ULTRA

Positions and Polarities Beyond Crisis

TO CITE THIS PAPER | Angus Grant and Peter Raisbeck. "A Selective Digital History: Limitations within Digitisation Practices and their Implications." In *Proceedings of the Society of Architectural Historians, Australia and New Zealand: 38, Ultra: Positions and Polarities Beyond Crisis,* edited by David Kroll, James Curry and Madeline Nolan, 416-427. Adelaide: SAHANZ, 2022. Accepted for publication December 1, 2021.
DOI: 10.55939/a4013phyct

Image: Michaelmore, Roeger & Russell, *Chester House*, Belair 1966, State Library of South Australia BRG 346/28/6/2.

PROCEEDINGS OF THE SOCIETY OF ARCHITECTURAL HISTORIANS, AUSTRALIA AND NEW ZEALAND (SAHANZ) VOLUME 38

Convened by The University of Adelaide, School of Architecture and Built Environment, Adelaide, 10-13 November, 2021.

Edited by David Kroll, James Curry and Madeline Nolan.

Published in Adelaide, South Australia, by SAHANZ, 2022.

ISBN: 978-0-646-85443-4

A Selective Digital History: Limitations within Digitisation Practices and Their Implications

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Keywords

Digitisation
Greg Burgess
Archival Practice

Abstract

The Greg Burgess Archive (GBA) is perhaps the most complete, and arguably the most valuable architectural practice archive in Australia. However, its physical size presents a problem to both visibility, and longevity, and plans are in place to digitise the collection. While in storage at Avington, Victoria, an archival team – including Burgess himself – have begun repairing the 447 models, scanning the hundreds of tubes of drawings, and extracting data from countless obsolete media. Yet how reasonable is it to assume the efficacy of a program of digitisation? What are the implications for an objective architectural historiography if the process fails? Precipitated by difficulties in accurately digitising Burgess' intricate physical models, this piece explores both questions.

Firstly, the digitisation process for the GBA acts as a case study. Then, the technical limitations encountered are placed within a wider context of archival concerns in today's diverse, digital age. These archival concerns are recognised in the eliding of ephemeral archival material – bodies, experiences, spoken histories – all of which may elude Western archival frameworks. What is illustrated here is that the same underrepresentation may extend into digitised collections, and that what is omitted is precisely the contents of the GBA – intricate, tectonic objects which do not conform to the idiosyncrasies of the technology at hand.

The subsequent discussion then proceeds to advance, and explicate, the notion of the third object. Curation, then, is surrendered to the archival process itself, and the agency to reify our material history is at risk of being left to the machines, and their preference for certain types of ethnocultural artifact. Considering this, alternative strategies are presented for both the GBA and institutions at large, yet archivists and historians must be conscious of these limitations, or risk the failings of traditional, institutional archival systems spreading throughout a growing digital landscape.

Introduction

In archival practice, what does the digitisation of models and drawings foreclose? How might archivists and curators navigate the territory between archival objectivity, digitisation, and new architectural histories? These broad issues are examined through the Greg Burgess Archive (GBA), which is perhaps the most complete architectural practice archive in Australia. Spanning from 1972 to 2020, and currently in storage at Avington, Victoria, an archival team – including Burgess himself – have begun repairing the 447 models, scanning the hundreds of tubes of drawings, and extracting data from countless obsolete media.

1. A report by John McPhee, in 2015, valued the collection of 447 models at $5,000,000 AUD.

In the GBA, or in any other archive, what we see, simultaneously, is an expectation of mimetic fidelity, and an archival system prone to breaking. What occurs when, thrown into this, an object set appears entirely averse to proper digitisation? Comprising over 400 hand-made architectural models, alongside countless drawings and photographs, the GBA is a collection uniquely poised to explore and understand this question.[1] The aim here is threefold: to better understand the digitisation of models in the GBA, to understand how this process correlates with contemporary archival and curatorial theory, and lastly, to suggest ways these may be reconciled.

With the above context in mind, this paper proceeds with a discussion of broad methodological framing, as related to archival digitisation, curatorial theory and practice. The origins of mimetic fidelity, and a pursuit of an objective historiography are introduced, and its consequences, intended, or otherwise, are examined in the face of recent trends toward digitisation. Following this, the GBA is presented as a case study to consider the technical limitations encountered in the digitisation of models. The subsequent discussion then proceeds to advance, and explicate, the *Third Object* - the idea that digitised replicas should not be seen as inferior simulacra, but objects of value in their own right, able to convey, and illuminate a broadened history.

