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REMAKING COLLECTIONS

Heritage in the Limelight, a Collection in Progress: Uncovering, Connecting, Researching and Animating Australia's Magic Lantern Past

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Once they are formed, the digital collections of cultural and collecting institutions do not exist in splendid isolation. As well as being aggregated data sets, digital heritage collections are also links to tangible objects and specific historical experiences. Digital collections may allow users to find the actual analogue objects from which they were derived, they may allow users to understand a particular historical experience (or a simulation of it), they may connect them to a particular place, or they may lead them to other digital collections. Digital heritage collections need to develop generous interfaces in order to maximise their unity across these different demands and to appeal to a variety of users. This article takes as its case study the digital database and interface made by the Australian-based research team, 'Heritage in the Limelight: The Magic Lantern in Australia and the World'. It examines how the culture, ephemera and documentation around the magic lantern's use in Australia across the nineteenth and twentieth century calls for its digital presentation in a dynamic, operational archive. The following piece surveys scholarly debates around digital collections that have informed the construction of the Heritage in the Limelight database and prototype *Collection Explorer* as well placing the creation of this Australian initiative in the context of work being done on lantern slide digital resources globally.

Wilfredo Prieto's untitled installation in Tasmania's Museum of Old and New Art speaks simultaneously to the impenetrability and abundant potential of the archive (**Figure 1**). The installation is curated as much to represent a void as it is a place of latent discovery. Its tantalising banality challenges the onlooker to extract one of the many compendiums from its generic pine shelves and sift through the pages to find a trace of discriminating detail or knowledge. Yet, the researcher is overwhelmed for choice in the orderly wilderness of bare-spined records. How do they choose which to select; how do they get a sense of the shape of what lies beneath the blank façade of the archive?

Prieto's nondescript—but dimensional—archival installation alludes simultaneously to the promise of discovery and threat of impenetrability in the abundant archive. His installation visualises, in a tactile sense, the disorientation of crowded physical archives and can act as an apt metaphor for the impenetrability of digital collections that are not designed with keen attention towards access and providing an overview of a collection. Digital collections must consider how to show on a landing page, at an entry level, a view of the 'document-laden pine shelves' which prompts a digital visitor to venture beyond the façade to further explore the collection. This design must walk that precarious tightrope between



Figure 1: *Untitled (White Library)*. Photograph by Wilfredo Prieto. Museum of Old and New Art, Tasmania: 2006.

providing a snapshot of the collection, to facilitate further investigation, yet without overwhelming and disorientating the researcher with the totality of the records the archive holds.

The archival challenge so neatly posited by Prieto and represented in his installation of paper-based documents is made even more complex when dealing with a multimedia archive of interconnected artefacts; an archive of, say, thousands of objects, images, videos, documents and technological machinery which together form a dense interconnected network. These questions are at the forefront of the creation of a digital repository of magic lantern slides, performance documentation and related ephemera springing from the research of the Australian-based project *Heritage in the Limelight: The Magic Lantern in Australia and the World*. This project, the first of its kind in an antipodean context, explores and reclaims the technology of the magic lantern which permeated theatres, lecture halls, church services, private homes and even open public spaces from the 1830s until well after World War II. At the Australian National University we are beginning to prototype a digital database and online interface that will eventually form a coherent picture of the extraordinary amount of under-recognised magic lantern material that arrived in, was manufactured in, or used in Australia, and will also afford people, both scholars and members of the general public, new ways to engage with the fascinating world of the magic lantern. While the development of our digital archive, which is still a work in progress, initially began with Prieto-inspired questions about scope and what Zhang and Gourley term, 'browsability' (2009: 94–100), our design thinking quickly expanded to take into account many genre-specific problems posed by the multimedia and interconnected nature of the material.

Recent Developments in Archival Theory and Scholarship

Recently in archival studies, there has been a turn towards seeing the archive as having active agency, rather than being a passive resource. This turn itself grew out of new sociological approaches to material objects developed by writers such as Bruno Latour, whose Actor-Network Theory includes objects as active agents in socio-technological assemblages. As active agents, objects are *participants* in social

actions, not merely subsequent *expressions* of social actions. However, for Latour, although objects are connected to humans, through habit they can easily shift from the active to the passive, from being disruptive to being taken for granted. Archives are important in Actor-Network Theory because they allow us to be continually reminded of the agency of objects:

[W]hen objects have receded into the background for good, it is always possible—but more difficult—to bring them back to light by using archives, documents, memoirs, museum collections, etc., to artificially produce, through historians' accounts, the state of crisis in which machines, devices, and implements were born. (Latour, 2005: 81)

While archives can help material objects remain socially activated, they are also being called upon to be more active as material entities in and of themselves, to not only be a passive resource for 'historians' accounts', but to have their own social and historical agency. In the specific field of photography, for instance, Elizabeth Edwards has called for the 'latent energy' of the material form of photographic archives to not be lost in the rush to digitisation, but to produce a 'resourceful archive'. This resourceful archive should not see the photograph as merely an image, but as an image-object with an 'active materiality' '... where the accuracy, truthfulness, and authority of the socially active historical statement is technically and materially performed through the attention given to the exact nature of image-objects that comprise the archive and their "affect" on users' (Edwards, 2011: 51).

