Creating an impression.

A case study to understand the significance of operational objects through letterpress printing at a science and technology museum in Aotearoa New Zealand.

A thesis presented in partial fulfilment of the requirements for the degree

Master of Arts

Master of Arts

In

Museum Studies

at Massey University, Manawatū, New Zealand

Freya Elmer

2023

Abstract

Operation is a method of object activation commonly applied to science, technology and industrial design objects within museums and heritage institutions. Object operation is recognised as a valuable way to connect objects to communities, applied through visitor programming, object research, and community co-production in the creation of tangible and intangible heritage. However, the value arising from objects' operation has been found often not to be reflected in the understanding of the significance of the object being operated.

This thesis proposes that to understand the full value of object activation through operation, the effect of operation on the object must be understood. There is a paucity of pertinent literature addressing operational objects' activation within science and technology museums that explores how operation reflects the understanding of objects value. At the heart of this qualitative research is the examination of a single object, a non-accessioned Heidelberg KSD Cylinder letterpress printing press, operated at the Museum of Transport and Technology (MOTAT).

The case study combines Material Culture Studies and Actor Network Theory to reveal a framework that supports a nuanced understanding of the Press' role and value. The theoretical framework is supported by a diverse range of research methods including in-depth interviews, archival research, and participant observation including video recordings and imagery into the operation of the Press. Research which observes and documents the operation of the Press is conducted during the Press' utilisation within a significant project lead by artist and MOTAT team member, Makyla Curtis, re-enacting William Colenso's hand-setting of *te Tiriti o Waitangi* (1840).

This research argues that the Press is a significant object influenced by a complex and fluid web of networks. Given the dissonance between the Press and retention of contexts of meaning, the Press is not understood or valued because its relationships are not recognised. Unless the Press is acknowledged as part of a complex network, it cannot be fully activated.

Acknowledgements

Firstly, thank you to interviewees and the whole Print Shop Team for their time and energy, both in participating in interviews, and allowing me into their space to capture interviews and documentation. This research is thanks to your kindness.

Secondly, thank you to Makyla Curtis, for going above and beyond to educate and to share with me her work, stories, and wisdom both as a friend, colleague and focus of this research. This thesis began from a love of your work, and only finished because of your patience and support.

Thirdly, to the Museum of Transport and Technology, with special thanks to the team at the Walsh Memorial Library, and especially my current and previous managers Simon Wetherill and Phillipa Robinson. This work was completed due to your support and understanding, both for my career, and personal life.

Fourthly, to Susan Abasa, whose support, guidance and work has been integral to my whole post-graduate degree but especially for this thesis. This thesis transformed from a bunch of words to an actual readable body of work thanks to your insights, selflessness, time and collaboration.

Finally to all my loved ones, my friends, family and flatmates for putting up with me at all hours of the night, helping me throughout and for making me laugh. There are so many I love and make my life better in so many ways, but extra special thanks too:

My furry sibling and child, Fergy and Remy.

My friends Jess, Kirstie, Kate, Anna, Siv, Julia, Chelsea, Siobhon, Susan for proof reading, being my external brain and overall just being beautiful and understanding rocks through a volatile time.

My Dad and sisters, Amelia, and Portia for always supporting me and being with me every step of the way, even when I was mentally or physically distant.

My partner Zac, whose name should really be on the title page too, for always helping however he could, being my home and holding me together when I couldn't do it for myself.

This thesis would never have existed without my Mum, who passed away before it was completed. She has always been the smartest and strongest person I know. It is thanks to her that I am proud of who I am and what I have done.

Table of Contents

Figures

List of Abbreviations

ANT	Actor Network Theory
MCS	Material Culture Studies
MOTAT	Museum of Transport and Technology
OB	Object Biography
Press	Heidelberg KSD Cylinder Letterpress Printing Press
PS	MOTAT Print Shop/Print Shop
Sci-tech	Science and Technology
WML	Walsh Memorial Library

Readers' Note

Photography and videography are integral to this research, providing highly contextualised evidence of the materiality and function of the Press, as well as the process of letterpress printing. As the nature of the Press as an operational object is rooted in its function, the inclusion of this material serves to underpin the operational qualities of the Press allowing for analysis of the Press' activation. Images/videos with no associated copyright are by the author. If links to video/images access embedded in this work are inoperable, please advise Massey Library: Massey Research on Line.

Glossary of Letterpress Terminology

Block	A material in which a design is cut out for use in relief printing the design
Chase	The Press' frame, which holds the forme during printing
Compositor	A typesetter or composer of type
Compose/composing	The act of setting type
Composing stick	Tool for setting type, used to assemble type into lines
Cylinder Press	A printing machine which creates an impression by a cylinder
Die	Design engraved onto a plate or block
Flatbed	Part of a press where the locked-up forme is placed
Forme/Type forme	What is set to be printed, composed of letters and or images when locked up
Furniture	Blocks used to fill the space around type in the forme
Imposing Stone	A slab on which type/blocks are arranged to be printed
Letterpress	A relief printing process which produces copies by direct impression of an inked raised surface against a medium
Locking up/Lock up	To tightly fasten the forme with devices (e.g. quoins) in the chase
Machinist	Skilled craftsperson who operates letterpress machinery
Margin	The blank paper surrounding a page of print
Numbering machine	A mechanical appliance used for sequential numbering or paging
Offset	A relief printing process which setoff of ink from one sheet to another of printed work whilst wet
Point	Typographical unit of measurement, representing the height of characters
Printing	The art of imprinting type or blocks on paper by means of ink
Printing Press	A device that applies pressure to transfer ink form a surface to a medium
Quoin	Small, mechanical, wedge devices used with a key to lock up a forme
Rollers	Round tubes, usually made of a synthetic rubber that ink type as you print
Type	Stamps cast for printing purposes
Type cases	Standardised receptacles in which type is laid for composing. Can be a singular case or an upper and lower case separated letters by type

Chapter 1: Introduction

Within a museum, all objects have the capacity to 'work' - to remain activated, continuing to contribute to the understanding of heritage and knowledge (Farnsworth, 1997; Pye, 2016, p. 4). As a phrase, 'activation' is broad and can be applied to the abstract idea of an object's interaction with other people, places, and concepts, but also the physical use of an object. The activation of objects in museums creates an opportunity to bring heritage alive, fostering connections that capture people's imagination (Chatterjee & Hannan, 2015; Edwards et al., 2006).

Gauvin (2016) suggests that the evocative, sensuous power of things in museum collections are lost when objects are presented as functionless and static. On the other hand, when dealing with machines, how do science and technology museums convey more than their moving parts? How do such museums convey the 'social status' of machines? And how does their activation create new aspects of heritage?