The contribution of this paper, then, is presented as a linking together of pragmatic archival digitisation techniques, and a wider theoretical context – a study of both digitisation itself, and also what it might mean.

Methodological Framing

Archival Authority

2. Gordon Fyfe, "Reproduction, Cultural Capital and Museums: Aspects of the Culture of Copies," *Museum and Society 2*, no. 1 (March 2004): 61.

From antiquity, the museological archive has withstood as an embodiment of three elements: content, context and structure. Over time each element drifts, yet the agency of the archival process remains within the grasp of the archivist themselves, be they ancient Greek *Archon*, or anonymous Instagram admin. An information set is presented by the curator, and a particular narrative reified from within an established, recognised archival system.[2]

3. Fiona Cameron, "Beyond the Cult of the Replicant: Museums and Historical Digital Objects - Traditional Concerns, New Discourses," in *Theorizing Digital Cultural Heritage: A Critical Discourse,* ed. Fiona Cameron and Sarah Kenderdine (Cambridge: MIT Press, 2003): 52.

The basis of museological authority, then, is founded on this system, as, from its historical, object-based lineage, concepts of an objects' comparative aura, authority, and affect all can emerge.[3] What is of

note, then, are points at which this tripartite system breaks – when curatorial agency is removed from the archivist and surrendered to the archival process itself. Such has been the widespread failing of archival institutions in the past, as the less tangible histories of minority cultures and groups each slip through the Westernised framework of the traditional, physical archive.[4]

In response to this, institutions and communities alike have worked to reify their own histories, working both through informal archives, and then towards their integration into an existing institutional practice.[5,6] Amidst this reconciliation, however, there has been a further shift in both archival content and structure – one which questions the legitimacy of the archival process.

Digitisation Fervour

The advent of the internet and its acceptance as the primary mode of information dissemination, and consumption, has necessitated the digitisation of archival content. This necessity is further heightened by ever growing issues of access – a 2013 audit of the V&A Museum in London, for instance, finding that only 3% of the total collection was accessible by the public at any one time.[7]

Digitisation, as a process, may range from simple metadata collection (object creation date; creator; place of origin, size, etc.), to photography, and finally, in the most relevant case, to a full three-dimensional reconstruction of the object itself. Importantly, it is the latter which is increasingly deemed to be necessary, both by earnest institutions, and an expectant, technologically literate public.[8]

At this point, unfortunately, the system risks breaking down again. Just as the limitations of the analogue archive emerged in the misrepresentation of spoken, minority histories, one must expect the limitations of the digital archive to emerge in the same manner. Curation again risks being subordinate to archival *structure*, as filters inherent within the technological processes begin to dictate what is most effectively archived.

Given the widespread acceptance, and, importantly, *accessibility* of the digital collection, the ramifications of such a gatekeeping role must be understood. Objects, histories, and events fall nominally either inside or outside the scope of any archival construct, and the sociological value imparted by the archival process serves to widen what is often an abstract distinction.

One of the clearest examples of such a process, and its effects, is the obtuse confluence of professional boxing and cinema in the early twentieth century. The development of boxing from the stigmatised, criminal enterprise it had been for centuries, into one of most popular sports in America, was one intimately tied to both its documentation, and its dissemination via Thomas Edison's Kinetoscope.[9] This machine – in essence a large, dark wooden box – lent itself to capturing intermittent periods of movement within a confined space, and as such, professional boxers proved to be the most commercially viable subjects to film.

4. Laura Jane Smith, "Heritage, gender and identity" in *The Ashgate Research Companion to Heritage and Identity,* ed. Brian Graham and Peter Howard (London: Ashgate, 2008): 161.

5. Joanne Evans and Jacqueline Z. Wilson, "Inclusive archives and recordkeeping: towards a critical manifesto," *International Journal of Heritage Studies 24*, no. 8 (2018): 857; "Wolf Tales: Capturing the Voices of the Pack," NC State University Libraries, accessed March 2021. https://d.lib.ncsu.edu/collections/wolftales.

6. See Dillon Webster, "Queering Heritage: How can Informal Collections be Safeguarded for Enriching Community Heritage?" (Master's Thesis, University of Melbourne, 2020).

7. "Size of the V&A Collections," Victoria & Albert Museum, accessed January 10, 2020, http://www.vam.ac.uk/content/articles/s/size-of-the-v-and-a- collections/.