Some writers caution against the possible digital obliteration of the affective materiality of the photographic archive. Others recognise that the digital proliferation of images and the digitisation of analogue images is leading to an enlargement of the photographic archive to such an extent that it becomes not a warehouse, but a database, subject to the same algorithmic analyses as other examples of 'big data'. In discussing online databases such as Flickr and Facebook, Scott McQuire has argued that:

[W]e are witnessing the transition of the photograph from its historical existence as a visual artefact where meaning is governed by an

aesthetic-interpretative process of “reading” to a condition in which the image increasingly functions as a form of data regulated by statistical/algorithmical processes. (McQuire, 2015: 125)

In these ‘operational archives’, previous divisions between breadth and depth, and the overview and the sample, begin to collapse because there is the algorithmic capacity to simultaneously access both the generic typicality of a mass of images, as well as the forensic particularity of a single image:

In particular, the old division between surface and depth analysis (aggregating shallow data gained from many examples versus multi-layered data sourced from fewer) that animated historical distinctions between statistics/social sciences and hermeneutics/humanities has begun to lose some of its purchase in a context where “sampling” is starting to give way to “whole population” monitoring. “Reading” an image as part of a pictorial tradition can be complemented or even replaced by processing images as data. (McQuire, 2015: 129)

For McQuire, the operational archive is not governed by an institution, rather it is self-generated and self-organised by a multitude of users who simultaneously access and create content. However, museum professionals have begun to directly apply these ideas to the documentation of their collections. A research project titled ‘Reconceptualising Heritage Collections’ by Fiona Cameron and Sarah Mengler called for a rethink of traditional hierarchies in museum classification systems. In an age of hyper-complexity characterised by new levels of interactivity and connectivity for images, all museum records are now potentially ‘networked objects’ (Cameron & Mengler, 2009: 191). This demands that museum collections embrace complexity and transdisciplinarity. They should become less dualistic, less hierarchical, less linear, and less embedded in fragmented disciplinary epistemologies. Databases of museum documents of their objects are usually structured by lexical vocabularies imposed by professionals, however, complex document collections can also emerge through freely chosen key words or tags, democratically applied by members of

the public who, as in social media, are simultaneously content users and content generators, and who may be visitors to the museum, or who may be distributed across the Internet. For Cameron and Mengler, museum documentation can then move from being a closed system of curated meaning to being an open system of plural relationships (2009: 189–218).

Media archeologists like Jussi Parikka also see the emerging challenges of archiving new kinds of material such as new media art, which is not based on individual objects but on technical processes and social participation, as also demonstrating the potential for an ‘operational archive’:

What can be seen as the biggest threats to traditional ways of thinking and doing archiving—collaborative modes of production, distributed network forms of the new cultural artefacts that are more processual than thing-like, and the sheer number of potential items to save—can be turned into a possibility as well. (Parikka, 2012: 120–1)

One possibility is that archives become not only about storing and preserving, but also about transmitting (Parikka, 2012: 121). The application of ‘cultural analytics’ to large data sets can aid in this process of archival transmission. Photographic archives, once they are digitised, can be made dynamic by the application of computational tools, not only to the metadata or tags attached to the image, but to the visual structure of the image itself. This data visualisation can aggregate masses of images, sort them against various parameters, and spatially plot them to visually reveal previously hidden characteristics and collection-wide structures. These techniques allow users to toggle between the particular content of the individual image and the overall impression of the complete data set, but with exactly the same level of ‘precision’. As Lev Manovich suggests:

This would enrich our understanding of any single artefact because we would see it in relation to precisely delineated larger patterns. It would also allow us to make more confident statements about the field at large. Perhaps more importantly it will erase the distinction between the precision of “close

reading” and the imprecision of a “zoomed out view”—between a detailed understanding of a few works and very approximate ideas about the field as a whole which we normally form by mentally interpolating between a small number of facts and artefacts we study. (Manovich, 2012: 252)

The big data archives of McQuire's 'operational archive' or Manovich's data visualisation image plots are often dispersed, and not 'owned' by any one institution. However, designers like Mitchell Whitelaw are interested in increasing the access of the public to museum collections through the operability of their collection databases. Working within the newly available 'equality of precision' in both the collection overview and the individual item view, Whitelaw designs museum collection interfaces that go beyond the standard 'search' or 'browse' queries where the user has only two choices: to either think of a word to type into the search box, which may or may not be the right word to link to the right metadata to pull up the records they are looking for, or to hit browse and scroll through page after page of alphabetised list-view records until they may or may not come across what they want. Neither of these queries will give the user a sense of the collection as a whole, and neither can harness the productive power of user browsing. Interface designers like Whitelaw want to harness the creative power of browsing, an intuitive process where the user uses her knowledge to move through a range of resources driven by prior knowledge, intuition, and pleasure, identifying rich and rewarding items for further investigation. Whitelaw proposes a 'generous interface' that encourages browsing because users can move between the collection overview and the individual item view, whilst retaining their orientation within the collection as a whole. With a generous interface, there is the potential for the user to 'navigate through' the collection, making unfolding discoveries by accumulating knowledge from within the collection itself, rather than simply searching across the generalised surface and then diving vertically down to the specific detail. For Whitelaw:

Generous interfaces provide rich, navigable representations of large digital collections; they invite exploration and support browsing, using overviews to establish context and maintain orientation while revealing detail at multiple

scales. Generous interfaces use multiple, fragmentary representations to reveal the complexity and diversity of cultural collections, and to privilege the process of interpretation. (Whitelaw, 2015: 15)

Magic Lantern Culture and the Digital Space

As can be seen from the above brief summary, there have been profound changes in both the theorisation and the practical development of digital visual archives in the last decade. Scholars, collectors, curators and designers now have to be attentive to the agency of material objects and images, while also including the processual and networked nature of new media. They need to embrace the dynamic, complex, transdisciplinary, transmitting and operational archive, as well as recognise that archives can be both institutionally located and dispersed across the Internet. They need to shift from seeing users as passive *consumers* of archival content to seeing users as also potential *generators* of content for archives. And their interfaces with users need to add the browsability of the generous interface to the search box or the scrolling list.

Against this background comes the global emergence of the new scholarly interest in the magic lantern. It turns out that historical magic lantern culture, broadly defined as an apparatus or *dispositif*, already has close affinities with many of the issues which are being foregrounded by contemporary archival theory and encountered by archives attempting to capture the complexity of new media content (Agamben, 2009). Therefore, the new archives and databases, which are now beginning to grapple with the breadth of magic lantern culture, provide a useful set of comparative case studies.

