and continues to grow. The reasons for this are self-evident; 3D modeling creates an accurate record for posterity of

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[4] B. Spencer, *Pilgrim Souvenirs and Secular Badges* (London: Stationery Office, 1998).

the form, dimensions, texture, and color of objects in the museum collection. Moreover, the product is attractive and suited to public engagement. For example, the Sketchfab platform not only allows the online visitor to view and pseudo-handle 3D models of objects on their screens, but enables curators to attach interactive annotations to them. This latter feature is not always exploited but can be an engaging way of offering interpretations of obscure objects and their iconographies.

Why 3D model medieval badges?

Medieval badges were travelers, designed to be worn, handled, recognizable on approach, and enjoyable in proximity. They are by no means the richest, nor rarest of medieval objects (although some are unique and important survivals). Much of what sets them apart from the extant corpus of medieval art lies in their reproducibility, affordability, and archaeological proliferation. However, these qualities make them a display challenge in the gallery, in which they are easily overlooked by visitors and outshone by costlier neighbors. Their function and iconographies often need greater explanation than a single museum label can provide, and while a museum may have hundreds of badges in its stores, often only a handful are on display. Thus, although their presence in the gallery is necessary and desirable, their unique characteristics call for an auxiliary display space.

3D models allow the viewer to manipulate the image by turning and zooming, revealing its contours, textures and tactility. The virtual space is uncluttered and "bitesize," although this isolation can also be a shortcoming for those with no experience of medieval material culture.[5] Numbered annotations of up to 250 characters can be tagged to the object, encouraging the viewer to slow down via a guided process of alternate reading and looking. These tags supplement the basic catalogue entry

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[5] Such shortcomings will be resolved when museums begin embedding models in their own websites and providing accompanying contextual material.

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(including dimensions) that appears next to the minimized 3D model on the Sketchfab page, which can include a link back to the main museum online database and therefore the whole collection. Finally, Sketchfab's 3D models can be embedded in external websites as excellent illustrations to online articles or blog-posts; they can be easily shared and are aesthetically appealing. Therefore, as well as making 2D images of the obverse and reverse of all the medieval badges in the collection, we are uploading 3D models of a representative sample.

Our models were produced by Rob Kaleta, PhD candidate in Bronze Age archaeology at University College London, and the whole process is supported by Lloyd de Beer, Ferguson Curator of Medieval Europe and the British Museum. Making the models requires the use of a digital SLR to take around 300 images of the object from every angle. The images are then uploaded to Structure-from-Motion software. Points of commonality in the pictures are linked to one another and a low-density point-cloud is generated. The software then develops a high-density point-cloud which is in turn made into a mesh. This mesh is the basic 3D model, and is overlaid with the textures and color provided by the images. The finished model can then be uploaded to the Digital Pilgrim collection on the British Museum's Sketchfab page. For conscientious users, dimensions are given in the basic catalogue entry. As well as making the model available, the museum can choose to make it downloadable for 3D printing, a concern that has not been central to Digital Pilgrim given the relative ease of creating and procuring replica badges in metal. The twelve Digital Pilgrim models have now received over 7000 views: a real coup for an object type that was so hard to access in the pre-digital age.