8. David Arnold and Jaime Kaminski, "3D Scanning and Presentation of Ethnographic Collections - Potentials and Challenges," *Journal of Museum Ethnography* 3, no. 27 (2014): 78.

9. Nat Fleischer and Sam Andre, *A Pictorial History of Boxing* (London: Blackwell, 1959): 38-41.

Of all sports, then, boxing benefitted most from this technological development. Patrons of both sexes could enjoy the spectacle of boxing without stepping into the dubious cultural milieu of the ring, as boxing films became one of the most widely disseminated visual media in the early 20th century.[10] Yet that boxing should have held that enviable position was not simply a reflection upon society of the time, but one augmented by the selective filters of the technology at hand.

10. Dan Streible, "Preliminaries: History, Prizefighting, Early Cinema," in *Fight Pictures: A History of Boxing and Early Cinema* (Los Angeles: University of California Press, 2008): 7.

In the context of contemporary, digitised media, this binary framework of technological filters is no less apparent. David Arnold gives a particularly eloquent description of the limitations of digitisation, summarising by stating that there is no technology available which can digitise the complete breadth of ethnocultural objects.[11] Similarly, there is a subset of physical artifacts which *do* lend themselves to digitisation, and as such form the bulk of digitised work.

11. Arnold Kaminski, "3D Scanning," 81-82.

What remains on the outside of this practice, however, is not the oral histories of the 20th century, but rather precisely the contents of the Greg Burgess Archive (GBA) – intricate, tectonic objects, comprising of small parts and unyielding to current advancements in digitisation technology.

An Objective Authority

In attempting to understand the consequences of the mass digitisation of our cultural histories, we must first understand the mimetic, replicatory context into which digital objects are placed, and, ultimately, misplaced. It is a framework tied to several long-standing, reified concepts: Enlightenment, rationalist tendencies; established heritage discourses; power, politics and economics; media theory; trust. It is, as such, murky. Its most pertinent foundation, however, is the visual materialist epistemology of the collection act itself, in which, as Fiona Cameron notes:

> Vision operates as the interpretive frame… as a stable, truthful, and objective marker of culture.[12]

12. Cameron, "Beyond the Cult of the Replicant," 53.

Shanks and Webmoor describe this tendency as a framework of *mimetic fidelity*, in which archaeologists and archivists value digital media through its holistic similarity to the artifact it represents – thereby moulding the museological object into a perfect, idealised replica of itself.[13] It is a pursuit of objective authority which Cameron labels "the cult of the replicant," and it forms the unwavering justification of any number of textbooks on proper, high-fidelity digitisation.[14]

13. Michael Shanks and Timothy Webmoor, "A Political Economy of Visual Media in Archaeology," in *Re-Presenting the Past: Archaeology through Text and Image,* ed. Sheila Bonde and Stephen Houston (Oxford: Oxbow Books, 2013), 85.

14. Cameron, "Beyond the Cult of the Replicant," 49-69.

Mimetic Origins

Such a lens, however, far outdates the digital revolution itself. In the mid-nineteenth century, the archival system was granted a new mobility. The advent of photography, and the structured presentation of the object-photograph would spawn a "veil of objectivity" – a moralised understanding of scientific visual data as the basis for a rational, objective historiography.[15] The photograph would become the vector for almost all arguments about the nature and significance of art, and reproduce, indirectly, a desire for the objectivity it claimed to project.[16, 17]

15. Kevin Garstki, "Virtual Representation: The Production of 3D Digital Artifacts," *Journal of Archaeological Method and Theory 24*, no.3 (September 2017), 728.

16. Pierre Bourdieu, Photography: *A Middle-Brow Art* (Stanford: Stanford University Press, 1996), 73.

17. Peter Walsh, "Rise and Fall of the Post-Photographic Museum: Technology and the Transformation of Art," *Theorising Digital Cultural Heritage,* ed. Fiona Cameron and Sarah Kenderdine (Cambridge: MIT Press, 2003), 30.

In this way, the perceived authority of the medium itself was valued, and upheld, as from it valid conclusions were drawn. Kevin Garstki writes:

> [The] archaeologist's ladder of inferences is built upon an assumption of accuracy or authenticity of the representational media (reports, maps, photographs, 3D models) from which conclusions are made.[18]

18. Garstki, "Virtual Representation," 727.

This photographic hegemony, as Peter Walsh describes it, has spread into contemporary, digital culture. Where once photographs, books and slides presented a tangible framework for analysis, now digitised media objects, on wholly digital platforms, shape our histories. What is important here is that the drive towards objectivity in the presentation of cultural artifacts is similarly pervasive in both digital and analogue media. Indeed, the advent of high-fidelity digital objects has appeared to both exacerbate and validate this focus – proving a mimetic likeness is possible, and in doing so navigating the latent subjective failings of the photograph:[19]

19. Néstor F. Marqués, "Old Photographs for New Geometries: The Recent Evolution of Photogrammetry," Sketchfab Blog: Cultural Heritage, 26 August, 2020, https://sketchfab.com/blogs/community/old-photographs-for-new-geometries-the-recent-evolution-of-photogrammetry/.