In many ways, magic lantern culture is the direct ancestor of today's media culture, and many of the key aspects of contemporary media culture, such as the networked interoperability of media content, were technically and culturally developed during the centuries in which the apparatus of the magic lantern was used to produce phantasmagoric, religious, musical, educational, or instructional performances. Hundreds of thousands of 'dissolving view' lantern slides, which

were projected by magic lanterns lit by either oil lamp, limelight or electricity, remain in a diversity of large and small Australian archives. These delicately painted glass images set into mechanically articulated wooden frames, or simple squares of glass bearing hand-coloured photographic images, were mass-produced to be distributed around the world, so they were always part of global networks. They were rarely used as single images, but were characteristically part of series, often with accompanying readings or songs, which told extended narratives.

Magic lantern slides are powerful material objects, often with rich physical metadata of inscriptions and labels, but a contemporaneous audience's engagement with the magic lantern was rarely at the interface of the palm-sized glass slide as an object, as it might have been with a *carte-de-visite* photograph. Rather, people experienced these images at the dimension of their projection from a lantern, and further still in a unique and dynamic sequence of transitions, animated with music or narration. The digital repository storing these slides therefore also needs to somehow capture this mixed-media, animated heritage. Our project aims to push the conventional boundaries of digitising by linking the static artefact with a more panoptic representation of an experience of magic lantern culture. Each slide is therefore potentially at the centre of a larger archival constellation. This constellation consists of other objects, such as other slides in the series and other slides by the same producer, or other technologies such as the magic lanterns themselves. The constellation also consists of other texts, such as printed readings or music, or newspaper reports of performances. The constellation even includes ephemeral events, the actual realisation of apparatus through sequential projection, and even the emotional effect felt by audiences temporarily constituted in a particular time and place by the magic lantern, such as a local town hall during World War I, for example.

It is these aspects of the magic lantern that are driving the new interest from scholars and members of the public. And, crucially, it is also these aspects that can now be captured by new approaches to designing the archive, database and interface.

Information Architecture, Compatibility and Navigation in Large Magic Lantern Data Sets

Research into the Anglo-European contexts of lantern slides has already produced several digital databases and applications that provide virtual portals into the magic lantern past of this region. The most significant and long-standing of these initiatives is *Lucerna*, the magic lantern web resource, developed by Richard Crangle and managed by a non-profit community interest company with close ties to the University of Trier, Germany, and leading research institutions in the United Kingdom. *Lucerna* is the product of over a decade of meticulous development and consolidation; it is a dispersed, rather than an institutionally-based archive, and its inventory of 9,000 lantern slide sets *have* been manually uploaded to a purpose-built interface. The search function for its slide sets operates off a number of controlled vocabularies, specifically developed for the magic lantern, that allow the user to whittle down through the repository at various layers of granularity, depending on how many values are entered. As Louis Rosenfeld, Peter Morville and Jorge Arango argue, the advantage of controlled vocabularies is that they direct the user to the most productive paths from which to navigate the collection (Rosenfeld, Morville & Arango, 2015: 13.3). In the case of *Lucerna*, the user can regulate the breadth of the sample of the slide archive retrieved through selecting a combination of values in the search fields of 'date-range', 'slide manufacturer', 'subject keywords', et al. (**Figure 2**). Although this approach works well for a pre-informed, directed search, perhaps what is lost for a more casual browser in this otherwise useful discriminating process is the greater, overall context of the hidden archive from which their results are retrieved. For instance, one of the biggest manufacturers and exporters of magic lantern slides was the Yorkshire firm Bamforth & Co. In the current architecture of the *Lucerna* archive, a search of (manufactured by) 'Bamforth & Co.' slide sets relating to (keyword) 'animals' doesn't as yet provide an indication of how the 10 retrieved results fit into the broader industrial context of other Bamforth & Co. slides, or indeed the animal-themed slides of other manufacturers.

Lucerna does successfully contextualise the individual lantern slide as part of a larger mixed-media digital repository, the basic component of which, from the point

LUCERNA – the Magic Lantern Web Resource
Current user: Read-only access [Log in](#)

Search

Contact us

Slide sets

Slides

People

Organisations

Events

Locations

Hardware

Texts

Keywords

Collections

Search for slide sets

Most commercially produced slides were sold in sets, often related to a published story, lecture, poem or song.

To find a slide set, enter as many search terms as you want in the form below and click the 'Go' button. The more criteria you add, the narrower you make the search.

The Lucerna database is a work-in-progress, and many items are not yet recorded. If you know of something that should be in the database and isn't, please [contact us](#) with the details.

Hints for successful searching

- > Unless you're sure of what you're looking for, it may be better to start with a general search and then add more criteria to reduce the number of results ...
- > ... but if you make your search **too general**, it may take a long time to display the results.
- > If searching by title, the search will (only) return results containing exactly the characters you enter, including spaces and punctuation marks.
- > A 'date' search may be less successful as many dates of manufacture are unknown.
- > A 'keyword' search may not find all sets relating to your chosen subject, as not all slide sets have yet been indexed.
- > If your search returns no results, check your search criteria – you may have mis-typed something or chosen an impossible combination.