Research Landscape

The activation of objects within science and technology (sci-tech) museums is most understood within the context of operation (Pye, 2016; Little et al., 2022). Operation is a term used to describe the potential physical use of an object, where "motive power" is created by a separate force (e.g. human, steam, electricity) to utilise an original function of the object (Association of British Transport & Engineering Museums [ABTEM], 2018; Pye, 2016, p. 4). The intrinsic nature of scientific, technological, or industrial design items are often unfamiliar, complex, or changed when in operation (Gauvin, 2016). Only through operating can you fully grasp the function of the object (Conole et al., 1993; Gauvin, 2016).

The predominant emphasis of research into the operation of objects in sci-tech museums has been on understanding how their functionality engages visitors and establishes contact points for cultural connection with source communities or specialist groups (Chipangura & Mandizvo, 2015; Conole et al., 1993; Craddock, 2023; Gauvin, 2016; Haines & Woodham, 2019; Hooper-Greenhill, 2004). Alternatively, research into operational objects has concentrated on the balance between object operation and preservation, examining the tensions this dichotomy creates (Hetherington, 1999; Pye, 2016; Sundermeyer, 2019). As argued by Haines and Woodham (2019), the direction of research into operational objects in museums has contributed to a dearth of studies dedicated to

understanding how the operation of these objects affects their significance and social role and value, termed 'social status' in this research.

Recognition of this gap in operational object research is the genesis for the direction of this thesis. Specifically, this research aims to contribute to the understanding of how museums activation of operational objects reveals part of the objects' significance and social status.

This research identified a small body of literature which explores aspects of the effect sci-tech objects operation has on the understanding of the object's significance and social status (Craddock, 2023; Gauvin, 2016; Haines & Woodham, 2019).

Analysis of this literature identified a trend: that there is a disconnect between operational objects and their social status, inclusive of the meanings they generate through their operation (Craddock, 2023; Haines & Woodham, 2019).

The factors influencing the disconnect of operational objects from their social status is grounded in the interpretation of sci-tech objects within museums (Bud, 2017; Graham, 2018; Pye, 2016; Trischler, 2020). This issue is compounded by the legacy of sci-tech museums prioritising objects within an evolving arch of technological and scientific progress, rather than as social objects connected to community narratives (Bud, 2017; Gauvin, 2016).

Case studies by Craddock (2023) and Haines and Woodham (2019), identified that for operational objects, the undervaluing of the work of the 'enthusiast experts,' who operate these objects, exacerbates existing challenges within the context of sci-tech museum objects.

Through operation, these experts bring specialised knowledge into the museum (Craddock, 2023; Haines and Woodham, 2019). This facilitates the engagement of the multifaceted aspects of an object's significance (Haines & Woodham, 2019).

Craddock (2023) argues that the lack of recognition of the meaning explored, and created, by these experts contributes to the object's disconnect from their social status and significance.

As Gauvin (2016) highlights, a complete understanding of an object's significance requires recognition of its cultural and technological identity. If these aspects are not recognised, it results in the object's significance, evolving social status, and therefore activation, being diminished (Craddock, 2023).

Based on these observations, this thesis uses a case study to explore the activation of a sci-tech object in a museum by experts, aiming to understand how its operation affects its significance and social status. The case study chosen is the operation of a non-accessioned Heidelberg KSD Cylinder letterpress printing press, at the Museum of Transport and Technology (MOTAT).

Location of the Research

MOTAT is a science and technology museum in Tāmaki Makaurau Auckland, which opened in 1964 as a living museum, aiming to preserve buildings and operational heritage to encourage education and engagement with the past (Stone et al., 1996). Since its conception, a community of subject specialists or 'experts', who are primarily volunteers, have been integral to MOTAT's goals of operating diverse technology and transport objects (MOTAT, 2023a; Stone et al., 1996). Present day MOTAT has moved away from its living museum roots, becoming a science and technology museum focused on educating and inspiring audiences through the past, present, and future innovative technology, and science in Aotearoa New Zealand (MOTAT, 2023b; 2023c). The operation of technology and transport objects continues to be a unique and core offering from MOTAT, with the operation of these objects based in the work of the community experts (MOTAT, 2022b; 2023a).

The object at the core of this case study is the Heidelberg KSD Cylinder letterpress printing press, referred to in this research as the 'Press'. The Press was manufactured in the 1970s as an automated cylinder letterpress machine for commercial use (S. Penney, personal communication, August 27, 2023). Little is definitively known about the Press' life history, until it was purchased by MOTAT in 2013 as a working object to replace the incumbent production press in MOTAT's Print Shop (PS) (G. O'Keeffe, personal communication, December 9, 2020). As a workshop and exhibition space, the PS explores the tangible and intangible heritage of letterpress printing run by a team of community knowledge holders, or experts, with technical acumen and relevant careers. Experts operate historic printing machines and associated material, aiming to share and retain the art of letterpress printing through the creation of printed works. The Press is the largest printing machine in the PS, and due to its size and technological capabilities, is regularly operated by PS team members for a variety of printing projects (S. Penney, personal communication, August 27, 2023).

I chose the Press at MOTAT because I am employed as the Pictorial Librarian at MOTAT's Walsh Memorial Library (WML). Within my role at the Library, I regularly engage with works created in the PS, including on the Press, managing the process of their acquisition into the WML to form an artistic and institutional PS archive. Facilitated by the close connection with the output of the Press' operation, I gained insight into the significance of the Press as an object. This insight led me to acknowledge the Press' role within a collaborative process of artists, writers, designers, compositors, and machinists who bring their skilled craftsmanship into MOTAT to revitalise letterpress technology in a contemporary setting.

Working parallel to the operation of the Press by engaging with its material output, I recognised a disconnect between my knowledge of the importance of the process, and outputs, that

the Press was a part of, and my understanding of the Press itself. This inspired my first foray into attempting to understand the disconnect I perceived, through contact with MOTAT team members involved in the operation of the Press, namely PS team member Makyla Curtis. Discussion with Curtis bought to light the dissonance I felt was reflected in others' engagement with the Press. For Curtis, this dissonance often resulted in frustration due to the dissociation between created works and the objects involved in the process of printing. Similar to Craddock (2023) and Haines & Woodham (2019), my discussion with Curtis seemed to reflect that there were wider issues which were feeding into the disconnect between operational object and creation of heritage. It was insights occurring from my close connection to the Press and MOTAT context which led to the formation of this case study to explore further how the Press' operation affects its activation.

Research Questions and Aims

This research is grounded in a limited, but significant, body of literature that highlights the importance of understanding operational aspects of technology objects in conjunction with their social status. A review of this literature reveals the interplay of these aspects within objects' operation results in the enlargement of objects' histories, significance, and heritage value. Explored through visitor interaction with operational objects, Gauvin (2016) argues that without access to functionality, objects are distorted into 'pure objects', devoid of the capacity to facilitate education and meaningful connection. Pye (2016) builds on Gauvin's argument, positing that given that the significance and social status of sci-tech objects is intricately tied to their function, operation provides access to objects' multifaceted meaning and history.

