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De-neutralising digital heritage infrastructures? Critical considerations on digital engagements with the past in the context of Europe

Gertjan Plets, Julianne Nyhan, Andrew Flinn, Alexandra Ortolja-Baird and Jaap Verheul

Enchantment with digital heritage and 'overtrust' in technology

Over the past two decades, digital media and platforms in heritage institutions in Europe[1] have been framed within celebratory discourses of accessibility, transparency and efficiency (Cameron and Kenderdine 2010; Musiani and Schafer 2017). In a suite of policy documents across Europe, ranging from funding tenders within, for example, the Horizon 2020 framework of the European Union (EU) to the programmes of national heritage agencies, digital technologies and platforms have been embraced as the solution to challenges of preservation, conservation and accessibility. During the COVID-19 pandemic, during which brick-and-mortar heritage spaces were closed, digital heritage was further embraced, not only as a temporary emergency solution, but as offering foundational perspectives on the future. Successful digital exhibitions, augmented reality (AR) apps, recommender systems, guided virtual tours and 3-D immersive websites showcased the capacity of digital heritage to expand audiences, to render both objects and intangible heritage visible and to inculcate new forms of engagement and sociality (Samaroudi, Rodriguez Echavarria and Perry 2020; European Heritage Days 2020).

An expectant attitude towards the digitalisation of heritage collections is strongly encouraged by the EU, which has adopted digital

cultural heritage as a policy instrument to foster European cultural identity (Thylstrup 2019: 57–77). Through funded institutions such as Europeana, the EU has stimulated the digitisation of many aspects of the cultural sector in the member states – although the material cultural heritage held in Europe is far from fully digitised (see Nauta, van den Heuvel and Teunisse 2017). Recently the president of the European Commission even heralded the arrival of the 'Digital Decade' and how Europe will take an active role in achieving 'the digital transformation of our society and economy by 2030' (Leyen 2021). Interestingly, in these policy projections digital heritage is deployed to deliver this comprehensive digital transformation of European society (Capurro 2021).

Yet the emergent body of critical work on digital heritage (e.g. Cameron and Kenderdine 2010; Musiani and Schafer 2017) is still rarely incorporated in contemporary digital heritage projects, especially outside academia. Many stakeholders continue to perceive digital systems as neutral tools enabling the objective preservation and presentation of the past. However, any digital application is a social construct, defined by a set of complex and highly culturally specific internal workings and standardisations (e.g. Hauswedell et al. 2020). Furthermore, technical experts, despite their important role in digital heritage projects, are often not recognised as key players and practitioners encoding highly specific understandings of the past in the digital form (e.g. Griffin and Hayler 2018).

The veneer of neutrality of digital heritage technologies is both understandable and problematic. First, 'technology overtrust' (Hardé 2016; Ullrich, Butz and Diefenbach 2021) is an outcome of the highly complex nature of the digital. Digital technologies require expert knowledge to understand their inner workings and the – often cultural, racialised and hegemonic – choices encoded in them. In a sense they have become 'black boxed' (Latour 1999): due to their complex design and often smooth working, we are unaware of the inner functions, human labour and decision-making structures defining a digital platform. Many tools and platforms have become input–outcome systems, but what happens behind the scenes remains invisible and the impact on the final product unknown.

Second, we tend to be uncritical of these inner workings because of our historically located optimism vis-à-vis technology and infrastructure as vehicles of modernity (Edwards 2003). Because technological innovations have so drastically benefited our livelihoods since the Industrial Revolution, 'modern' society has become *enchanted* by technological infrastructure (Harvey and Knox 2012). As a result, these successes from

the past can be projected onto new technologies, producing 'excessive optimism' (Clark, Robert and Hampton 2015).

Although this overtrust in digital heritage is understandable, it is also at odds with the critical turn in heritage studies. Over the past decades, the power structures and discourses enacted by cultural heritage institutions have been discussed at length (Smith 2006; Bennett 1995). Beyond academia, more and more practitioners engage with these critical ideas and strive for a more inclusive curation of the past. At the same time, also within sociology (e.g. Marres 2017), media studies (Manovich 2001) and anthropology (Pink et al. 2016; Geismar 2018), there is increased attention to the power structures that technology (re)produces. In digital humanities and archival studies, the inherent biases in data selection, digitisation priorities, metadata structures and workflows have been critically evaluated (Thylstrup 2019; Kim 2018; Dobson 2019). Recently, research on the assumptions, stereotypes and biases of race, ethnocentrism and gender encoded in algorithms have received similar attention (Noble 2019; Mandell 2019; Risam and Josephs 2021; McPherson 2012).