Enter your search criteria and click the 'Go' button

Characters in set title <small>(enter a string of text or leave blank)</small>	<input style="width: 90%;" type="text"/>
Country of origin (if known)	<input style="width: 90%;" type="text" value="any country"/>
Manufactured by	<input style="width: 90%;" type="text" value="any manufacturer"/>
Sold or hired by	<input style="width: 90%;" type="text" value="any stockist"/>
Related person <small>(people connected with the set's manufacture, not as subjects of the slides)</small>	<input style="width: 90%;" type="text" value="any person"/>
Main usage of set	<input style="width: 90%;" type="text" value="any usage"/>
Main type of image	<input style="width: 90%;" type="text" value="any type of image"/>
Date of first manufacture	EITHER: in <input style="width: 20%;" type="text" value="any date"/> ± <input style="width: 20%;" type="text" value="0"/> year(s) OR: between <input style="width: 20%;" type="text" value="any date"/> and <input style="width: 20%;" type="text" value="any date"/> (inclusive)
Series title	<input style="width: 90%;" type="text" value="any series"/>
Subject keyword <small>(if you choose more than one, the search will find sets relating to any of your chosen subjects, not all of them in combination)</small>	<input style="width: 90%;" type="text" value="any subject"/>
	<input style="width: 90%;" type="text" value="any location"/>
	<input style="width: 90%;" type="text" value="any person"/>
	<input style="width: 90%;" type="text" value="any organisation"/>
	<input style="width: 90%;" type="text" value="any historical event"/>
Slide images available	<input style="width: 90%;" type="text" value="show all sets"/>
Sort results in order by	<input style="width: 90%;" type="text" value="title (alphabetical)"/>

Figure 2: Lucerna 'slide sets' interface. Available at: <https://www.slides.uni-trier.de/set/set-search.php> (Last accessed 2 October 2017).

of view of commercial lantern slide manufacturers and performers, was not so much the individual slide, as the set of slides. As seen on its left-hand toolbar (**Figure 2**), it is a database not of singularly static images of lantern slides but additionally a directory of slide and lantern manufacturers; an index of societies who hosted magic lantern performances and an archive of published script and song material pertaining to specific slide sets. All those various components of the magic lantern experience are accessible, but via different portals into the collection. *Lucerna* is encyclopaedic, with streamlined accessibility through controlled vocabularies, but it remains a resource of artefacts crucial for a serious researcher, and it is not yet a window onto an experience for a casual browser.

Lucerna has digitised and made available an extensive collection of privately held lantern slides and magic lantern ephemera, previously without a web presence. This translation of analogue archives into a digital repository was similarly the motivation for the creation of the *Heritage in the Limelight* digital database. Our consolidated digital database, hosted by a simple commercial platform used by many small institutions and historical societies called eHive, brings together multiple slides and documents from digitised collections across the Australian museum, library and gallery sector as well as incorporating previously undigitised material from private collections. The database has been consolidated by manually entering the data of private collections, or small-scale institutional collections such as the Salvation Army Heritage Centre in Melbourne. However, our project has additionally benefited from the ability to harvest data from the nascent digitising projects of a variety of Australian collecting institutions such as Museums Victoria and the National Library of Australia. Some of these data sets, such as the National Library of Australia's, are readily accessible through Australia's aggregating museum and library portal, Trove. The images and documents on eHive are complemented by performance and documentation videos made by members of the team as part of the project's practice-led research methodology, which are stored on the Vimeo platform.

The eHive magic lantern database permeates 'walled' institutional collections. Its records forge what Cameron, Mengler and others call the 'networked object' (Mengler, 2009: 191), linking lantern slides with similar metadata values, for example 'manufacturer', across private and public collection holdings. Much of its content was not Australian-manufactured, but rather imported from the Anglo-European world to Australia for consumption in the 19th and 20th centuries. Yet, through aggregating the records of a variety of Australia-based collections, the intention is to portray the distinctive Australian experience of the magic lantern, as part of a wider global experience.

Lantern slide images and metadata from pre-existing digital fora are downloaded from external collections via their APIs in CSV format. The data is analysed and enriched, in CSV format, to regulate inconsistencies and anomalies in the metadata across the collections of various institutions, thus strengthening the interoperability

of the networked object. System developers at eHive then batch upload the metadata and the harvested images, minimising the time needed to manually enter values for each individual record. This allows for exponential growth in the database. Furthermore, eHive facilitates an element of user engagement with the records, allowing visitors to enrich the system of the networked object through adding tags and comments at an individual record level, that are then approved by the account administrator.

Theoretically, eHive should function to provide a snapshot of the linked artefacts pertaining to magic lantern culture in collections, both public and private, across the country. However, the database's browsability is largely policed by the search box function that acts as a gateway to the collection. Searching is unquestionably enabling for users coming to the database with a focussed query but, as Whitelaw argues, it is inhibitory to providing a preview of the 'scale and richness of a collection' at the level of the landing page (2015: 3). A simple search does not allow for an enticing view of the whole collection, as with the compendium-laden shelves of Prieto's art installation, nor does it, at an entry level, differentiate records around a combination of metadata parameters.

Consequently, in eHive, the networked object—in our case, the lantern slide—is only elucidated at the intense granularity of the individual record. For example, we know that lantern slides were frequently employed in moralising campaigns. The first result in a simple search for 'temperance' retrieves the last slide in a series of 10 commercially manufactured slides by the British company, York & Son (**Figure 3**). The user is able, at an individual record level, to navigate the hyperlinked metadata fields to see the rest of the slides in the set 'portfolio', other slides with the object type 'photograph, hand-coloured', other slides with the subject association 'life model, story', and other records that are tagged by our project or visiting users with identical tags. In addition to the standard metadata constellation, this slide has also been used in a contemporary re-enactment. The user can choose to copy and paste the URL in the 'edition' field into their browser in order to see the slide in operation, projected as part of a performance, rather than simply as a digitised palm-sized plate. Certainly, for both scholarly and general users, relationships are consolidated

eHive Explore Search What is eHive? Search objects Sign In Sign Up

In his keeping: a thrilling temperance story - slide 10/10; York & Son; HL.MJ.0...