The argument that operational aspects need to be understood alongside social status is developed in Haines and Woodham (2019) and Craddock (2023). Haines and Woodham (2019) and Craddock (2023) explore how experts create meaning through operation. They argue that this created meaning is not connected back to the significance and social status of the objects being operated. Haines and Woodham's (2019) and Craddock's (2023) observations mirror wider research into the low retention of the cultural significance of technological objects seen in Bud (2017) and Trischler (2020). Research has shown that this low retention of cultural aspects of sci-tech objects is a trend, arising from sci-tech museums' prioritisation of objects technological aspects (Bud, 2017; Trischler, 2020). Roberts (as cited in Craddock 2023) summarises this argument by acknowledging that when considering technological systems, the "embodied or performative contributions to history have tended to go unrecognised since the mid-nineteenth century" (p. 3).

Craddock (2023) suggests that the disparity in recognising the technological and cultural aspects of objects during operation results in a stasis of objects' history and value. When considering arguments developed by Bud (2017), the stasis of objects' meaning poses considerable challenges. Bud (2017) argues that sci-tech objects' significance lies in their relationships to contemporary issues. Considering Bud's (2017) perspective, the fixity highlighted by Craddock (2023) raises concerns regarding the long-term recognition of operational objects' value within museums if their meaning is not able to be recontextualised.

Trischler (2020) argues if sci-tech objects within museums are to be valued, this requires new ways of understanding their functionality alongside their cultural significance. The examination of relevant operational object literature outlined here supports Trischler's (2020) argument. The literature reviewed emphasises that to address challenges related to the understanding of operational objects in museums, necessitates novel approaches to how their function and significance is recognised and retained (Craddock, 2023; Gauvin, 2016; Haines and Woodham, 2019; Pye, 2016).

This study aims to assist in resolving the paucity of relevant research exploring the importance of understanding operational objects' technological and social status. To contribute to existing literature, this thesis investigates the Press, proposing a comprehensive approach to uncover how its operation influences its significance and social status. Based on trends identified through review of literature, this thesis proposes that the Press is not understood or valued because its relationships are not recognised. Unless the Press is acknowledged as part of a complex network, it cannot be fully activated.

This thesis sets out to explore this hypothesis by posing two questions used to investigate the Press and its operation within a project by PS team member and artist Makyla Curtis: re-enacting William Colenso's hand-setting of the 1840 letterpress printing of *te Tiriti o Waitangi*.

The first question asks how the Press as an operational object is understood at MOTAT. This question aims to identify which factors of the Press' operation influence the perception of its significance and social status at MOTAT. Recognition of these factors are crucial to identify how the effects of the Press' operation are presently related back to the understanding of the object at MOTAT.

The second question this thesis poses is how the operation of the Press adds to, or changes, its significance and social status. This question aims to discern connections and shifting meanings occurring during the process of the Press' operation at MOTAT. It is by analysing connections within the Press' process of operation that the scope of its activation can be comprehended.

Research Methodology

This research applies a naturalistic case study to the investigation of the Press. Naturalistic case studies recognise that research cannot be separate from reality and their wider context (Tight, 2022). Acknowledging this supports the investigation into the phenomena of interest, but also its wider contexts (Tight, 2022). Naturalistic case studies also support the creation of a flexible methodology (Yin, 2003), thus supporting this research's aims to understand facets of the Press within wider contexts, in this case the context of MOTAT and the process of operation.

As summarised in Yin (2003), case studies allow for acknowledgement of the researcher's agency and the inclusion of a subjective lens. As an employee of MOTAT, I occupy an insider position to this research. My knowledge of MOTAT and relationships with the participants is beneficial, allowing me the "expediency of access" (Chavez, 2008, p. 482) to the PS as well as the Museum's policies and associated records.

A post-positive position is taken for the research methodology, acknowledging the impact of myself and biases in the formation and analysis of this research (Given, 2008). My insider status also poses risks of bias in this study originating from previous preconceptions and relationships. Mitigating bias is a methodological and ethical concern. This study combines reflexive practice and investment of time to ensure my pre-knowledge does not control data gathering (May & Perry, 2017). Research conducted through this perspective acknowledges my efforts to establish trust with the research participants. Additionally, reflective practice allows for participatory observations and empathy to be employed to investigate the authentic constructs of the case study (Given, 2008). By deploying a robust methodological framework, I ensured that sufficient and authentic data was collected and analysed (Walton et al., 2016).

Research methods used included interviews, visual-documentation, and observations, applying multiple methods to allow for triangulation of data (Evans et al., 2014).

Visual documentation and observations were captured at the MOTAT Print Shop on five Sundays in 2019 and 2020, documenting the hand-setting and printing of *te Tiriti o Waitangi*.

Observations were taken using field notes which function both as data, as well as in situ analysis focusing on details, sequence, and atmosphere (Kawulich, 2005). Capturing the actions and interactions between team members and objects, observations are used to illustrate associations and atmosphere within the case study (Wästerfors, 2018). These research methods are also used as evidential data in the thesis to encapsulate the visual and physical nature of operating printing objects (Knoblauch et al., 2018).

Photography and videography were used to visually document the process of setting and printing, providing highly contextualised evidence of the operation of objects including interactions between objects and the Print Shop Team (Knoblauch et al., 2018). Imagery and audio-visual material created through this research methodology are integral to the investigation of the case study. Based on presentation of research data in Haines and Woodham (2019) and Craddock (2023), this thesis uses imagery and video as evidence to support analysis within the MCS and network. As this nature of the Press as an operational object is rooted in its visual and mechanical aspects, the inclusion of this material serves to underpin the operational qualities of the Press. Furthermore, it assists in documenting the accumulation of evidence of the Press' social status.

Semi-structured interviews were conducted with seven MOTAT team members, who through their roles, are involved in the PS. Approached as hermeneutic interviews, this method created a shared dialogue which influenced the direction and challenged concepts during the interview process (Roulston & Choi, 2018). The first round of five interviews was conducted in 2020, during and post the printing of *te Tiriti o Waitangi* by Makyla Curtis. Two additional interviews with new participants were completed in 2023, to explore changes in status and perspective of the Press.

Ethical Considerations

This research was evaluated by peer review and was judged to be a low risk (Ethics Notification Numbers 4000021153 and 4000027695). Consequently, it was not reviewed by the University Ethics Committee.

Due to the uniqueness of this case study, MOTAT and participants were unable to remain anonymous within the research. Consent was provided by MOTAT CEO Michael Frawley to name and conduct research at MOTAT. All research participants gave consent for their role and name to be included in the research.

On-site observations and visual documentation in the MOTAT PS were conducted during opening hours. Thus, data collection occurred when there was visitor access to the PS, resulting in a risk of unintentional data collection of people under sixteen-years of age and/or who have not signed consent forms. To mitigate this risk, signs notifying that research was being conducted were on display at the Print Shop entrances and invited visitors to request filming/photography to stop if they were uncomfortable about this procedure or concerned that they might be filmed. Visual documentation was focused on research participants in a way that ensured visitors were not captured.