Herte badge

One of Digital Pilgrim's most popular 3D models is a fifteenth-century lover's token (**fig. 2**). It has never been on display and is not a unique badge-type, having at least one relative in the Museum of London's collection. It is in the form of a plump, crowned heart,
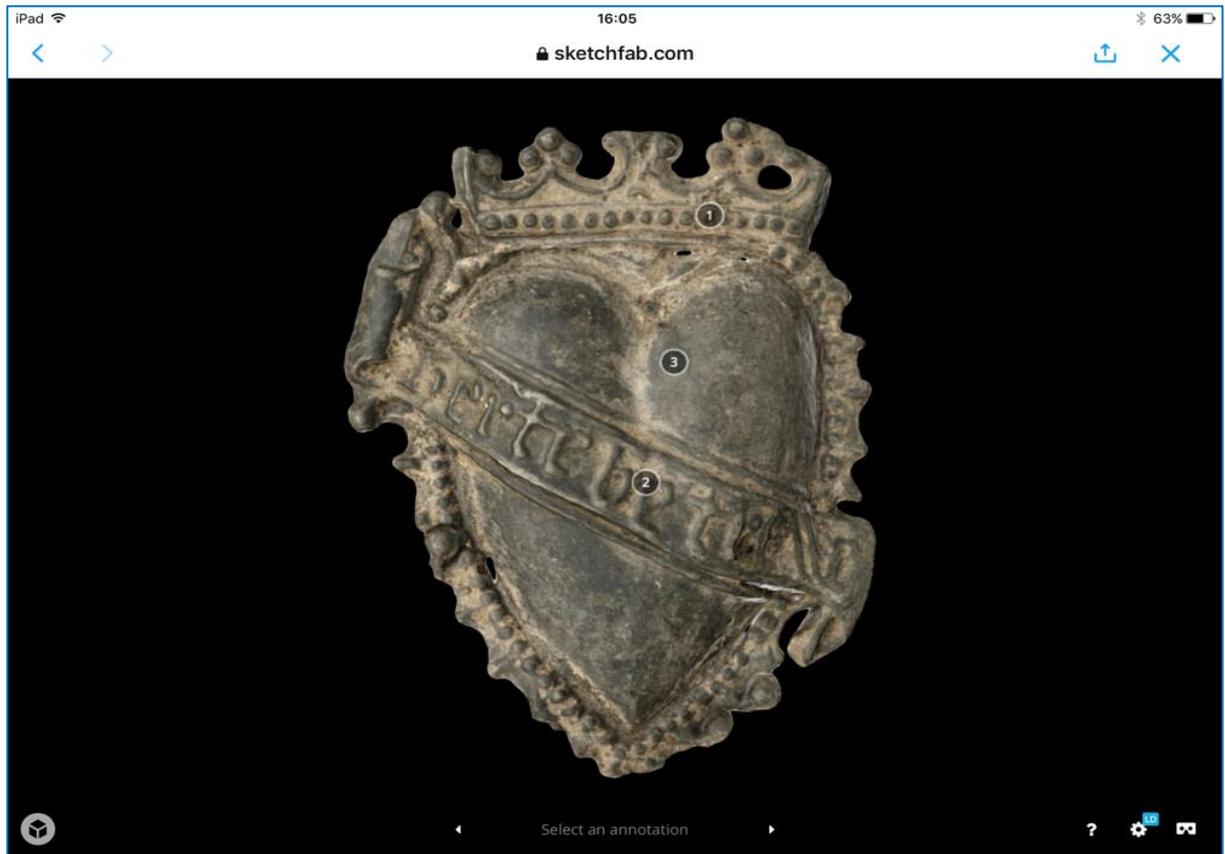
Figure 2 Screenshot of Sketchfab model of the "Herte badge." Source: https://skfb.ly/QsGz (accessed Dec. 2, 2017).

surrounded by beaded rays and adorned with a diagonal scroll bearing the Middle English inscription, "herte be trewe." There is a pin and clasp on the reverse, allowing it to be fixed to clothing. Its immediate aesthetic appeal is perhaps owed to its self-sufficient decorative neatness: its miniature vacillations between ornamented and smooth space and its convex, bubbly form. The patina of age has darkened the shadows of its low relief and one can enjoy this while imagining how different it must have looked when new and shiny. We chose it, in part, due to its easy comprehensibility for a modern audience and have attached three annotations to unpack its iconography, its Middle English inscription, and function. When the viewer clicks on each of these, the model is animated to turn or zoom on whichever feature is being explained. Therefore, these serve as much to interpret the object as to encourage a drop-in tempo and close visual engagement. The

"herte" badge has been in storage since 1848 but, since being uploaded in July of 2016, its virtual counterpart has received over 600 views.

Figure 3 Badge of Thomas Becket's Head Reliquary. Photo: Digital Pilgrim and author.