Despite a 'critical turn' in our engagement with (in)tangible heritage and discussions in media studies on the biases in digital infrastructure, the 'digital turn' in the heritage sector has not received similar scrutiny. Digital heritage is an expansive field where there is plenty of room to critically explore different technology-driven engagements with the past, ranging from AR applications (Stichelbaut, Plets and Reeves 2021) to virtual museums (Perry et al. 2017). In this chapter, we will interrogate the sociocultural affordances of so-called 'digital heritage infrastructures', large digital platforms where digital data and heritage objects are stored and made available (often online) for both expert and non-specialist audiences. Generally speaking, they comprise both digital archives open to the public and research infrastructure that scholars mine almost on a daily basis for their research. As governments have very high expectations of digital infrastructures, a steep increase in funding has produced a proliferation of digital archives and heritage platforms (Benardou et al. 2019).

Towards digital infrastructure literacy: platforms and the government of people

Infrastructure has become a cornerstone of our 'modern' condition, regulating our daily actions and political subjectivities. At the same time, because of the prevalence of infrastructures today, they escape the

untrained eye. Over two decades ago, Bowker (1994) showed how mundane information technologies and infrastructures strongly influence how scientists collect, order and interpret their data. He strongly called for an *infrastructural inversion* (Bowker 1994) and to 'struggle against the tendency of infrastructure to disappear' (Bowker and Leigh Star 1999: 34) and spotlight how databases impact researchers and scholars.

Recently, anthropology has adopted this quest to make the sociopolitical impact of infrastructures on ordinary people visible (Larkin 2013). By zooming in on the effects of physical infrastructure such as radio transmitters (Larkin 2008), pipelines (Plets 2020) and roads (Harvey and Knox 2012) on people's actions and subjectivities, anthropology has triggered a broader interest in the humanities and social sciences on the social effects of infrastructure beyond the walls of the laboratory and technology park.

Although tangible infrastructures have received considerable attention, also over the past year the affordances of digital infrastructures in (re)producing or challenging power structures have been exposed (Bergère 2019; Uimonen 2019). Especially, e-government portals (Leenes 2005) and social networks (Miller 2011) have been identified as the new pipes, grids and road systems of our social arena. These studies have theorised that the standards and protocols that define these often well-intentioned and highly necessary applications or platforms indirectly – albeit strongly – nudge social action in specific directions.

The widespread nature and strong implications of contemporary digital infrastructures have perhaps been best described by van Dijck, Poell and de Waal (2018) as a reality of the 'platform society' we are all a part of. Today, major advances in computing power have ensured that our fields of practice have become infiltrated by platforms through which both new enterprises and legacy institutions operate. Platforms are digital architectures that are carefully 'designed to organise interactions between users – not just end users but also corporate entities and public bodies' (2018: 4). Through their design, they not only replicate certain social structures, but also create new ones.

Despite their structuring of our sociopolitical ecosystem, digital platforms have – just like tangible infrastructures – remained largely invisible to both users and scholars. Fast-paced infrastructures such as social media or digital information platforms are considered as mundane basic services, rather than as the intricate and carefully designed technologies that they are. As noted by Star (1999: 382), the 'invisible quality of working infrastructure becomes visible when it breaks: the server is down, the bridge washes out, there is a power blackout'. It was only in

2016 that the considerable cultural impact of basic digital infrastructure came to light, when Facebook got caught up in the Cambridge Analytica scandal during the 2016 US presidential campaign (Confessore 2018; Cadwalladr and Graham-Harrison 2018). Suddenly the black box was opened, and people became aware of the algorithms and protocols structuring our digital arena.