Ethical aspects regarding my working relationship with participants and the Print Shop also needed to be considered. My role at MOTAT in the WML does not put me in a position of influence or power with any of the research participants.

Research conducted in this case study reflects on work of MOTAT team members. However, the focus is on phenomena identified within this study, rather than a critique of work practices. Any constructive criticisms are reflected by the participants themselves hoping to produce information that benefits MOTAT. All research participants were provided opportunity to review material and request changes to interview transcripts or thesis content.

Thesis Structure

Chapter 2 aims to answer the question of how the Press as an operational object is understood at MOTAT. This is completed by outlining how the operation of objects at MOTAT, including the Press, are shaped by MOTAT's legacy of operation and present community engagement goals. By contextualising the Press' management and understanding within the MOTAT framework, this chapter recognises the Press' value is based in its functionality. Moreover, factors of operation and community engagement have contributed to the Press' significance and social status to only be held anecdotally by the PS team. These aspects discern that the Press' full activation is not recognised at MOTAT, which poses challenges for the recognition of its value to MOTAT. This chapter concludes by outlining the project analysed in Chapter 5 to explore the Press' activation through operation.

Chapter 3 outlines the conceptual framework of Material Culture Studies analysis (MCS) and Actor Network Theory (ANT) that is applied to answer the second question: how the operation of the Press adds to, or changes, its significance and social status. This chapter justifies the relevance of this framework in exploring the unique context of the Press as an operational object within a museum. It then goes on to outline how the theoretical position of MCS and ANT supports this research's approach to analysing how the Press' significance and social status is influenced by its operation.

Chapter 4 applies the first part of the conceptual framework to analyse how the Press' operation adds or changes to its significance. Material culture analysis after Prown (1982) is conducted on the Press, presented in an Object Biography (OB). This chapter begins by outlining the Prownian framework, describing how its methodology is applied to conduct an object-analysis of the Press. Prown's (1982) framework supports the interpretation of how the Press' operation connections to its historic, technical, and contemporary significance. The second half of this chapter presents the interpretive analysis conducted on the Press, after Prown (1982), through an Object Biography. This

chapter argues that by applying this framework to analyse the Press and its operation, it realises how operation activates the Press through encouraging close engagement with the Press' past and contemporary significance and social status. However, this method also acknowledges the requirement for further research into the relationships created through the Press' operation in the PS to understand the full scope of how the Press is activated.

Chapter 5 applies ANT as the second half of the conceptual framework to comprehend how the operation of the Press adds or changes its significance. This is completed by using the ANT method of following the actors to consider the assemblage and discern the relationships within the network of Curtis' project hand-setting *te Tiriti o Waitangi* after William Colenso (Craddock, 2023; Ruming, 2009). The first part of this chapter outlines the network, identifying associations between actors within the network. These associations are then analysed to understand how they result in translations of the Press' role and meaning within the network. From this analysis, it becomes apparent that significance and fluid social status, and therefore activation, of the Press occurs from its position within a complex network. This chapter concludes by identifying that for the Press to be fully activated as an operational object at MOTAT, its position within this network needs to be recognised.

Chapter 6 is the discussion and analysis chapter, examining insights presented through the preceding chapters regarding the Press' lack of full activation. This discussion centres on the recognition of the significance created through the complex networks of relationships the Press exists within during its operation. This examination is completed by the analysis of three core themes interwoven throughout this research: the researcher as part of the network; the network's output, and outcomes arising from these outputs. From this analysis, this chapter recommends that the Press should be accessioned to MOTAT's collection, to mitigate risk of further disconnection from its existence as part of a complex network of historic and contemporary significance and creation.

The Conclusion summarises the research conducted throughout this thesis. It reflects on the significance of this research as adding to a limited, but growing, field of study exploring the contemporary value of operational objects in museums. This chapter recognises the limitations of this research and considers further study that would support the analysis of the Press. Furthermore, the possibility for future research is identified to explore the relevance of the theoretical framework applied in this research for wider application in the examination of operational sci-tech objects. This chapter closes off the thesis by acknowledging the unique insights uncovered in this work, while also recognising the small scale of this research within an important facet of the activation of operational objects in museums.

Chapter 2: Context

The first question this thesis asks is how the Press, as an operational object, is understood at MOTAT. This chapter aims to answer this question by providing an overview of the context the Press is operated within.

The first section of the chapter completes a profile of MOTAT, aiming to position the Press' operation within the factors of visitor engagement and legacy of operation of objects at MOTAT.

The chapter then focuses on the Press, showcasing how its context at MOTAT influences its operation and perception by the MOTAT team.

This section identifies that the Press' value is based on its ability to operate, and its significance and social role, recognised as 'social status,' is only anecdotally retained. Furthermore, this lack of recognition results in the Press not being fully activated at MOTAT, thereby, posing issues for ongoing recognition of its value and potential long-term retention at MOTAT.

The final section facilitates this thesis' subsequent investigation into how operation influences the Press' activation. It does this by outlining the project in which the Press' operation is explored in Chapter 5: the project by Print Shop (PS) team member and artist, Makyla Curtis, hand-setting *te Tiriti o Waitangi*, after William Colenso.

Context of Operational Objects at MOTAT

To understand the context of operational objects at MOTAT requires an acknowledgment of MOTAT's legacy, and the current visitor engagement focused aim of the museum. This section provides an overview of how the combination of these two factors have influenced the understanding and the activation of operational objects at MOTAT.

Legacy Operation

MOTAT was established by three volunteer organisations which aimed to preserve and operate transport and technology heritage in 1963 at Te Wai Ōrea Western Springs (MOTAT, 2023d). The core themes of MOTAT's genesis have continued into its present, namely the community presence which is deeply intertwined with the operational collection.

The museum's beginnings followed the living museum model (Stone et al., 1996). This model involves the establishment of a community led organisation arising from a period of change, aiming to preserve and provide opportunities to experience industrial and technological heritage objects within their original use (Haffenden, 1994; Walsh, 1992). Since MOTAT's formation the community presence has continued through a group of volunteers, consisting of science and technology (sci-tech) experts, whose specialities derive from a range of transport and technology subjects (Cresswell, 1976; Haines & Woodham, 2019). These experts championed the preservation and operation of sci-tech objects which were at risk of obsolescence (Cresswell, 1976). Their goals of preserving tangible objects, alongside the intangible heritage of the objects function, have formed the bedrock of MOTAT's accessioned and operational collection (Stone et al., 1996).

Intrinsic to the living museum model are significant issues, and MOTAT's beginnings reflected some of these. This includes a lack of professional expertise which created financial and ethical challenges for MOTAT (MOTAT Act, 2000).