From
Heritage in the Limelight

Name/Title
In his keeping: a thrilling temperance story - slide 10/10

Place Made
England, United Kingdom

Maker
York & Son

Edition
See a performance that used this slide at: <https://vimeo.com/191734764>

Format
standard glass slide

Portfolio Title
In his keeping: a thrilling temperance story

Subject and Association Keywords
life model, story

Collection
(private collection) Jolly

Credit Line
Heritage in the Limelight project, Australian National University.

Object Type
photograph, hand coloured

Object number
HL.MJ.00237J

Copyright Licence
All rights reserved

Tags
Britain [x]
moral tale [x]
temperance [x]

Include tags such as place names, people, dates, events and colours. Use commas to separate multiple tags. e.g. Pablo Picasso, Madrid, red, 1930s.

Share
f t p t

Add Comments

Figure 3: *In His Keeping: A Thrilling Temperance Story*. Slide 10/10. eHive *Heritage in the Limelight* interface. Available at: <https://ehive.com/collections/6553/objects/824881/in-his-keeping-a-thrilling-temperance-story-slide-1010> (Last accessed 2 October 2017).

and represented across artefacts, materials and sub-collections, at a digital level in eHive. However, this constellation of the networked objects is difficult to perceive as the viewer remains stuck at a pedestrian level, navigating individual objects' record associations, rather than at a bird's eye view to the aggregated multimedia collection.

The Generous Interface and Experimenting with Creating a Dynamic Magic Lantern Resource

Issues of resourcefulness and affect evolve into more complex questions around multi-modal representation when we begin to consider the lantern slide as a conduit to a historic experience. Digitisation is not only a new frontier of conservation, which can also potentially increase the exposure and dissemination of an analogue artefact, but it can also, as discussed above, form the basis for an archival shift from a 'store and preserve' paradigm to an 'active agency' paradigm. The eHive database operates to collate an inventory of lantern slides and ephemera. Yet, as it grew in scope, relationships between records across sub-collections of the archive and, significantly, across media forms, became rapidly obscured at an entry level. The view of Prieto's ordered shelves was being lost in glut of material.

The work in progress, *Collection Explorer*, designed as a 'generous interface' and developed in association with Mitchell Whitelaw and the Australian National University's Centre for Digital Humanities Research, represents an additional digital layer that sits on top of the digital archives of eHive and Vimeo. Liberated from the store and preserve imperative and unpoliced by a search access point, it is more a forum for curation and a place for more fluid exploration (Whitelaw, 2015: 77). The *Collection Explorer* experiment (**Figure 4**) can be conceived of in much the same way museums and galleries consider their exhibitions: as a tasting to the wider breadth of their collection held in the archive. Moreover, in design, it aims to consolidate in single facets the multi-sensory media associated with this historical experience of the magic lantern, breaking down the barriers between textual, visual and audio components of the archive. For both the serious researcher and the casual browser, an understanding of magic lantern culture as first and foremost a collective experience in time is crucial. This prototype interface affords deep access to detailed records, allowing users to navigate from the *Collection Explorer* slide thumbnails and offering them the option to click back to the institutional or eHive full digital record of the slide and its metadata. Nevertheless, for both the researcher and casual browser, the *Collection Explorer* does something the static catalogue record cannot: providing a sense of the sequential, multimedia experience of a magic lantern in

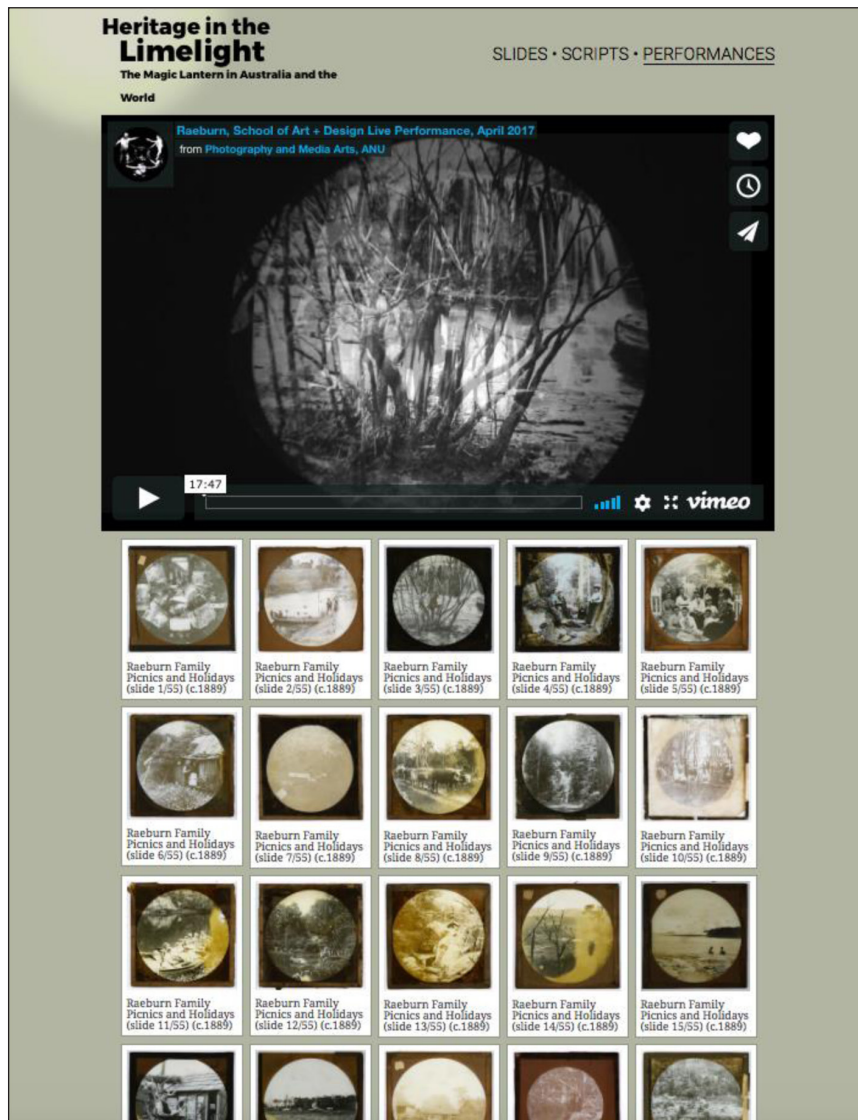


Figure 4: 'Performance' facet. *Collection Explorer. Heritage in the Limelight*. Available at: <http://cdhr-projects.anu.edu.au/limelight/> (Last accessed 2 October 2017).

the performance facet. It reorients the archival experience away from the atomised decontextualised record that needs to be semantically assembled by either expert or non-expert users, and towards an archival structuring around the original experience of the apparatus.