> Because their visual appearance is so accurate to the original and the ability to manipulate the [digital] model appears to negate the obvious bias of a photograph, it is too easy to lump them into the same conceptual category as physical artifacts excavated from the ground.[20]

20. Garstki, "Virtual Representation," 728.

In this way, the pervasive drive towards an idealised replication risks positioning digital objects as simulacra – as objects more real in our virtual worlds than the artifacts they stem from. We are striving for perfection, yet, as in the case of Borges' map, we must ask at what cost?[21]

21. See Jean Baudrillard, *Simulacra and Simulation*, trans. Sheila Glaser (University of Michigan Press, 1994).

GBA Case Study
Digitisation Methods

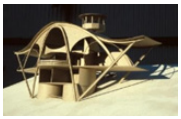
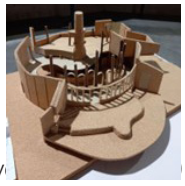
Name, Date	Size (mm)	Material	Geometric Description	Method, File Size	Image Reference
Anderson House, 1988	400 x 600	Boxboard	Flat surface context; intricate, orthogonal structure (2mm wide minimum)	PG, 1.1GB	
wwUluru Cultural Centre, Detail, 1995	300 x 550	Boxboard; Balsa	Minimal context; multiple, close, recurring small members (3mm), vertical and horizontal.	LS, 1.34Gb; PG, 5Gb	
Uluru Cultural Centre, Full, 1995	1000 x 1050	Boxboard; Balsa; Organic Material	Flat, homogenous surface context, with colour; continuous, curved surface model; recurring small members (2mm); organic geometry	LS,1.54Gb; PG, 5.5Gb	
			Flat model surface; small vertical members.		
			Minimal Context; combination of flat surfaces and complex geometry; some surface texture but no colour variation.		

Table 1: Archival models and digitisation methods.
PG = Photogrammetry; LS = Light Scanning.

Work at the GBA was undertaken using a range of professional software and hardware. This work proceeded through a process of informed trial and error, and may serve as a proxy for any institution interested in digitising their own collection.

Rather than attempting to construct any sort of historical or architectural thesis through a curated selection of models, however, the scanning material was chosen instead to test the scope and flexibility of the scanning processes. Both flat, single colour planes and complex, tectonic geometry were scanned, and the details of each is outlined above in Table 1.

Two different methods of scanning were used: DSLR photogrammetry (PG) (both hand-held and stationary), and hand-held structured light scanning (LS). In digitising an archival collection, this is perhaps the most pertinent choice for an institution to make, and as such I have included several resources which compare each method, and discuss, in the sections below, some of my most relevant observations.[22]

Light Scanning

Structured-Light Scanning (LS) is a process of measuring physical geometry which is similar to SONAR, in that a signal – here, a pattern of narrow light bands – is sent out and measured upon its return. Software then analyses distortions in the pattern to measure undulations, and distances upon a surface.

The hand-held light scanner used was the Artec Eva, a $19,800 machine which boasts ease of use and speed as a point of sale.[23] Indeed, as a portable device requiring no further apparatus, this method is certainly easier to use and faster to set up than photogrammetry. However, as each step requires long processing times, it is far less time efficient when dealing with many models. The Uluru Detail model, which was within the median size for the collection, required 50 minutes to scan, process, export and save. Within this time, a streamlined photogrammetry setup could capture 4 or 5 models before processing the data later.

Regarding storage, Light Scanning is the more space efficient method, yet both require a large amount of planning if large collections are to be scanned. For the same Uluru model, the total package size (including scan files and the resulting digital model) was 1.34Gb and 5Gb for LS and PG respectively.

Photogrammetry

Photogrammetry (PG) is the process of extracting physical measurements from visual, photographic data. It has historically been associated with aerial land surveying, and the mapping of two-dimensional distances. In the context of archival digitisation, however, measurements from photographs are inferred in three dimensions, and a resulting geometric map is used to generate a complete, omnidirectional model of a particular object. This process of translation, from paired photographs into an accurate geometric map, is called registration, and requires software to 'match' identical points on an object from multiple photographs.

