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Editorial: Digital (and) Materiality in Museums

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The convergence of digital technologies, spaces, objects and practices has prompted discussions about digital (and) materiality. Scholars in different fields have discussed how digital technologies construct different notions of materiality (Blanchette 2011; Reichert and Richterich 2015; Scarlett 2015) and illusions of immateriality (Kirschenbaum 2008). Pink *et al*. (2016: 71) argue that digital technologies are 'things', that is material objects, entangled in people's everyday activities. Horst and Miller (2012) distinguish the materiality of digital technology and infrastructure; the materiality of digital content; and the materiality of digital context. In museum scholarship, Witcomb (2007: 36) has argued that 'multimedia [is] a material form of expression […]', which produces knowledge that 'embodies in a very material way, shared experiences, empathy and memory'. In turn, Geismar (2012: 267) has called for a shift from digital technologies 'as re-mediations of the authentic stuff' towards treating them as new cultural objects themselves. Giaccardi and Plate (2016) take this further, arguing that data shapes the material qualities of objects, which in turn, collect data through their own means.

The potential of digital objects to reproduce and represent the materiality of an object and enact an agency onto the onlookers has been examined in research that draws on Walter Benjamin's notion of an 'aura' (1969 [1936]), and observes the capacity of digital copies to develop meaningful engagement with audiences (e.g. Latour and Lowe 2011). At the same time, criteria about the qualities and information that should be embedded in these copies have also been proposed, for example in the context of the London Charter[1] and successive discussions. Similarly, in 2003 UNESCO recognised the value of digital heritage, and the acceptance of digital objects as a form of contemporary heritage has concerned experts in archival, museum, and heritage studies (Cameron 2021). This strand of research on digital objects has emphasized how contemporary memory-making practices are deeply entwined with the technologies on which we save, archive, and reflect upon our experiences (Geismar 2017). Indeed, the agency of digital technologies in informing contemporary digital experiences, communities, communication and meaning-making practices, and in acting as interfaces between users and cultural heritage, is a growing area of research and practice. Accordingly, the understanding of 'what' digital (and) materiality do to users and audiences is relevant to both the development of digital engagement practices and the documentation of digital objects.

Hence, this discussion about digital (and) materiality becomes all the more important as both digital manifestations of material objects and born digital objects have become part and parcel of contemporary museum life and practice. This raises a number of issues with regards to how the materiality of the digital is understood and cared for in museums; what constitutes a digital museum object; how digital objects are theorized, formed, acquired and collected; and how they are embedded in, and impact on, curatorial, interpretive and public engagement practices.

Accordingly, this *Special Issue* aims to address these questions and contribute to the growing theoretical and empirical examination of digital (and) materiality in museums. The following seven papers cover a range of theorizations, issues and challenges that arise in the intersection of digital and materiality in museum and heritage contexts: from affordances and qualities of digital objects, to digital objects as assemblages, to questions of provenance, copyright and shared ownership, and to digital materialities of embodied cultural heritage. Also, these discussions are based on the application and analysis of various digital technologies and types of digital objects, including photogrammetry, digital replicas in Virtual Reality (VR), social media, memes, blockchain and NFTs (Non-Fungible Tokens), motion capture,

and collection management systems. Similarly, the papers put forward a number of key theoretical and methodological terms and frameworks in order to analyse digital materialities and their manifestation and application in museum and heritage spaces and practices. These include 'weak surrogates' (Ireland and Bell), digital objects that 'can self-document [their] own biography' (Jeffrey, Love, and Poyade), 'reborn digital objects' (Zuanni), 'remix cultures' (Rees), 'tokenized museum objects' (Liddell), 'agency of data' (Park), and 'radical intangibles' (Kenderdine, Hibberd, and Shaw). This range and breadth of theories, concepts, and technologies indicate the ongoing grappling of researchers and practitioners with the notion of digital materiality. It also represents a creative fusion of disciplines, technologies, and museum practices, and demonstrates that digital materiality cuts across different aspects and departments of museum and heritage work.