The motivation for designing the *Collection Explorer* was Janus-faced. On the one hand, this digital space looked towards meeting the specific aim of our project: linking practice-led and archival research. The *Collection Explorer* interface is built in CSS through harvesting the project's consolidated eHive database via its API and using each record's metadata to rearrange the collection into different facets. The 'performances' facet, for example, combines Vimeo video documentation of live magic lantern re-enactments or video reconstructions of slide and script sets, with captioned thumbnails of digitised lantern slides. Its visual organisation of thumbnails of slides and their pairings with performances is achieved through arranging material with like metadata values from eHive, in the 'portfolio' or 'edition' field together into a single facet in the *Collection Explorer*, while economising on space by stripping away from the visualisation much of the metadata that is directing the layout. This view is simultaneously a window into the creative practice (incorporating elements of creative reuse and re-enactment) involved in restaging a magic lantern show, and a 'space' for perceiving historic technologies and artefacts. Significantly, the user is called on to distinguish more authentic elements of experience within the lantern slide performance, such as the image's genuine projection from an authentic lantern, while recognising that other aspects of the performance, including the audience and the venue, are contemporary. This design positions the user less as a passive recipient of archival knowledge and more as an analyst of collection material. Vanessa Agnew argues that re-enactment is slippery as a mode for communicating historical knowledge because it is concerned 'less with events, processes or structures' and more 'with the individuals' physical and psychological experience' (2007: 301). Nevertheless, histories of emotions and investigations into affect have dominated performance studies in the last decade (Schneider, 2011; de Groot, 2011: 587–99). The 'performances' view of our interface does not consider it necessary to choose between presenting examples of contemporary 'affective' re-staging and conventional historical evidence. It creates what is for the user a satisfying dialectic between the object, the lantern slide as a *used*, processual, and animated artefact, and the slide as a static item of study.

On the other hand, the *Collection Explorer* is envisaged as a response to a variety of research agendas and provides multiple avenues of exploration. Currently, it segregates the archive into three facets: 'Performances'; 'Slides' or 'Scripts'. These facets operate as different gateways for slicing the collection, each capturing different mixed-media and cross-institutional perspectives on the archive. In 'Scripts', for example, the user has access to textual material spoken or sung historically alongside the slides projected in the same performances. The 'Slides' facet sorts the archive around institutional sub-'collection(s)' classifications; 'maker' associations and the 'format' of the glass plates. The design framework is based on mining relationships across pre-existing metadata values at an archive level. Yet, its representation is inspired by Manovich's theory of Cultural Analytics, that preferences visualisation (and thus images) in navigating large data sets (2012: 262). In the interface, the 'connected object' moves from being navigable at a record-by-record level to being visually grouped with like objects on the one screen. Stripping back the metadata from the view, while still using it to place and group the image or the object, maximises the quantity of individual records represented on one screen.

Moreover, the focus-in-context design allows the user to maintain a visual rather than textual sense of the collection's overview when navigating. For example, clicking on the 'Eric Douglas' tile in the 'Maker' view of the 'Slides' facet expands the tile to show thumbnails and titles of the first 80 slides made by Douglas, while still keeping the user orientated on the broader 'Maker' page (**Figure 5**). The *Collection Explorer*, thus, eliminates the need to toggle between facets to get a sense of the artefact in context. Only when the user wishes to explore the individual record in greater depth, with its full suite of metadata, are they redirected back to the database upon which the entire record is available. In the case of Eric Douglas, back to the public digital database of our collaborator, Museums Victoria.

Other practitioners within magic lantern studies are beginning to grapple with similar issues in giving an interactive multimedia experience of magic lantern culture within contemporary media affordances. For instance, a team at the University of Salamanca led by Francisco Javier Frutos and Carmen López San Segundo have,