22. B. Van Genechten, "Emerging Tools for Heritage Recording," in Heritage in the Digital Era, ed. Marinos Ioannides et al. (Sussex: Multi-Science Publishing Co Ltd, 2010), 57-68; Elizabeth R. Leggett, *Digitization and Digital Archiving: A Practical Guide for Librarians* (Rowman & Littlefield Publishers, 2014); For a relevant guide to a photogrammetric workflow, see Joshua J. Medina et al., "A rapid and cost-effective pipeline for digitization of museum specimens with 3D photogrammetry," *PLoS One* 15, no.8 (August 2020).

23. "Artec Eva," Artec 3D, accessed March 24, 2020, https://www.artec3d.com/portable-3d-scanners/artec-eva.

Generally, there are two accepted methods for photogrammetry, each with their own uses and drawbacks – see Falkingham, *2019*.[24] In this study, I chose primarily to keep the camera still, and rotate the object itself, which was more difficult to set up than simply orbiting the object with a camera, but proved to generate quicker, higher resolution results. The camera used was a Canon EOS Mark II, set on a tripod; images were processed with Agisoft Metashape Professional.

In this setup, if the background is clean and there are no discernable features behind the object, the software assumes the camera has been rotating, not the object itself, and as such positions the cameras in digital space accordingly. Such a background, however, is difficult to accomplish for objects larger than a light box, as, even when using a backdrop, background shadows - even of the object itself - will cause difficulties in registration. Fig.1 illustrates the effects of this, and the effect of lengthy post-processing to mitigate the issue.

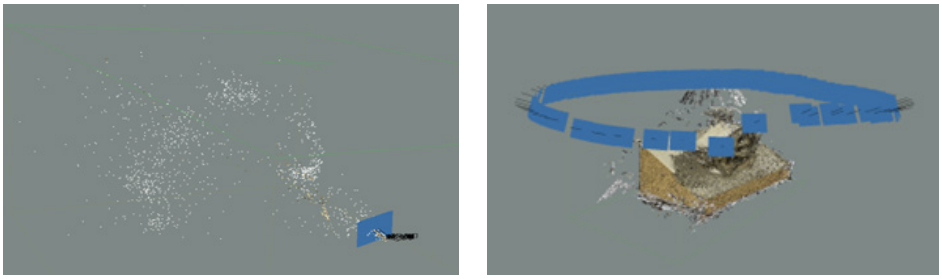


Fig. 1. Effects of poor photograph registration, resulting in failed model generation (left). Post-processing of photographs yields correct registration and model generation (right).

Given the accessibility of photogrammetry as a method of digitisation, these issues are of particular note. An effective, fast, and reliable photogrammetry workflow can quickly become expensive, and bulky, if one is after professional results. Hi-fidelity systems, designed for large objects and involving numerous cameras can easily reach upwards of 50,000 USD, and systems like that used here are typically at least 3000 USD.[25, 26]

Digitisation Results

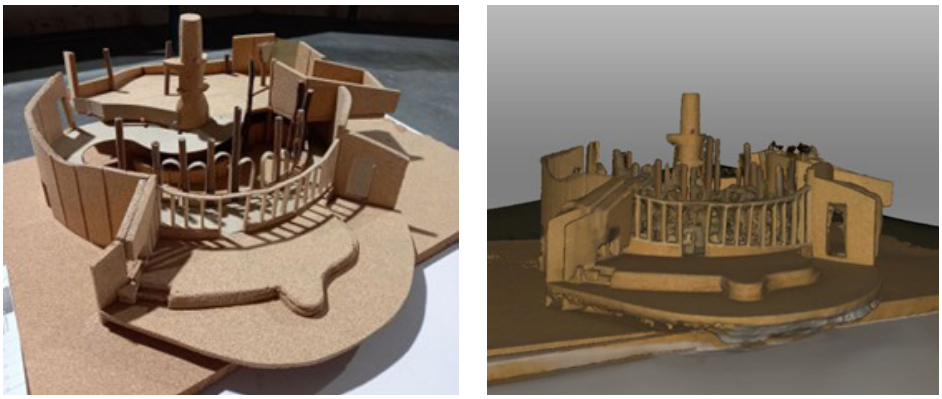


Fig.2: Brambuk Cultural Centre, Interior Detail. Photograph (left), and generated model (right), scanned with the Artec Eva, and processed in Artec Studio.