This emerging interest in the hidden power of digital infrastructures and platforms has direct relevance for heritage scholars and practitioners. Within the field there is consensus that the politics of collecting, ordering, describing and curating objects in traditional GLAM institutions (galleries, libraries, archives and museums) are imbued with processes of governing and disciplining subjects (Bennett 1995). Recent work has even more strongly tied the politics of 'collecting, ordering and governing' information at these institutions with the nation-building and colonial projects of the nineteenth and twentieth centuries (Bennett et al. 2017). In short, invisible selection criteria, taxonomies and protocols in the curation of heritage objects intrinsically structure the narratives and heritage objects made available to the public.

While similar cultural forces are at work in digital heritage infrastructures, the digitality adds additional challenges of technology and governmentality (see Capurro and Plets 2021; Thylstrup 2019). Complex software architectures and specialist programming languages make it incredibly difficult to reveal and understand invisible biases and choices. Therefore, research into how cultural heritage is collected, ordered and governed digitally is essential to develop a critical tool kit for understanding digital infrastructures. Ultimately, such a reflective lens would enable practitioners and academics to see digital technologies not just as useful tools, but also as powerful conceptual schemes that impact how we organise and represent the past. However, if we want to fully understand the politics, inner workings and impact of digital infrastructures, we need to examine these mechanisms on the micro-level of specific collections.

This chapter will therefore present two very different digital heritage platforms that both contribute to a finer-grained understanding of the sociality of digital infrastructures. First, the 'Enlightenment Architectures: Sir Hans Sloane's Catalogues' project will be discussed. This case enables us to explore the issue of absence of marginalised and minority voices in digital collections, and strategies for overcoming this. Subsequently, a case study on the Central Archaeological Inventory of the Flemish Government (Belgium) addresses the impact of digital heritage portals on their users, and how digital infrastructures can encourage their users to reproduce banal nationalist framings of the past.

'Enlightenment Architectures': Sir Hans Sloane's catalogues

Sir Hans Sloane (1660–1753) was a physician, naturalist and secretary, and later president of the Royal Society as well as of the Royal College of Physicians in the UK. During his lifetime, Sloane assembled a collection of some 70,000 objects from all over the world. By the time of his death, his collection comprised over 50,000 books and manuscripts, thousands of natural history objects, ethnographic materials, antiquities, hundreds of prints, drawings and more. Sloane financed some of his collection with the gains he made from his entanglements in the transatlantic slave trade: he owned shares in slave-trading companies and married into a plantation-owning family (Delbourgo 2017). Upon his death, he bequeathed his collection to the British nation, an action that became a catalyst for the British Museum Act 1753. Following the creation of the Natural History Museum and the British Library out of the British Museum, Sloane's objects formed the foundational collections of three key national cultural heritage institutions in the UK.

During his lifetime, Sloane and his amanuenses labelled and described the objects aggregated by his collecting practices in some 54 manuscript catalogues, of which about 40 are extant. These catalogues list what was once in Sloane's collection, along with additional information that can include, inter alia, notes on objects' provenance, date of acquisition and catalogue numbers. Not only that, they also impart, through the information they do and do not record, what Sloane and his contemporaries did and did not value; thus they postulate a complex set of interrelationships between, on the one hand, objects and the worlds and humans whence they were extracted, and on the other hand, the worlds and humans with whom those objects would be formally collocated in manuscript catalogues and, over the longer term, in the context of the museum and museum technologies.

As 'core documents of museum structure and meaning' (Ortolja-Baird et al. 2019), the eighteenth-century catalogues compiled by Sloane and his amanuenses have remained in continuous use by curators of the aforementioned national institutions. Although the link between the present-day collections and the historical catalogues is currently broken, as this case study will explore, Sloane's catalogues raise fundamental questions about the limits of current digital infrastructures for heritage remediation, representation and navigation, including their propensity to reanimate and perpetuate problematic social, cultural and racial scripts in ostensibly techno-utopian digital environments.