Key to the ethical issues present at MOTAT when operated in a living museum mode, was MOTAT's upholding of a Pākehā cultural hegemony, which reinforced interpretations of colonial significance (Stone et al., 1996; Walsh, 1992; Wilks & Kelly, 2008). Underlying hegemonies that privilege structural power is a trend perpetrated by the living museum model generally. This commonality arises from the model's narrative of 'original use' which is often "subject to discreet (or even blatant) hierarchical systems of authority" (Wilks & Kelly, 2008, p. 128). During MOTAT's early years this was blatantly present, advancing the understanding of heritage and sci-tech significance in a Pākehā and colonial narrative (Creswell, 1976). As a result of this hegemony, the narratives and experiences of Māori, people of colour, female and gender diverse peoples were supressed, or harmfully and incorrectly represented at MOTAT (Wilks & Kelly, 2008).

Furthermore, issues arose from MOTAT's lack of a formalised and transparent acquisition process of operational and collection objects (Cresswell, 1976; Stone et al., 1996). As operability was a key cornerstone of MOTAT's goals, in the beginning, many objects were not collected for their individual significance, but rather their availability and ability to operate (Cresswell, 1976; Stone et al., 1996). Cresswell (1976) summarises MOTAT's mentality with the quote, "if it works or can be made to work, save it." (p. 6). This influenced the composition of both the accessioned object collection and non-accessioned working objects, to include many replicas, recreations or props, which were often displayed and operated alongside materially authentic collection objects (Stone et al., 1996; Young, 2006).

From the early 2000s, these issues, among others, culminated in MOTAT's shift away from the living museum paradigm towards a sci-tech museum archetype (Stone et al., 1996).

Visitor Engagement

The fundamental objectives of contemporary sci-tech museums arise from a need to be relevant to communities (Little et al., 2022). While specific goals may vary from one institution to another, there is a shared emphasis across sci-tech museums on education and encouraging communities' construction of meaning (Hooper-Greenhill, 2004; Trischler, 2020).

MOTAT's present vision is based on this contemporary sci-tech model, aiming to facilitate education and connection to sci-tech in an Aotearoa New Zealand context (MOTAT, 2023b). Core to MOTAT's shift away from a living museum, towards a sci-tech paradigm, is the recognition of the requirements for the structural incorporation of biculturalism and te ao Māori (MOTAT, 2022). This incorporation aimed to make MOTAT an active *te Tiriti o Waitangi* partner (MOTAT, 2022). Through the last 30 plus years MOTAT's shift towards biculturalism and professionalism has been slow, often painful and is ongoing, having yet to reach standards set by other cultural institutions (National Services Te Paerangi, 2004).

Object operation continues to be crucial to the MOTAT experience, with objects operating as part of MOTAT's Visitor Experience strategic goals (MOTAT, 2021; 2022a; 2022b). In examining present-day operation at MOTAT, it is crucial to acknowledge how the visitor focus combined with foundational aspects, impact the operation of objects.

Operational Objects at MOTAT

Framed within the objectives of enhancing visitor experience, object operation at MOTAT is geared towards enabling the visitors' authentic experiences of unfamiliar sci-tech objects (McLean, 2016; MOTAT, 2023a; Pye, 2016). This includes the preservation of the intangible and tangible heritage of operational objects by a dedicated community of over 200 subject specialists (MOTAT, 2023a). The actioning of these goals is a part of the continuing influence of the living museum model, shaping how MOTAT staff and volunteers engage with operational objects at MOTAT.

MOTAT's operational collections fall into either non-accessioned Working Objects, or accessioned collection items (Operating Collections Working Group [OCWG], 2016; MOTAT, 2018). Given the legacy of acquisition there is a variance in how operational objects have been demarcated as accessioned versus non-accessioned (B. Nevin, personal communication, March 4th, 2020). This has resulted in potentially significant sci-tech items in MOTAT's operational collection which may not be accessioned, and are disconnected from their history (B. Nevin, personal communication, March 4th, 2020). Simultaneously, operational objects may be accessioned which are not in line with MOTAT's

current collecting policies, therefore impacting the scope of their operational ability (MOTAT, 2018; 2019).

Considerations of what items should be accessioned, or non-accessioned, are also impacted by the challenges of material authenticity. Material authenticity of operational objects is complex, as it requires ongoing maintenance and restoration of operational sci-tech objects, which alters their original forms (Sundermeyer, 2019). Nowadays at MOTAT, for accessioned objects there are wrap around processes which support required maintenance in line with preservation standards (ABTEM, 2018; B. Nevin, personal communication, March 4th, 2020). Historically, material authenticity was not prioritised in MOTAT's operational collection (Stone et al., 1996; Young, 2006).

As reflected during interviews with Belinda Nevin, Head of Curatorial Research and Louis Eaton, former Collections Operation Co-Ordinator, visitors' engagement with operational objects is rarely defined by the authenticity of the object itself. Rather, they engage through the immersive experience of operational objects which creates connections that highlight the object's significance and functions (Pye, 2016; Young, 2006). Bar a few examples, the operation of objects at MOTAT continues to be driven by the experts. As champions for these objects, it is also these experts who facilitate the objects' interpretation to the public (L. Eaton, personal communication, December 20th, 2019). Thus, for many visitors, it is the process of operation from experts' application of intangible heritage which creates authentic experiences (Sundermeyer, 2019).

One of MOTAT's original aims was the performance of intangible heritage through operation, with the aim to retain knowledge that was at risk of disappearing (Stone et al., 1996). This continues to be a core consideration in object operation at MOTAT. This concern has been exacerbated, as many of the objects at MOTAT are no longer operating except in specific heritage contexts, the risk of this knowledge disappearing has increased (Cresswell, 1976; Stone et al., 1996; Young, 2006). Furthermore, MOTAT has an aging volunteer force, and there is a lack of transmission of knowledge to younger generations (Stone et al., 1996; Young, 2006). This issue, keenly felt at MOTAT, was acknowledged by all interview participants and is a problem that will continue to persist.

The potential operating has in the retention of intangible heritage is still recognised at MOTAT. As expressed by MOTAT PS team member, Stephen Penney it only takes one visitor who is captured by an object in operation to foster their desire to learn this knowledge. Senior Curator of Technology, Nicola Jennings, also recognises the benefit of operating objects in the revitalisation of the intangible heritage required for objects to function. She states that though operating these objects aims to "bring them alive" for the public, "[operating] also helps keep those skills alive too" (N. Jennings, personal communication, August 16, 2023).

The preservation of intangible heritage by operation contributes to tensions at MOTAT between the objectives to operate, and the imperative to preserve significant tangible heritage (Pye, 2016). These tensions are a common challenge in museums which operate objects, and it is important to note that these tensions do not come from disagreements on the validity of operating objects (Haines & Woodham, 2019; MOTAT, 2018; 2019; Pye, 2016). Rather, it arises from the process of collaboration across teams which have "different forms of accountability and different agendas" (Haines & Woodham, 2019, p. 8). Exacerbating these tensions is MOTAT's legacy of operational objects' being acquisitioned through an informal and ad-hoc processes that prioritised operation (Creswell, 1976).