Within the pervasive mimetic framework of contemporary archival work, successful digitisation is measured primarily on a perceived visual

24. Peter L. Falkingham, "Small object photogrammetry – How to Take Photos", Dr. Peter L. Falkingham: Paleontologist, January 16, 2019, https://peterfalkingham.com/2019/01/16/small-object-photogrammetry-how-to-take-photos/.

25. "DSLR Photogrammetry Systems," Twindom, accessed March 30, 2020, https://web.twindom.com/3d-scanning-technologies-dslr-photogrammetry-systems/.

26. Medina et al., "A Rapid and Cost-Effective Pipeline," 5.

27. Shanks and Webmoor, "A Political Economy," 88.

and spatial likeness.[27] Therefore, visual comparison between source photographs and digital models is used, here, to analyse the efficacy of the work.

Fig.2 shows a model, generated by the Artec Eva, which is indicative of the results at large. Visually, the object is recognisable, and some spatial relationships may be drawn, yet it is almost absurd in its inaccuracy. Orthogonal, tectonic intersections are reduced to estimated, bulbous masses, and detail toward the interior of the model is reduced to noise. More information regarding materiality, construction, and composition can be gathered in the adjacent photograph than in the model itself. Where then, does the value lie in such an object? At this stage, I will suffice to give weight to this question by outlining how such an unsuccessful outcome occurs, and, importantly, how for the GBA it is almost unavoidable.

Difficulties In Scanning

28. 'Stpiercy', "The Hardest Objects to Scan: Paths to Success," Matter and Form, Oct 25, 2018, https://matterandform.net/blog/the-hardest-objects-to-scan-paths-to-success.

29. `See Gönen Eren, "3D Scanning of Transparent Objects," (PhD Diss., Universite de Bourgogne, 2010), 1.
29.

Due to the way in which light-based 3D scanning works (for both PG and LS), certain object characteristics resist capture, regardless of advancements in technology, or technique.[28] Black, transparent and reflective surfaces, or surfaces with complex geometry and multiple through-holes all elude accurate digitisation based on their innate properties, which violate assumptions made by scanning algorithms.[29] Accepted workarounds to these problems, importantly, involve often irreversible alterations to the physical objects themselves, and as such are problematic when dealing with fragile, historic artifacts.

On the contrary, there are a subset of objects which do lend themselves to scanning. Flatter, solid objects with complex surface textures, such as vases, mimic the aerial photography for which photogrammetry was developed, and allow for accurate registration. The flat, consistent surface of the model shown in fig.3, however, presents issues which cannot be mitigated by technique, or budget.

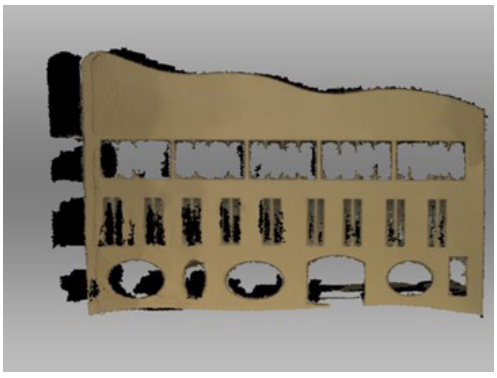


Fig.3. Koorie Heritage Trust Facade Model. Note the dark 'shadow' - this is in fact a series of scans which could not be aligned to the 3D model, due to a lack of texture variation in the object.

What is concerning is that most handmade architectural models are precisely of the type which cannot, at this stage, be reconciled to 3D digitisation. Like those of the GBA, they are constructed out of small, individual members, and in order to show the play of light within a space are constructed in both great geometrical complexity and depth. Fig.4 shows this loss in detail.