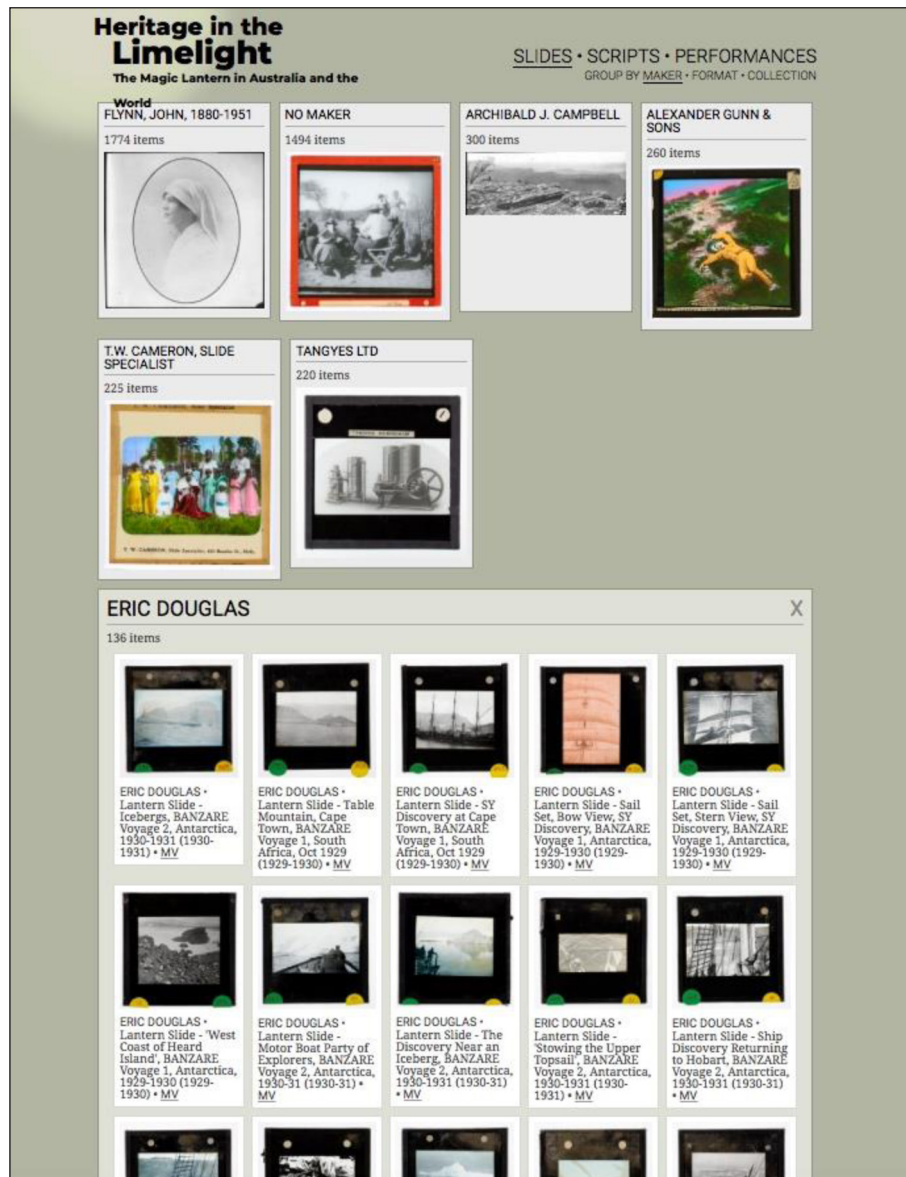


Figure 5: Eric Douglas tile in 'Slide' facet. *Collection Explorer. Heritage in the Limelight*. Available at: <http://cdhr-projects.anu.edu.au/limelight/> (Last accessed 2 October 2017).

as part of the trans-European project, developed an app that provides a graphical entry point into the magic lantern slide collections of multiple Spanish archives. The

Linternauta web app is based on a controlled vocabulary of three macro-genres and 24 sub-genres, developed through a systematic content analysis of a large collection of magic lantern slide material in Spain. It is designed to be used across a computer, tablet and mobile devices. Users link together a small group of subgenres by clicking on a sequence of dots within a grid. This then generates a 'session' where the group of slides which fall within all of those selected parameters are played in an animation (**Figure 6**). As the animation plays, metadata and curatorial descriptions for each slide are displayed. The app is a novel design, premised on the narrative construction, viewed in animated sequence. It provides the user with a sense of the fundamentally combinatory and processual nature of magic lantern culture, while keeping both textual data and visual experience simultaneously in play. Nevertheless, the user's access to each session is still through a series of fragmentary searches, and other tools may need to be developed for a more generous 'overview' of Spain's magic lantern culture (**Figure 7**). The development of the *Linternauta* web app, and our joint focus on communicating a sequentially-based experience, highlights how digital initiatives can move away from conceiving of an archive as a repository of static images.

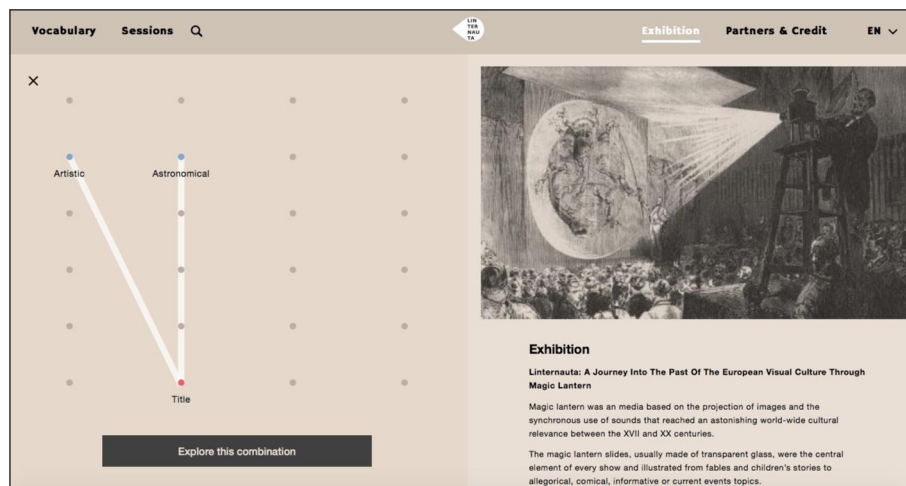


Figure 6: *Linternauta* web app landing page. Available at: <http://linternauta.docen-ciavirtual.es/> (Last accessed 2 October 2017).