In more detail:

Tracy Ireland and Tessa Bell approach questions about digital materiality by exploring digital heritage objects as both an assemblage of methods and a site of ethnographic encounter. They draw on the landscape of the Troodos Mountains in Cyprus and photogrammetry to discuss a 3D visualization project that subverts the dominance of neutral, technical field engagements and focuses on creatively interrogating the conditions of the 'in-between' of physical and digital forms, and the affordances that emerge in their intersection. They ask 'can "weak surrogates", low-performance digital things, stitched together from uncooperative, ordinary ruins, hold tension and pull something of fleshy materiality into their domain?' In and towards this, their intention is to be attentive to the making of the image/objects that emerge from their practice and give an account of the *feeling* of digital materiality, and of makeshift digital heritage things in flux. Here, the authors approach digital materiality as an embodied and networked process of *digital making*; a materiality 'that appear to us to be "chasing future feelings", rather than fixed on documenting and preserving at risk heritage/values'. Through this alternative approach in generating an account of (digital) materiality, the authors reflect on the value and significance of paying attention to the emotional affordances of (incomplete) visualizations, which, as they stress, 'demonstrate the instability of the boundaries between materiality and digital materiality'.

Stuart Jeffrey, Steve Love, and Matthieu Poyade continue this discussion about the affordances and qualities of digital objects as new cultural objects in their own right. Drawing on digital replicas and, in particular, on the case of the Digital Laocoön (VR exhibit; a response to the fires at the Mackintosh Building of the Glasgow School of Art in 2014 and 2018), the authors give a fascinating account of how the digital replica (and for that matter other digital objects too) 'can self-document its own biography and, in turn, its position within the biography and relationship to an original object'. The authors build on this narrative to put forward the argument that, although the digital object may extend from an original, it is nevertheless a thing in itself, with its own affordances and network of relationships. It is, in other words, an 'extended object', which not only 'extends connections backwards to an original (or is an extension of that object), and its subsequent replicas and intermaterial instantiations, but also extends itself to incorporate, or reference, a broader field of associated data'. Accordingly, the paper stresses the broader relevance and applicability of the Digital Laocoön project on how we approach notions of authenticity and aura in digital objects. Towards this, it highlights that affordances such as immersion, processes of co-design, and the embedding of associated data in digital objects distinguish the extended digital object from its original, imbuing it with its own identity and authenticity.

In their paper, Jeffrey, Love, and Poyade differentiated their digital replica from the digital objects that Geismar (2012) describes as 're-mediations of the authentic stuff'. Chiara Zuanni builds further on this nuanced examination of what constitutes a digital object and its materiality by framing born digital objects as assemblages and proposing a distinction between these and reborn digital objects, i.e. their collected counterparts. Also, like all the previous authors, she emphasizes the entanglements of agency involved in digital objects' making; in her case, Zuanni focuses on how the musealization process constructs multiple layers of materiality of born digital objects. The paper narrows down its analysis to social media posts

as reborn digital objects in museum collections. It then goes on to unpack how social media content lives in complex networked assemblages, in which agency is distributed and enacted at multiple levels. On this basis, Zuanni argues that, given the breadth and complexity of the assemblage of social media platforms' infrastructures, it is extremely difficult to capture this assemblage as part of the born digital collection. Consequently, the collecting of a born digital object does not only detach the object from its assemblage (i.e. its surrounding environment and relationships), but as a result of that, it also substantially alters its materiality. Therefore, Zuanni proposes that accepting that the materiality of a born digital object will change when it becomes part of a museum collection allows museums to reframe their practices and strategies towards the preservation of reborn digital objects.

Museum practices of collecting born digital objects is what Arran Rees examines in his paper too. The author focuses on memes and, in particular, on Stockholm County Museum's efforts to collect them, exploring the challenges that a meme's materiality presents to how museums approach and record provenance, copyright and ownership of digital objects. The paper builds an argument that other authors have also been making in this *Special Issue*, namely that the digital materiality of (digitized/born digital) objects challenges both existing conceptualizations of museum materialities and their associated museum practices. It also requires renegotiation and flexibility, if not radical rethinking of the qualities and boundaries of the digital objects and their contextual information. In the particular case of collecting memes, the author calls for acquisition standards to be *remixed* to be more appropriate for the cultural contexts that memes sit within. He also proposes that being more open to alternative approaches to ownership (such as shared ownership) may be more appropriate for this new type of object.

Shared ownership, or *guardianship* as it is specifically put in the context of digital museum objects, is what Frances Liddell examines too in her paper. Here, the paper takes us back to the concepts and practices of authenticity and provenance that are examined in other papers of the *Special Issue* (Jeffrey, Love, and Poyade; and Rees respectively), and looks at them through the lens of blockchain and NFTs (Non-Fungible Tokens, or cryptocollectibles). Drawing on a relevant National Museums Liverpool project, the author discusses how blockchain produces a 'material' claim by redefining and reinforcing an authenticity, ownability, and exchange value of digital objects traced in its network. She explains how blockchain digitally fragments the collection of digital museum objects into ownable pieces that help to bind people, objects and the museum. In turn, the author argues, this binding together forms a collective ownership and adds a new layer of 'materiality' to tokenized digital museum objects that can inform and contribute to their value and significance, which in turn can support the formation of shared guardianship.