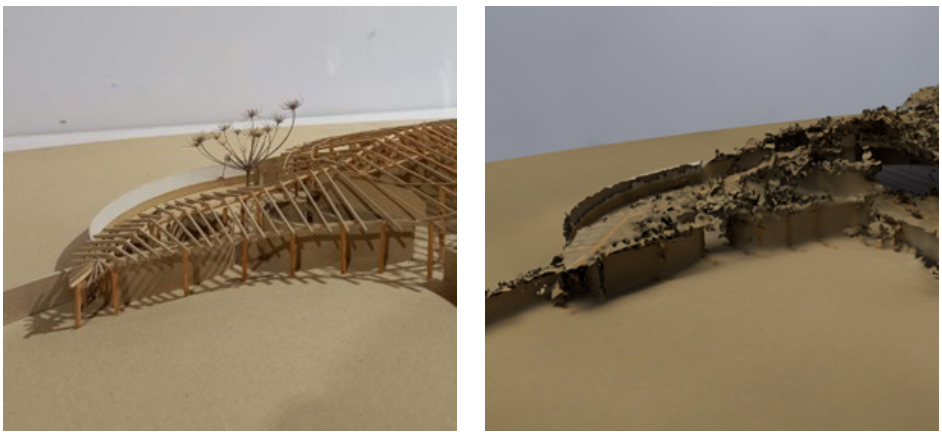


Fig.4. Comparison of model detail photograph (left) and LS digital model (right). The intricacies of the roof structure, which are the focal point of the model, are completely lost.

Below is a comparison of photographs taken of the Anderson House model, alongside similar rendered views. It is the most eloquent representation of the findings of this piece. The model is the result of over 100 photographs, taken with a tripod and processed over an hour using professional software. It conveys, however, only a fraction of the information captured by the photograph, and strays far away from the mimetic likeness required by any contemporary, institutional archive.

Fig.5. Comparison of model photograph used for photogrammetry (left) and resulting digital model (right). Note the inability of the software to recreate orthogonal members, or flat, single surfaces.

Fig.6. Comparison of model detail photograph (left) and resulting digital model (right). The detail photograph, despite showing only a set angle, shows far greater information regarding the construction, preservation, and state of the model in question.

Discussion: A Tripartite Problem

The GBA models, consisting largely of box board and balsa wood, are representative of the work of countless other firms operating at the

same time, both in Australia and overseas. The results described above, therefore, illuminate a generation's worth of architectural artifacts which are completely at odds with current methods of digitisation. This tension, however, goes beyond an issue of technological limitation. As they are irreconcilable to accurate digitisation, they are therefore irreconcilable to the aforementioned institutional, archival system, which grows ever hungrier for high-fidelity digital artifacts.

We are left, then, with an impasse in three parts: simultaneously, an expectation of mimetic fidelity within an archival system prone to breaking; a fledgling technology; and an object set entirely averse to digitisation methods. Naturally, then, the question is how this may be undone. One option, simply, is to wait. In time, perhaps, scanning technology will advance such that the fenestration of the Koorie Heritage Trust model, for instance (fig.3), is rendered accurately and efficiently. This requires, however, a large amount of trust to be placed on the technology itself, and leaves any institution dealing with mounting issues of model storage and maintenance.

The objects themselves, alternatively, cannot be altered - doing so would invalidate the archival process. They may be ignored, however, as those which do not reconcile themselves to digitisation are left out of the digital archives entirely. Indeed, this practice is commonplace, and in some cases, acknowledged. Ben Waters, of Melbourne-based *S-I Projects*, stresses the management of his client's expectations, outlining to them frankly which objects can and cannot be scanned, adding that:

> We are quite clear that photogrammetry is a craft, and not a magic tool for digitising anything and everything.[30]

This position is a wise response to an institutional clientele, yet is one which belies a shift in archival agency, and as such a breakdown in the objective archival project. Applying this approach to the GBA – and therefore excluding those models which elude mimetic digitisation – we see curation lie not with the curator, per se, but with the filters inherent in the technology at hand. Agency is removed from the archivist, and placed within the idiosyncrasies of software, storage methods, and lighting setups. These visually ephemeral, geometrically dense artifacts are then struck from our growing digital histories, as we subconsciously cultivate a selective digital historiography.

Expanding The Archival System

31. Andrea Witcomb, "The Materiality of Virtual Technologies: A New Approach to Thinking about the Impact of Multimedia in Museums," in *Theorizing Digital Heritage*, ed. Fiona Cameron and Sarah Kenderdine (Mit Press, 2007), 45.

The last response to this impasse is a change to the digital archival value system itself. I propose that instead of being dismissed against an unrealistic expectation of accuracy, the scanned GBA models are celebrated precisely for their *inaccuracy*. This position is based not only in the expanded accessibility such a system will bring – in terms of practicalities for archival staff, and cheaper workflows – but also one which responds to a growing subjectivity in contemporary digital spaces.[31]

Spurred on by the advent of user-focused social networking, the traditional 'web' has transcribed singular notions of site – appearing less as a hierarchical, structured framework for multimedia browsing,

and more as a rhizomatic network of individual agency and content curation.[32, 33] This development confers a subjectivity to our digital spaces, in which, as Forte and Bonini note, the cultural value in any digital data is not intrinsic, but rather emergent of the cognitive processes it triggers.[34]