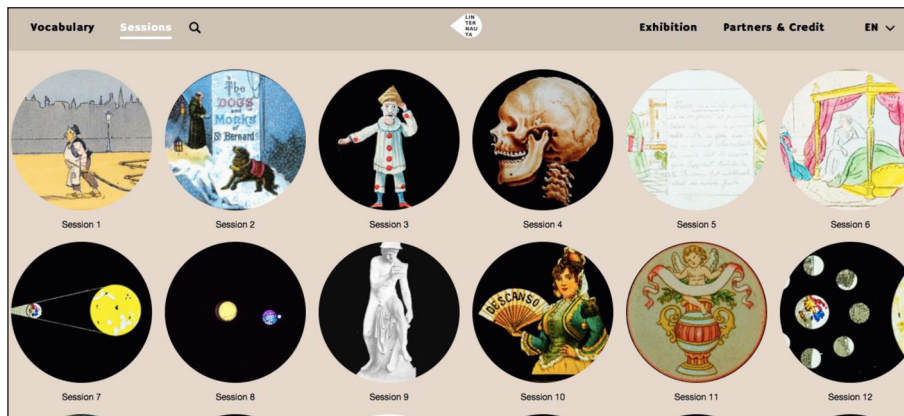


Figure 7: *Linternauta* web app 'Sessions' facet. Available at: <http://linternauta.docenciavirtual.es/slideshows/> (Last accessed 2 October 2017).

Conclusion and Future Directions

The chief advantage of *Heritage in the Limelight's Collection Explorer* is its ability to be reconfigured and expanded. Essentially, all the content is stored and catalogued on the underlying eHive database or on those of Australia collection institutions, with the exception of the videos that are held on Vimeo. This allows for a malleability in presentation on the interface which does not manipulate the original record. We consider the *Collection Explorer*, as it currently stands, a work-in-progress in visualising the expanding aggregated magic lantern collection. 'In progress', not because the interface does not move closer to answering the challenges originally posed by consolidating a digital data set for Australian magic lantern culture. So far, its focus-in-context facets keep the user at a perspective above the archive that allows them to browse its resources without being disorientated in the labyrinth of networked records. Moreover, we have begun in the 'Scripts' and 'Performances' facets to realise our goal of consolidating mixed-media windows on archival material and their contemporary interpretations. 'In progress' gestures to the possibilities that our team have imagined during building the interface and making this first iteration live. Our desire is both to continue to add records and to further experiment with the interface to make it a richer and more dynamic experience for a cross section of scholarly and general users.

For example, video animations of individual objects could further animate a selection of the artefacts such as mechanical slides or magic lanterns themselves, complimenting clips of entire sets or performances. Lantern slides came in a variety of formats. Standard square 83 × 83 mm glass plates were the most common of these formats but mechanical slides, which operated on turning cog systems, or slipping glass slides, that embodied in a single frame pieces of moveable glass, were also very popular. Currently slipping glass slides, like the skeleton below (**Figure 8**), are digitalised as static images in our database, the *Collection Explorer* and indeed in other digital collections in Australia (although some mechanical slides are animated in *Linternauta*). Part of our research agenda is informed by new scholarship in the area of media archaeology that calls for the contextualisation of 'old' media, such as the magic lantern, in terms of its lineage and relationships to more contemporary media culture, and in this process the agency of the archive is crucial (Parikka, 2012). We have crafted video files that exhibit slipping glass slides' impulse towards conjuring up fluid images. Integrating them into the interface would be the first step in visualising a genesis between the magic lantern and the cultures of animation, special effects and new media. This would open further potential in the *Collection Explorer* to make the archive more meaningful for a general user by curating links between artefacts and contemporary media technologies.

The *Collection Explorer* could be expanded to forge relationships between the artefacts and spaces of historical performance. Agnew's aforementioned rebuttal of re-enactment as a problematic mode of historical communication could be

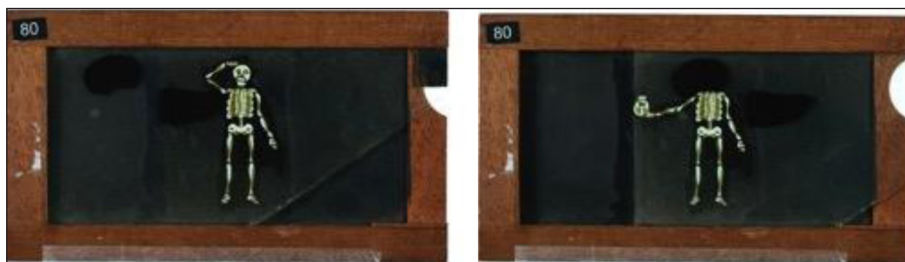


Figure 8: *Untitled*. Mechanical slipping glass slide. *Heritage in the Limelight* Collection.

further addressed in the interface by creating a fourth facet with geotagged slides, connecting them to their original sites of use. There are ample commentaries and advertisements in the Australian press on magic lantern performances. Press reviews often mentioned notable slides shown in a performance and were also attuned to audiences' reactions to the magic lantern affect. Linking a selection of the artefacts in our collection, through geotagging, with the places where they were originally seen, would visualise the epicentres and dissemination of magic lantern culture across the continent. Other Australian collecting institutions have taken this approach, such as the Australian War Memorial, and have geotagged paintings and photographs from World War I in their new virtual exhibit, *Art of Nation*, to direct visitors to present-day geographic spaces upon which these pictures were based. A more dynamic experience of the magic lantern would be achieved by both marrying slides with geotagged cities, music halls and theatres, and then additionally coupling these records with newspaper commentary on the performances to include authentic voices from the original experience in the interface.

Digital collections need not supersede analogue archives but can be used in tandem to maximise user engagement with collections. Prieto's installation that began this article alludes both to the evocative and irreplaceable tactility of analogue collections, and the allure of which Derrida called 'archive fever'—the passionate labour involved in physically sorting through their content (Derrida, 1996). A physical exhibition of magic lantern culture would appear quite different in a museum or gallery space next to Prieto's compendium-laden shelves. Yet, in the same way, such an exhibition could be physically curated in a museum space and then, through accessing the *Collection Explorer* as an accessory to the displayed objects, the user's experience could be extended into the dynamic and complex space of the digital archive.

Our team looks to continue to collaborate with collecting institution colleagues and scholars from the digital humanities to develop these ideas, borne from the richness of magic lantern culture interacting with the potential of digital archives and interfaces.

Competing Interests

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