By completing a brief overview of operational objects at MOTAT, this section recognises that it is the ongoing influence of the museum's legacy, interwoven with the museum's present community focused vision, that frame MOTAT's operation of objects (MOTAT, 2023b).

Context of the Press at MOTAT

This section discusses the role of the Press as a non-accessioned working object in MOTAT's Print Shop (PS). Insight into the Press' operation and management recognise that the Press is valued for its operational abilities. This value is exacerbated by the scarcity of information retained on the Press. Specifically, information on its social status and the significance which is only held anecdotally within the PS team.

Management of the Press

MOTAT's PS is an exhibition space, workshop, and collection store dedicated to operating letterpress technology to share the process of printing (MOTAT, 2023f). A long-standing department, the PS has had a varied history including periods of non-operation (Stone et al., 1996). The current iteration was revived by volunteer Graham O'Keeffe in 2006, who managed the space until his retirement in 2021 (G. O'Keeffe, personal communication, December 9, 2020). The PS continues to be activated by a team consisting of volunteers and one part time-staff member, primarily on Sundays when it is open to the public (S. Penney, personal communication, August 27, 2023).

The present management of operational objects in the PS is based on the legacy of the PS team's goals in activating the space. Most notably, how the present assemblage of objects in the PS was influenced by O'Keeffe's acquisition of many of the operational objects during his tenure as PS lead. When interviewed he spoke to his priority in acquiring operational machinery with the aim to

retain knowledge of how these objects operate (G. O'Keeffe, personal communication, December 9, 2020). This priority influenced the current high rate of non-accessioned objects in the PS with limited procurement documentation, including the Press (N. Jennings, personal communication, August 16, 2023).

The Press was purchased by MOTAT in 2013 as an operational object, identified by O'Keeffe as a replacement for the incumbent PS production press (G. O'Keeffe, personal communication, December 9, 2020). The Press was acquired due to its ability to operate, not because of any historical or technological significance deemed relevant to MOTAT's collecting goals (G. O'Keeffe, personal communication, December 9, 2020). Thus, the Press was not accessioned into MOTAT's collection, rather it gained status as a working object. It is the Press' beginnings at MOTAT which have informed its present use and understanding of its significance and social status.

Due to its method of acquisition, limited information on the Press' past life and purchase by MOTAT has been retained. My research identified no formal documentation for the Press' acquisition. Instead, information on its procurement was gained through internal newsletters and interviewing O'Keeffe (Grenville, 2013; G. O'Keeffe, personal communication, December 9, 2020).

As a non-accessioned operational object, the Press is managed by the PS team with support from Public Programmes and Collection Workshops (L. Eaton, personal communication, December 20th, 2019). Research interviews with MOTAT collection staff in 2020 and 2023 confirmed that as the Press is not an accessioned object, they have limited engagement with it, and its operation is not informed by any conservation guidelines. Thus, there are no restrictions imposed on the operation of the Press beyond standard health and safety. The care of the Press including its management, operation, and maintenance is led by the PS team. The PS and support staff also implement training required for volunteers to operate the Press (S. Penney, personal communication, August 27, 2023).

Operation of the Press

Alongside personal projects of the PS team, the activation of the PS is influenced by MOTAT's visitor focused programming, such as Live Days or the creation of ephemera for holiday activities (MOTAT, 2023f; Print Shop Working Group [PSWG], personal correspondence, April 28, 2021). The decision whether to operate the Press to support this programming sits with the PS team (S. Penney, personal communication, August 27, 2023). Their decision to operate the Press' is informed by its mechanical attributes, as an automatic machine with four colour capabilities. The Press' functionality, influenced its use to produce the MOTAT publication *Seven Booklets* (G. O'Keeffe, personal communication, December 9, 2020). It also influenced Curtis's decision to use the Press to print *te*

Tiriti o Waitangi, due to its flatbed capabilities of printing up to size A2 (M. Curtis, personal communication, February 15, 2020). These instances depict how the Press' operation occurs is in consideration of its operational capabilities, not its social status or significance.

The operational value of the Press to the MOTAT team was further reflected during interviews. When asked to consider the possible value of accessioning the Press, PS team members Graham O'Keeffe and Stephen Penney determinedly argued against it. For O'Keeffe and Penney this apprehension stems from a concern that accessioning would impact their agency and freedom in being able to operate and maintain the Press. They discuss the concerns that if accessioned, this limited freedom would arise from the additional operational requirements aimed at preserving the materiality of the object (MOTAT, 2021).

Alternatively, interviews with MOTAT's collection staff, Jennings, and Head of Registry Christen McAlpine, recognise the difficulty of prescribing any value but operational to PS objects. Specifically, they speak to this difficulty for all non-accessioned operational objects. This difficulty arises due to MOTAT's past acquisition of non-accessioned objects, including the Press, there is a lack of information on the objects' histories, thereby disrupting the ability to connect the object to its historic and technological significance (B. Nevin, personal communication, March 4th, 2020). These somewhat diverging reasonings for not accessioning the Press by the PS team compared to collections staff reflect the tension between operation versus preservation. These tensions need to be recognised to understand the context of the Press as a non-accessioned object.

Significance of the Press

Perspectives from the MOTAT team on the Press highlight the overarching significance of the Press is its ability to operate. Considering the impacts, the Press' non-accessioned status has on its management and operation, I propose that the context of MOTAT's visitor engagement and legacy of operation have informed the focus of the Press' significance as its operation.

The significance of the Press as an operational object is prioritised through its functions, particularly emphasising its technological aspects. This prioritisation occurs because as there is limited information on the Press' history it becomes a representative object of the technology and function it creates (Bud, 2017; Gauvin, 2016). When discussing the retention of the technological aspects of the Press with the PS team, it becomes apparent that despite the outward perception of the Press at MOTAT as a representative technological object, its technological specificity makes it unique.

This is reflected in the training on the Press. Due to the Press' mechanical complexity, robust training for PS team members is required before use (S. Penney, personal communication, August 27,

2023). This training is completed in-house, previously by O'Keeffe and now Penney, both of whom possess intangible operational knowledge for the Press from their previous careers (G. O'Keeffe, personal communication, December 9, 2020; S. Penney, personal communication, August 27, 2023). This training is accompanied by a manual created by O'Keeffe and Heidelberg KSD operational manuals. However, the knowledge of how to train people to operate the Press is primarily held tacitly by the PS team members as 'experts' (G. O'Keeffe, personal communication, December 9, 2020).

Just as lack of retention of information on the Press beyond its functionality has resulted in a prioritisation of recognition of its technological aspects, it has furthermore resulted in a lack of retention of the Press' social status and significance. For collections staff, the lack of retention of the social status and significance of the Press ties back to its non-accessioned status. This is reflected in interviews with Jennings, McAlpine, and Nevin who acknowledge that for non-accessioned items there is no repository or processes for an item's use and significance from its working life to be documented. Rather, they talk to how knowledge of non-accessioned objects' technological and historic use is only held by the experts.