The case study that follows has emerged from the 'Enlightenment Architectures' project (2016–2021), which sought to make the information-bearing aspects of Sloane's catalogues machine readable, as a precursor to the computationally assisted analysis of his foundational collection and its documentation.[2] Thus, to identify and interrogate the highly complex information architecture of Sloane's catalogues, the project sought to encode a subset of five of these catalogues in line with the Guidelines of the Text Encoding Initiative (TEI; https://tei-c.org/guidelines/), an internationally recognised standard for the representation of texts in digital form. This process forced questions that were unexpected at the outset of the project about the issue of absence and bias in early modern archival documents and the potential for the perpetuation of such absences that digital humanities approaches may give rise to, albeit unintentionally. The case study that follows summarises the key outcomes of the 'Enlightenment Architectures' project in this regard.[3]

Many of the objects in Sloane's catalogues are recorded in detail. For some objects, however, little is given about their provenance, as there is only sporadic documentation of the routes by which objects made their way into his collection, through whose hands they passed, their exact origins and how they were acquired. It has been argued that Sloane acted as a centre-point around which his collection was built and organised by a network of lesser-known and now largely forgotten individuals (Delbourgo 2017). The agency of these individuals in the decision-making around collection and ordering practices accordingly matters. Yet, while much scholarship has focused on recovering the vast network of individuals who built, organised and documented Sloane's collection, we still have only a rough picture of these individuals, especially the non-hegemonic ones. This issue is important as many individuals were part of Sloane's network due to the growth of global trade and imperial expansion, and the forms of colonialism of which Sloane was a part. While Sloane collaborated with a wide network of individuals, many of those from beyond Europe who –willingly or unwillingly – 'contributed' to the collection were either enslaved, coerced or unremunerated for their efforts, and their identities are irretrievable as Sloane remained silent about how he acquired objects from colonial contexts.

Personal names are a feature of Sloane's texts that we sought to encode in order to understand more about those individuals and their interrelationships mentioned in the catalogues as having contributed to Sloane's collection in some way. As we used automated named-entity recognition and manual annotation to identify and encode the names of mentioned individuals (Humbel et al. 2021), we increasingly wondered

about those individuals who are *not* named in the catalogues. Those individuals' names may be absent but an echo of their agency, and a trace of their presence, is, in some nebulous way, enfolded in the catalogues. After all, the existence of an object in Sloane's collection indicates that it was made, worked, sold and transported by human beings (in examples of artificial, not natural items). As we worked, we began to conceptualise these nameless individuals as presences who 'haunt' the catalogues, in the sense that they participate in a dialectic of trace and absence that is detectable only from certain viewpoints and is rarely anchorable to a specific location in the catalogue. But how can one encode the ghosts and the 'haunting' of an early modern archival document? Encoders can usually tag an individual only if they are actually 'there' in some concrete or anchorable way in a text, for example, if they are textually embodied in a person, name or metaphor. Although in some cases it might be possible to view an object name or category of knowledge as a proxy for their presence, this would require further fundamental long-term research and would not result in clear-cut identifications in all instances.

It was in the process of thinking through how absence, and absent individuals and groups, could be modelled and encoded in the catalogues that we were alerted to how positivist, and hence limiting, encoding schemes like the TEI, which hold a place of pre-eminence in the digital humanities, can be (Figure 14.1). If a feature of a text is present, and recognised as such by the encoder, then they can tag it (directly or with stand-off mark-up) and proceed to study that textual feature in other ways. But what can be done when an anchor point cannot be found, when an absence is textually unmoored? And what can be done when we suspect that a milestone in a catalogue should be associated with individuals whose identities are unknown and probably unknowable?

These questions may initially seem abstruse, but there is much at stake in them. The individuals who contributed objects and knowledge to Sloane's collection were part of his network due to the growth of global trade and imperial expansion, and the forms of colonialism and the transatlantic slave trade of which Sloane was a part, having married into a plantation-owning family. That these individuals were omitted from Sloane's catalogues is crucial to understanding the sociocultural and economic contexts of his collecting, the hierarchies of esteem and knowledge that his collecting practice emanated from and the ideologies of race that overarched his documentation and practices of attribution. The absences in Sloane's catalogues are caused by personal and societal ideological biases of data selection, and further informed by imperatives for that data to conform to taxonomies of collection.