Liddell stresses the value and role of people's participation in forming a shared guardianship of digital museum objects. In the next paper, Juhee Park continues this discussion on participatory practices in the specific context of collection management systems (CMS). The author draws on actor-network theory and the case of the Victoria and Albert Museum to examine the actors and affordances in the documentation of digital design objects in the museum's CMS. She points out that digital design objects in museums are isolated from their users and their original social contexts. In turn, she calls for a documentation practice that puts emphasis on the significance of social dimensions of objects and the agency of those objects' users, the public. Accordingly, the author suggests that museums must acknowledge the agency of both non-human actors and missing actors (the public) in collection documentation, and argues for participatory models of documentation that (re)present and visualize the intangible and social dimensions of digital design objects' materiality in collection records through the voices of multiple actors.

In the final paper of this *Special Issue*, Sarah Kenderdine, Lily Hibberd, and Jeffrey Shaw examine further how digital technologies allow the materializing of embodied cultural heritage, and in particular intangible cultural heritage (ICH) and reenactment heritage. They introduce the term 'radical intangibles' to unpack and discuss the 'paradigmatic change that digital materiality has wrought on objecthood and its ontologies'. Based on that, they draw on two case studies, the 'Hong Kong Martial Arts Living Archive' (HKMALA), and the 'Remaking Confucian Rites' (RCR), to examine how new digital materialities are bringing embodied

archives into the public domain through interactive and immersive displays. This is done via the concept and application of 'computational museology', which combines the fields of computer science with digital museology, media art, and the broader humanities to address the challenges of documenting embodied cultural heritage. The paper goes on to argue for the use of 'technologies of corporeality' that approach 'the body as the principal repertoire and holder of knowledge, thus encoding acts and making them reperformable'.

What all authors attempt and, arguably, call for is to be attentive to and reflective of the frames and conditions of our engagement with digital objects and practices. This is all the more interesting, and perhaps further validated, because of the fact that all seven papers draw on practice-based/led or action research that the authors have led or participated in. So, their outcomes and considerations stem from a direct experience of the digital in action. This *digital making*, as Ireland and Bell call it in their paper, is not an objective or pre-defined process, but a set of assumptions, relationships, agencies and decisions that influence what digital objects and digital materialities are produced. Indeed, the authors highlight the need to acknowledge that these contexts of the creation, circulation, and use of digital objects are key in understanding not just their origins, but also their performance as *museum* objects, and their impact on museum practices. Even more, as Rees argues, understanding and using the remix cultures that describe the context of digital objects can help museums adjust their practices so that they respond to the needs and challenges of those objects.

Accordingly, some papers, in their effort to trace the human (including their own) and non-human interactions in conceptualizing or constructing digital objects, turn to relevant theoretical/methodological frameworks, such as assemblage (Ireland and Bell; Jeffrey, Love, and Poyade; and Zuanni) or Actor Network Theory (Park). At the same time though, authors underline that accounting for – let alone tracing, reconstructing, documenting or collecting – those contexts is a complex, if not in some cases impossible, task, at least on the basis of how museums are currently encoding the digital objects in existing practices.

Consequently, the authors in this Issue raise the question of how digital objects are valued and embedded in existing museum/heritage structures and practices. They also call for new, experimental, and creative approaches to the collection, documentation, research, and use of digital objects that disrupt established museum object paradigms and produce other forms of value in digital objects (as Liddell argues); 'radical intangibles', as Kenderine, Hibbert, and Shaw call them, to describe 'the paradigmatic change that digital materiality has wrought on objecthood', or 'mindbombs', namely 'tactical and striking interventions into mainstream discourses' (Denisova 2019: 33-5, quoted in Rees). Such 'mindbombs' and accompanying experimentation, practice, and research can offer the space to consider the new forms of materiality that 'the digital' generates and the opportunity to critically reflect on and act on the question, as put by Ireland and Bell, of 'what we do to digital heritage objects and what they do to us'.

Acknowledgements

Notes

[1]   AA.VV., 'The London Charter for the Computer-based Visualisation of Cultural Heritage', 2009. https://www.londoncharter.org, accessed 20 July 2021.

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