Conversations with PS experts confirm that they are the sole repositories for this information of operational non-accessioned objects in the PS. A pertinent example is O'Keeffe as the sole retainer of comprehensive information on the Press' acquisition to MOTAT (G. O'Keeffe, personal communication, December 9, 2020). As the sole repositories for this information, experts are also the only retainers of the Press' cultural and social significance.

This is aptly reflected in Penney's 2021 identification of previously unrecognised aspects of the Press' life history. Through self-directed research, Penney established that the Press was likely to be one of two numbering cylinders purchased by the New Zealand Government Printing Department (S. Penney, personal communication, August 27, 2023). This information has been incorporated into interpretation displayed next to the Press in the PS. However, as the Press is not accessioned, there is no designated repository to document and store this information, it is primarily held tacitly by Penney. That this information was only connected to the Press after a decade of its operation at MOTAT further reinforces the value of the Press at MOTAT as its functionality.

Challenges Arising from the Press' Understanding

Investigating the way the Press is managed and operated by the MOTAT team reflected that the Press' value is based in its technological functionality. Its significance and social status are only held anecdotally by the experts.

Considering this thesis' position, based on Gauvin (2016), that full activation requires recognition of cultural aspects, alongside technological function, I propose that the Press is currently not fully activated. In turn, this lack of full activation poses significant challenges to the Press' ongoing role and perceived value at MOTAT.

Firstly, the reliance on information of the Press held tacitly by experts increases risks to the loss of this information. This has already occurred with O'Keeffe's retirement in 2021, which has resulted in the only information on the Press' arrival held at MOTAT in ephemeral newsletters and this current research. Therefore, if technological and cultural significance of the Press is continued to be held only tacitly, it increases the risk of the Press being further disconnected from its historical and social significance (Craddock, 2023).

Furthermore, the risk to the lack of transmission of skills to operate the Press could result in the disappearance of its functionality (Young, 2006). When discussing issues related to intangible heritage at MOTAT, Nevin suggests that without the transmission of skills, the role of operational objects may shift towards preservation rather than operation. Given that the Press' significance and social status are currently not formally retained, Nevin's insights underscore considerations that if the Press' functionality is lost, what is its recognised value to MOTAT? Furthermore, what is the future justification for retention of the Press if it is not functional and is disconnected from its significance.

These issues arising from the Press' current understanding are a recognised concern at MOTAT. This recognition has led to an inter-department project aiming to assess and formulate ongoing management and documentation of PS objects to support their future operation in line with MOTAT's goals (N. Jennings, personal communication, August 16, 2023).

When considering future management of operational objects at MOTAT, it also requires the recognition of how operation changes and adds to an object's significance and social status. Haines and Woodham (2002) recognise that experts' operation is extremely valuable for sci-tech museums for keeping objects alive and relevant to contemporary communities. Furthermore, alongside Craddock (2023), they argue that there is a lack of recognition of the transformation in objects meaning which occurs from experts' operation. They indicate that this lack of recognition is an outcome of technological objects social status and significance being undervalued.

Considering Bud's (2017) argument that it is only by contemporary relevance that objects can continue to be understood and significant within museums, the lack of recognition of the contemporary contexts that operation objects exist within results in a lack of ability to recontextualise the object narratives as valuable for fluid audiences in society.

Given that the Press' significance and social status are only acknowledged at MOTAT anecdotally, there is also no retention of the Press' transformation during operation. The non-accessioned status, and therefore absence of a repository for information on the Press, contributes to this oversight. Thus, this research proposes that as there is no ability to recognise the current contexts the Press exists within, its relevance to contemporary communities is also unable to be recognised. This, in turn, poses further challenges to the long-term recognition and justification of the Press' significance as an object.

Context of the Press' Operation

The previous sections have discerned how the Press' significance and social status being only held anecdotally have resulted in it not being fully activated at MOTAT. Moreover, these sections have reflected on how this poses challenges to the ongoing justification of the Press at MOTAT.

This section supports further exploration within this thesis to understand how the Press' significance and social status, and therefore activation, can be understood as occurring within its operation. This is completed by outlining the project of PS team member, Makyla Curtis, re-enacting Colenso's hand-setting of *te Tiriti o Waitangi*, 1840. This project is investigated later in this thesis through the lens of how the Press, as the machine used to print *te Tiriti*, is activated through its operation.

To facilitate this further investigation, background on Curtis as a MOTAT PS Team Member and an artist is provided. The project's enactment is then discussed, including reflections on the importance of this work. These reflections identify the significance of the work as part of Curtis's practice and as a project based at MOTAT.

Makyla Curtis Overview

Makyla Curtis is a Scottish Pākehā artist and writer, based in Tāmaki Makaurau Auckland who describes herself as "a poet and a maker of marks in various forms. I am a printmaker, letterpress printer and visual artist" (Curtis, 2020b, para. 1). Curtis's creative practice is diverse, exploring concepts inclusive of archival research, genealogy, and her lifelong study of te reo mē ngā tikanga Māori (Curtis, 2020b). As a volunteer at the PS since 2012, Curtis incorporates her creative practice into her expertise in compositing, letterpress design and hand-printing.

Core to her work in the PS is her personal connection to MOTAT, originating from her father Alan Curtis, who is a long time MOTAT team member (M. Curtis, personal communication, February

15th 2020). Simultaneously, Curtis's academic career is interwoven to her PS practice, for example, the re-enactment hand-setting of *He Whakaputanga o te Rangatiratanga o Nu Tireni*, referenced as part of a project for her Master of Visual Arts at the Auckland University of Technology (Curtis, 2020a; 2020b).

Curtis's creative practice is rooted in exploring her identity as Pākehā and her ideas of belonging in Aotearoa New Zealand as a settler descendant (Liang, 2022). This exploration aims to create a productive discomfort for herself and Pākehā, encouraging a confrontation with our complicity in the colonisation of ngā tāngata Māori (Liang, 2022). However, it also aims to channel this discomfort into actionable steps. As Curtis states: "[it] enables us to use it towards action and reparation, even if that reparation is small" (Curtis as cited in Liang, 2022, para. 24).

Project Origins

In 2019 Curtis began an experiential and political research project grounded in creative practice (Liang, 2022). This project was the re-enactment of William Colenso's (1811-1899) hand-setting of the living documents which shape Aotearoa New Zealand: *He Whakaputanga o te Rangatiratanga o Nu Tireni* and *te Tiriti o Waitangi* (Curtis, 2020a). William Colenso was the Master Printer at the Anglican Church Missionary Press in Paihia from 1834 (Mackay, 1990). Colenso, alongside printing biblical texts in te reo Māori, also printed versions of *He Whakaputanga* in 1836, 1837 and *te Tiriti* in 1840 (Archives New Zealand, 2022; 2023).