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<div3>
    <ea:catnum>-1386.</ea:catnum>
    <p>An Indian grater the bone of a fish w <hi rend="sup">t</hi>. which they grated<lb/>
sev<hi rend="sup">ll</hi>. of their med&apos;cinall roots. From
<persName>M <hi rend="sup">r</hi>.
    Winthorp.</persName> Sturgeon?</p>
    <p><add rend="pencil">221. w</add></p>
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Figure 14.1 Excerpt from Sir Hans Sloane's Catalogue of Fossils including Fishes, Birds, Eggs, Quadrupeds (Volume V). While 'Mr Winthorp', thought to be Mr John Winthrop (1714–1779), 'mathematician, physicist and astronomer and acting president of Harvard University in 1769 and 1773' (http://viaf.org/viaf/11132722), is recorded as having given Sloane this object, it is attributed and marked up in line with the Text Encoding Initiative. Those individuals from whom this object was sourced, extracted or otherwise acquired and the source of the contextual information about the use of the object remain unspecified in the eighteenth-century catalogue and likewise in the twenty-first-century remediation of it.

Research and interpretation which do not recognise and account for these biases and absences simply reinforce and reinscribe these fundamental prejudices and preferences. The absences in Sloane's catalogues thus speak to the inherent subjectivities of data collection and documentation, be it analogue or digital, recalling how 'the concept of *data* as a given has to be rethought through a humanistic lens and characterised as *capta*, taken and constructed' (Drucker 2011: 1). The absences also raise crucial questions about the extent to which such subjectivities continue to shape current data-driven approaches to the analysis of digitised documents. However unintentionally (see also McPherson 2012), the positivist orientation of the TEI (and perhaps future initiatives) to modelling Sloane's catalogues risks the further perpetuation of historical absences and, indeed, their activation and amplification in new ways as historical data sets are made machine readable and are combined and recombined in new systems and applications.

Two questions thus follow: regarding the particular context of Sloane, how might we use digital tools to recover, rather than re-encode, absences in and from his catalogues? From a broader perspective, what steps might be taken to gaining deeper understandings of how data-driven approaches to cultural heritage historical documents might not perpetuate the silence of individuals who have already been marginalised in the historical record? These are the urgent critical questions to

which we will be attending in the next iteration of this project, called 'The Sloane Lab: Looking back to build future shared collections', following the award of a multi-million-pound grant from the Towards a National Collection programme led by the Arts and Humanities Research Council.[4]

Digital archaeological inventories and the production of national frameworks

Over the past half-century, the cultural heritage field in Belgium has drastically evolved. Over the course of the twentieth century, Flemish nationalist movements, in concert with Walloon regionalism, challenged the unitarian Belgian nation-state. From the 1970s–1980s onwards, Belgium evolved towards a federal state, culminating in 1993 in the formal establishment of Flemish, Walloon and Brussels governments and parliaments. Although many competences remained on the Belgian level (e.g. military and foreign affairs), cultural policy was transferred to the regions. Nationalist and regionalist movements wanting to expand cultural sovereignty were keen to mobilise culture as part of their nation-building portfolio.

In this struggle, heritage played a role. Whereas the Middle Ages (Flemish cities and art) became part of the political portfolio of the Flemish nation builders, archaeological heritage received very little political attention. This contrasted sharply with the politicisation of archaeology in Wallonia to craft a strong regional metanarrative (Van Looveren 2014: 456–457). While there was an absence of such a politicised discourse about archaeology in Flemish public opinion, the way archaeologists used the concept of 'Flanders' in their analyses started to shift.

A close reading of a selection of archaeological texts revealed that contemporary territorialisations were projected onto archaeological periods, even when these present-day administrative boundaries had no relevance. For example, earlier texts would mention the 'Belgian' Bronze Age. More recent works would explore 'Flanders' in the Roman period. To study these shifts in territorialisation in archaeological knowledge practices, all archaeological literature (in Dutch) produced by Belgian archaeologists since 1945 was subjected to data-driven digital analysis (mainly text mining; see Plets, Huijnen and van Oeveren 2021). Word frequency analysis was used to map these changed spatialisations of the past. By looking at which geographical signifiers with identitarian values (e.g. Belgium, Europe and Flanders) were used in descriptions and

interpretations of the past, evolutions in everyday banal nationalist discourses were traced (Billig 1995). The outcomes of this study showed that 'Belgium' was the main geographic framework used until the mid-1970s (Figure 14.2). Flemish framings of archaeology, however, started in 1975 and became dominant in the mid-1990s, while Belgian signifiers have decreased significantly.