Becket's Head Reliquary

Another popular model is that of a later medieval badge representing the head reliquary of St. Thomas Becket destroyed in the Protestant Reformation (**fig. 3**). It shows the bust of the saint in low-relief. He wears a bishop's garb and was originally surrounded by a micro-architectural frame decorated with openwork foliate scrolls. The 3D model's popularity presumably derives from an instinctive preference for human forms, which is enhanced by the personable individuality of Becket's face in this example, with its dimpled chin and ski-jump nose. Many Becket souvenirs are in the form of his head reliquary, which suggests it was a particular highlight for pilgrims. Compared to others in the existing corpus, this badge is large and artistically refined, perhaps a more expensive choice from the array of souvenirs available. Helpfully, one perspective on the issue of choosing badges is expounded in the fifteenth-century "Canterbury Interlude"

by Beryn. It states that pilgrims bought badges for public recognition of their endeavor and personal aesthetic enjoyment:

> Then, as manere and custom is, signes there they boughte,
> For men of contre shuld know whom they had soughte.
> Ech man set his sylver in such thing as they liked.[6]

In keeping with the motivations described in the poem, this Becket badge would have been immediately recognizable to a medieval Christian. Close viewing of its carefully wrought Gothic decoration, as well as the delicate articulation of the saint's face and clothing, must have brought great aesthetic pleasure to its owner, who may have set out a little more silver for it than his or her fellows. Nowadays, it is held in storage and its annotated 3D model offers an intimate insight into the culture of pilgrim souvenirs and the translation of the Gothic aesthetic into artifacts affordable to the general medieval populace. It is also special for being a fine example of one of the many lead alloy representations of a lost monument – the deluxe head reliquary of the superstar saint – that, unlike the reliquary itself, evaded iconoclasm. Accordingly, it is a witness to the far-reaching cultural impact of such devotional artistic treasures, as paragons of sanctity and, for some, idolatry.

Student Experiences

One of the ways in which engagement with medieval pilgrim souvenirs and secular badges has been transformed by the 3D model is the student experience. It can enrich online articles and blog-posts as interactive illustrations and serve as surrogate for direct encounters. As most universities now have Wi-Fi the models are being used as novel, visually rich teaching aids for classes concerning such themes as medieval pilgrimage or the cult of saints.

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[6] *The Canterbury Tales: Fifteenth-Century Continuations and Additions*, J. Bowers, ed. (Kalamazoo: Western Michigan University Press, 1992), chap. 5, ll.171-173.

Our colleagues at the University of Kent have projected a 3D model of a Thomas Becket Ampulla onto the wall of a seminar room and interacted with it to discuss the cult of saints in medieval England. One of the students from the group, Lucy Splarn, then focused her final year dissertation on an almost entirely unpublished pilgrim souvenir showing Thomas Becket atop a peacock. As an example of in-the-round micro-sculpture, it resists helpful 2D reproduction.

Figure 4 Pilgrim souvenir of Thomas Becket atop a peacock. Photo: author composite of British Museum Collections Online.

The 3D model, however, broke "down the barriers that correlate with two-dimensional images," and in the inevitable absence of the original, generated, "an ideal perspective

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for foundational research."[7] She worked from the 3D model until the final stages of her work, finally meeting and presenting the object to her classmates at a handling session at the British Museum and returning to complete her assignment. Her intimate knowledge of the model made her experience of the original all the more profound. It seems that 3D modeling provides curators with the opportunity to offer unprecedented access to challenging objects and that good advocacy of these resources will bring junior researchers to exciting, unstudied material.

Conclusions

The art-historical relevance of medieval badges can be said to lie partly in their fascinating relationship to a visual language that leaped across media and social strata of medieval Christendom. To be conversant in the sincerities as well as the obscenities of this tongue was to be a member of that community: as crucial a status for a peasant as for a king. The Digital Pilgrim Project aims to respond to medieval badges' demand to be viewed at close quarters, held and contemplated, not to mention studied *en masse*, as mobile, multiplicitous works of art. ❧

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[7] Lucy Splarn's response to Amy Jeffs' "Provocation, 'Disciplining the Digital: Virtual 3D Reproduction, Pilgrim Badges and the Stuff of Art History," *British Art Studies*, Issue 6 (2017), https://doi.org/10.17658/issn.2058-5462/issue-06/conversation/p60 (accessed Oct. 21, 2017)