This understanding is the basis of the work of Alison De Kruiff, a researcher in visual heritage at Swinburne University who "recognises the need for virtual heritage audiences to push against the boundaries of technological experiences."[35] De Kruiff speaks of a *Third Environment* – a Hegelian synthesis of the constructed, digital apparatus and the personal experience of the viewer.[36] Here, the object is neither original, nor replica, but an outcome of the technological limitations of the process itself.[37]

It is a framework which embraces difficulties in achieving photorealism, utilising technological inaccuracy to foster user engagement. Importantly, too, De Kruiff's work outlines that visual fidelity is no requisite for shared engagement, nor learning; Instead, it can be problematic:

> In virtual heritage, accuracy is inextricably linked with representation of information… However, it is often this photorealism that leads audiences to view a conjecture as fact.[38]

This conjecture, in the case of the GBA collection, is the inescapable inaccuracies of the digitisation process itself. What is required, then, is an explicit reframing of the role of the objects themselves.

Conclusion

The Third Object

Fig.7. Reframing and celebrating the Third Object

32. Jack Self, "Another Direction," *Real Review* 10 (Autumn, 2020), 42.

33. Itso Huvila. "Participatory Archive: Towards Decentralized Curation, Radical User Orientation and Broader Contextualisation of Records Management," *Archival Science* 8, no.1 (March 2008), 5.

34. Maurizio Forte and Elena Bonini, "Embodiment and Enaction: A Theoretical Overview for Cybercommunities," in *Heritage in the Digital Era*, ed. Marinos Ioannides et al. (Sussex: Multi-Science Publishing Co Ltd, 2010), 47.

35. Alison De Kruiff, "Constructing the Illusion of Shared Experience in Virtual Heritage," in Unbounded: *On the interior and interiority*, ed. Dolly Daou et al. (Cambridge: 2015), 92.

36. Alison de Kruiff, in conversation with author, February 23, 2021;
See also De Kruiff, "Constructing the Illusion," 84-102.

37. De Kruiff, "Constructing the Illusion," 93-95. The reconstruction of the Vitthala Temple, for instance, was shown at twilight, which hid the simplicity of the shadows produced by the renderer. In the inner sanctum of the temple, where there were no available photographs, an area was left empty.

38. Ibid., 88.

39. Huvila. "Participatory Archive," 4.

Expanding upon the work of De Kruiff and moving in line with contemporary attitudes towards participatory archives – see Huvila, 2008[39] – the digitised contents of the GBA are repositioned as the *Third Object*. They are presented not as inferior replicas, but as distinct objects with their own experiential value, and place within a museological setting - as idiosyncratic touchpoints for a subjective, interpretive user experience.

40. This image should not be taken as indicative of any specific proposition, but rather as a juxtaposition between the museological environment, and the peculiarity of the GBA objects.

41. Andrea Witcomb, "The Materiality of Virtual Technologies," 45.

In addition to this role, the *Third Object* is placed on a pedestal – both figuratively, and literally (fig.7)[40] – to question the validity of that which it may be excluded from: the mimetic, technophilic framework of the traditional archive. The *Third Object*, then, becomes a symbol of a post-mimetic landscape, imbuing both a recognition of contemporary otherness, and a break from the static system of 20th century historiological spaces.[41]

That these objects now contain less empirical, geometrical value is a reality which cannot be ignored. However, that this effect should constitute a failure is a fallacy which misinterprets the value of the architectural model, and the role of digitisation. The digital model's value is found less in its surface, or form, as a primary object of objective detail, but rather in its collective place within a rhizomatic network of contemporaneous objects - drawings; experiences; photographs. The architectural model, then, constitutes the perfect *Third Object*, as it may be digitised without being detached from inferred meaning in the same way that a singular, archaeological artifact might be.

The *Third Object* is not an ultimatum, but rather a reframed ontology of the imperfect digital object. It does not deny the place of existing archival paradigms, but rather offers a strategy to reconcile them to the difficulties, and expenses of digitisation – acting as a bridge to recapture a set of objects which would otherwise be lost.

Above all, it is this potential loss that is of greatest concern, as any small selective biases encountered through digitisation risk amplification over time, as collections are accessed increasingly online. Against this, then, the work undertaken at the GBA outlines a prospective path for an institution, who, in making this shift, must at least acknowledge a prejudice against imperfect digital objects, or else risk the canonisation of a selective digital history.