Discussions within the social sciences remind us of the widespread nature and strong impact of so-called methodological nationalism. Methodological nationalism can be best described as the 'assumption that the nation/state/society is the natural social and political form of the modern world' (Wimmer and Glick Schiller 2002: 301), meaning that the nation-state is too often used as the dominant frame of analysis in describing and analysing heritage in past and present. Building on Billig (1995), Wimmer and Glick Schiller argue that this is not without repercussions, since by routinely using the nation-state in an almost 'banal' way in scholarly discourse, present-day national imaginations become naturalised.

The above-mentioned quantitative research clearly suggests that archaeologists use shifting banal nationalist frameworks in their engagement with the past. This methodological nationalism is not limited to specialist reports and texts but can also be found in communication with the public about archaeological artefacts found in the territory of
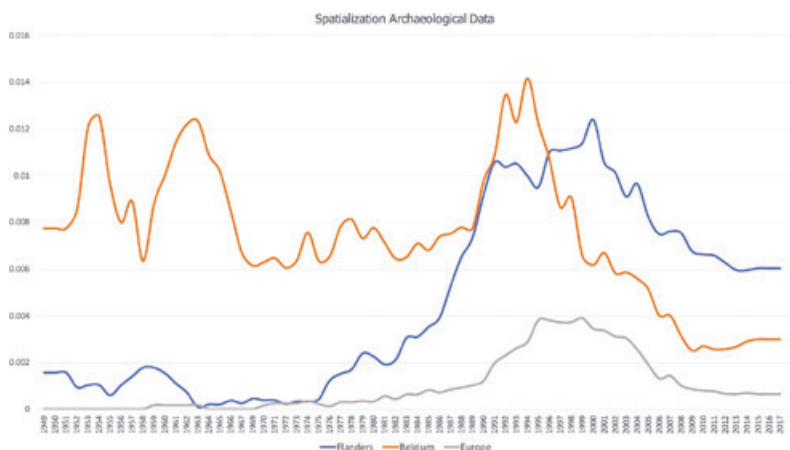

Figure 14.2 Results of text mining analysis of territorial signifiers used in archaeological texts in conjunction with descriptions of archaeological phenomena (for full methodology, see Plets, Huijnen and van Oeveren, 2021).

Flanders (see Plets 2016). Interviews with key archaeologists in 2019 indicated that most of these professionals were unaware of the national framework that they reproduce – inconspicuousness is an intrinsic characteristic of banal nationalism (Billig 1995). Furthermore, most interviewees did not identify with the Flemish nationalist movement and were sceptical of many of the initiatives of the Nieuw-Vlaamse Alliantie (New Flemish Alliance) – a secessionist party striving for the full independence of Flanders. Recent polling suggests that inhabitants of Flanders do not univocally support these policies and are not against re-federalising some areas of government.[5]

Clearly, this banal nationalist framework is neither the product of flag-waving nationalisation of archaeology by the state, nor a deliberate political infiltration of archaeology with national ideas by archaeologists. Rather, field conditions beyond archaeology shape the spatialisation of archaeological data. First, Flanders has become a key point of reference in the media, popular culture and education. This has helped in naturalising the geographical signifier 'Flanders' as a container for analysis. Second, praxeological perspectives teach us to also foreground everyday practices, rather than only discourses circulating in a thought collective, in exploring how knowledge is produced (Mol 2003).

We contend that digital governmentality plays a crucial role in this process of heritage spatialisation. First-hand experience with archaeological research, participatory observation of archaeological knowledge practices and interviews all indicate a very strong dependence on, or even overtrust in, the digital libraries and GIS-based information platforms that are managed by the Flemish agency for immovable (i.e. archaeological and architectural) heritage. Flemish governmental portals position digital archaeological reports and data as the only gateways to the archaeological heritage of Flanders. This overabundance of digital data is recurrently used in archaeological practice.

The study of recent excavation reports, MA and PhD dissertations, and interviews with archaeologists teach us that everyday archaeological work is strongly dependent on the information infrastructure managed by the Flemish government. A central digital database is *Centrale Archeologische Inventaris* (CAI; Central Archaeological Inventory), an online GIS-based database of all sites and significant archaeological finds that is designed, curated and continuously updated by the Flemish agency. It was mainly promoted at the turn of the millennium as a spatial planning tool (Meylemans 2004) for sites and monument records. As detailed by its designers (Van Daele, Meylemans and De Meyer 2004),

the database is also purposely designed as a research instrument that should occupy a central role in the archaeological process. Furthermore, the 2013 archaeological legislation detailing the standards for archaeological field reporting even requires consultation and careful interpretation of the CAI as part of publication practices.[6] Clearly more than a spatial planning tool, the database constitutes a carefully designed node in – legally curtailed – archaeological practice.

The design of the CAI shows it was intended as a research infrastructure since the database goes beyond the mere localisation of sites or listing of bibliographical references. In its multi-layered design, there is significant attention to scholarly interpretations of sites and finds: standardised interpretations that are distilled from both old and recent reports by database managers. Because of its detail and the relative ease of searching for sites that it enables, it has also become a workhorse for most archaeologists. Almost any archaeologist looking for comparable sites uses this database and the interpretations listed. In addition to the CAI, the Flemish heritage agency also hosts a digital library (https://oar.onroerenderfgoed.be/) where most recent archaeological reports and articles are freely accessible.

In his seminal *Archive Fever* (1996), Derrida explores the nature and politics of archives in the modern world. He argues that archives, whether in digital or brick-and-mortar form, are political institutions influencing people's actions. Accordingly, archives are as much about the future as they are about the past, since '(t)he archivisation produces as much as it records the event' (Derrida 1996: 17).

One of the key selections that archives make is what is included and what is not. This will structure what users will use and what in the long term will be found significant. In the case of the CAI, one of the fundamental choices was the exclusion of archaeological data from Wallonia, which is understandable because it falls outside the responsibility of the Flemish heritage agency. However, because of the ease of using a digital portal, the difficulty of looking beyond the boundaries and the legal position of the inventory in archaeological legislation, Flanders has become a methodological artefact and container within which comparison and analysis happen. The power of the platform and abundance of data have created a frame of reference within which heritage valuation takes place. Clearly, government-funded and -controlled digital heritage portals not only provide information, but also direct its users to heritage phenomena pertaining to their territory and sovereignty**.**

Conclusion: developing critical digital heritage studies

In our age of digital abundance, cultural heritage, too, is collected, preserved and made available in digitised form. This offers huge benefits for users, heritage institutions and governments alike. Digitised sources become readily accessible, not only for researchers, museum curators, civil servants and many other professionals, but also for increasingly wider audiences of amateur scientists and interested citizens. New search and analytical tools allow them to discover unexpected treasures or hard-to-find nuggets of information. Even more promising and potentially transformative in unexpected ways is the ability to interconnect data collections in linked-data structures within wider digital ecosystems, such as Europeana. No wonder that the EU and national and local governments invest large budgets in digitising their heritage collections.

It is no surprise that the digital transformation of our society has permeated our cultural heritage collections. However, the digital turn also raises a number of fundamental questions about the way the data are coded, structured and embedded in larger infrastructures. The emergent field of critical heritage studies can and should be applied to understand the consequences for the heritage field. Critical *digital* heritage studies can ask crucial questions about how we can foster complex and ethical uses and reuses of digital heritage collections and how digital technology can make visible, obviate and not re-amplify the dynamics of bias, absence, exploitation and power asymmetry that are inherent in European cultural heritage collections.

Our case studies demonstrate that critical assessment of the emerging cultural heritage infrastructures can reveal social power structures, silences, and geopolitical and identitarian assumptions embedded in data structures. Critical digital heritage studies can bring to the surface the sociopolitical agendas embedded in metadata structures that would otherwise remain invisible yet have wide-ranging consequences for the interpretation of heritage collections. The 'Enlightenment Architectures' project exposed the consequences of digitising early eighteenth-century catalogues that replicated colonial power structures and the intricate social hierarchies within Sloane's extensive workforce of often anonymous employees. The process of digitisation raises questions about orthography and disambiguation of named entities, most particularly of the many people and places that mirrored the ambiguous web of discovery, conquest and appropriation underlying Sloane's collection itself. But the process of coding within the unrelentingly positivist regime of the TEI also brought to light the many absences, silences and hidden figures

that threatened to disappear in an irreversible blackout in the digitised representation of the catalogues. The critical approach to digital heritage studies not only helps us to prevent the silencing of marginalised individuals in the historical record collections, but urges us to decolonise the digital cultural archive.

The case study of the central digital repository designed by the government of Flanders to record all sites and significant archaeological finds likewise shows that data and metadata structures are not neutral. The collection that is designed, curated and continuously updated by the Flemish agency reflects the changing spatialisation of local archaeology, as the geographical attribute 'Flemish' became attached to the metadata, replacing 'Belgian', and finds from Wallonia disappeared from purview. This methodological nationalism reflected the changing boundaries of political and linguistic identities within Belgian society from the 1970s onwards. As this central archaeological portal serves a wide range of official, academic and amateur users, this shift in data structure, in turn, has both obvious and more subtle consequences for the construction of collective heritage. The reterritorialisation of culture can result in budget reallocation, changing archaeological practices and a politicised sense of place.

In all these cases, digitalisation of cultural heritage does not so much cause but rather reveal or even emphasise the sociopolitical structures that undergird heritagisation, often in invisible ways that seem neutral or objective. This confirms that digital infrastructures can create new realities. In other words, to paraphrase Oscar Wilde, life tends to imitate digital heritage, far more than digital heritage imitates life. And this anti-mimetic consequence of the digital turn requires thorough academic reflection on the enchantment with – if not overtrust in – digital heritage infrastructures. This creates an urgent need for interdisciplinary critical digital heritage studies that interrogate how digital archives and digital cultural heritage impact those who engage with them, particularly in terms of their emotional response and the expression of individual and collective identities.

Notes

1. Although the infrastructures used to deliver and access digitised material are global ones (Thylstrup 2019: 57), the digitisation of primary and secondary sources and material culture across the globe has shaped, and been shaped by, a broad range of local and situated contexts and agenda (e.g. Crymble 2021: 50; Hauswedell et al. 2020). Thus, the predominately European picture presented in this chapter should not be interpreted as a normative or global one (see Risam 2018: 5–6). Rather, the questions and perspectives pursued here can usefully

be brought into conversation with other (inter)national and situated contexts so as to build a more comprehensive dialectology of digitisation and its social, cultural, institutional and conceptual entanglements across the globe.

2. This project, entitled 'Enlightenment Architectures: Sir Hans Sloane's catalogues of his collections' (2016–2019), was funded by a Leverhulme Trust Research Project Grant and led by Kim Sloan (British Museum) and Julianne Nyhan. The project was a collaboration between the British Museum and UCL, with further expertise contributed by the British Library and the Natural History Museum. For a wider overview of the project and the wider project team, see https://reconstructingsloane.org/enlightenmentarchitectures/

3. The following case study is based on the following open-access publications, which allow it to be reshared with attribution: Ortolja-Baird et al. (2019); Ortolja-Baird and Nyhan (2022).

4. See: https://gtr.ukri.org/projects?ref=AH%2FW003457%2F1

5. Over the past years, polls have been held in the Flemish media about the degree of support for the Belgian state and for Flemish nationalism and independence. Multiple studies show that a majority of people support the Belgian state and are not in favour of a Flemish nation-state. A majority seem to find Belgium and Belgian identity still highly relevant. See results of 2021 poll online at https://www.vrt.be/vrtnws/nl/2021/05/21/is-de-vlaming-een-flamingant-of-toch-liever-meer-belgie/, accessed 17 April 2023.

6. Ministerieel besluit tot bepaling van de minimumnormen voor de registratie en documentatie bij archeologisch onderzoek met ingreep in de bodem en de wijze van rapportering https://codex.vlaanderen.be/PrintDocument.ashx?id=1020865&datum=2013-01-01&geannoteerd=false&print=false, Article 76.

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