Curtis frames this hand-setting based in the tikanga of *ka mua ka muri, looking back in order to look forward* (Curtis, 2020a). She uses Colenso as a conduit to explore how as Pākehā she is complicit in the colonisation of Aotearoa New Zealand, ngā tāngata Māori and te reo Māori (Curtis, 2022). As one of the first printers of te reo Māori, Colenso had a formative influence on the formation of written Māori (Mackay, 1990). To understand Colenso's role in Aotearoa New Zealand's printing history requires recognition of the harm inflicted during the colonial mission's impact on Māori is required. Additionally, it necessitates the decolonisation of the popular narrative of Colenso's influence of the formation of written Māori. This widely accepted narrative tends to depoliticise Colenso's work often elevating him over Māori who actively contributed to this work (M. Curtis, personal communication, February 15, 2020). Curtis speaks to the impact of this narrative "there were many Māori who had input into Colenso's work, and we don't have their names. Or rather Pākehā don't have their names" (M. Curtis, personal communication, February 15, 2020).

Curtis goes on to discuss how as Pākehā the whakapapa of Māori involved in the printing of *te Tiriti o Waitangi* is not a space she can "easily tap into" (M. Curtis, personal communication,

February 15, 2020). Rather, she connects to the creation of these documents through hand-setting to create an "re-enactment, revisiting and reimagining" of the creation of the printed versions of these living documents (Curtis, 2020a, p. 1). Curtis sees hand-setting as an "act of familiarising" (Curtis, 2020a, p. 1). By engaging with each letter of the text of *He Whakaputanga* and *te Tiriti,* Curtis forms an intimacy with these documents (Curtis, 2020a, p. 1). For Curtis this intimacy allows her to get close to the "documents that are the basis of how I came to be living here in Aotearoa and are a guide for how to do so" (Curtis as cited in Liang, 2022, para. 35).

For hand-setting, Curtis commissioned cabinetmaker, János Panyoczki in Kaiwaka, to build typecases to the specifications of Colenso's 1835 typecases for printing in te reo Māori (Curtis, 2016; M. Curtis, personal communication, February 15, 2020). From these replica cases Curtis handsets *He Whakaputanga* and *te Tiriti*, connecting to Colenso through her own practice as a compositor to experience what it would have been like to "print these documents using these type case layouts as they had been by Colenso in 1837 and 1840" (Curtis, 2020a; Curtis as cited in Liang, 2022, para. 35).

Performance at MOTAT

Completed in MOTAT across several Sundays when the PS was open to the public, Curtis also created this project to be a living public exhibit with the aim: "to share with the public and the wider MOTAT team the story of NZ's printing and political history as aspects of our present" (Curtis, 2020a, p. 1). For Curtis this aim arose from the prevalence and fixity of the colonial history of printing that has been privileged in the PS.

> It's that it's closed off, it's ignoring certain parts of our history to make Pākehā feel comfortable. And, forgetting… the ugly truths of the action of colonisation and what it did to the language. I mean [at MOTAT PS] there's sort of an idea of te reo Māori as a homogenised language (M. Curtis, personal communication, February 15, 2020).

Through Curtis's letterpress research projects grounded in her own exploration of te reo mē ngā tikanga Māori, Curtis aims to leverage her privilege to facilitate bringing te reo Māori to the PS space (M. Curtis, personal communication, February 15, 2020).

> The first ever language to be printed in Aotearoa was in te reo Māori. The grounding of language and print in this country is te reo Māori, and that is important to remember, especially while English remains dominant (Curtis as cited in Liang, 2022, para. 32).

Leveraging MOTAT's endorsement, Curtis secured financial backing for the construction of the typecases (Curtis, 2019). Furthermore, she generated support across the museum to promote this

project, transforming it into a living public exhibit at MOTAT (Curtis, 2019). This support led to many of the resulting prints of *He Whakaputanga* and *te Tiriti*, being shared as gifts with MOTAT's team and externals. Notably, this included the presentation of a framed copy of *He Whakaputanga* and *te Tiriti* to Tīmoti Harris, the Kaihautū for *te Tiriti o Waitangi* training held at Te Māhurehure Cultural Marae for the MOTAT team in 2021 (PSWG, personal correspondence, April 28, 2021). Furthermore, the first two printed versions of *He Whakaputanga* and *te Tiriti* were donated to Walsh Memorial Library (WML) collection at MOTAT, where they are digitised and viewable on collections online.

Project Significance

For her personal practice, re-enacting Colenso's hand-setting of *He Whakaputanga o te Rangatiratanga o Nu Tireni* and *te Tiriti o Waitangi* is her most ambitious letterpress project yet, both in scale and scope. It arose from previous letterpress research project conducted by Curtis in the PS, in creating contemporary Māori typecases (M. Curtis, personal communication, February 15th 2020). Therefore, this project is an evolution of her ongoing letterpress practice and her exploration of te reo mē ngā tikanga Māori.

The PS is part of a wider project at MOTAT assessing the creation of new exhibition spaces that prioritise function and public engagement (PSWG, personal correspondence, April 28, 2021). Presently, the PS's layout is more indicative of a workshop which allows visitor access, rather than a public exhibit. Thus, Curtis's performance assists in diversifying the workshop nature of the PS. The incorporation of this project as a 'living public exhibit', brings to the fore the exhibition nature of the PS.

Summary

Through providing the context of the Press as an operational object at MOTAT, this chapter has investigated how it is understood. This investigation discerned that the Press is not fully activated, as its operation is focused on its function, and social status and significance are only held anecdotally by the PS experts. This has made it apparent how the lack of full activation of the Press poses challenges for long term recognition of its value to MOTAT, and potentially its retention.

From these insights, this chapter has provided the basis for the subsequent investigation into the Press operation. This further investigation aims to identify how the Press' operation influences its significance and social status.

From this identification, this thesis approaches a way to identify how operation results in the Press' activation. Allowing for analysis of the importance of retaining this information for the Press' role at MOTAT.

The next chapter lays out the conceptual framework applied in Chapter 4 and 5 in which to complete this analysis.

Chapter 3: Conceptual Framework

A comprehensive conceptual framework of Actor Network Theory (ANT) and Material Culture Studies (MCS) are used to answer the second question, investigating how the Press' operation influences its social status and significance.

MCS recognises that the objects we interact with are not solely utilitarian items whose value is determined by their function (Scarpaci, 2016). Rather, they are invested with meaning through the beliefs, experiences, and presumptions of the people who interact with them (Prown, 1982). MCS posits that investigating objects provides a way to explore how the cultural systems they exist within shape their physicality, function, and significance (Appadurai, 1999; Drazin, 2020; Fleming, 1974). This, in turn, provides an understanding of how the object provides insights into wider cultural systems (Drazin, 2020).

ANT is a sociological theory developed from the consideration of processes in science and technological studies (STS) (Ruming, 2009). This theoretical framework proposes that everything – humans, objects, concepts – are created from a constantly shifting network of relationships (Elbanna, 2011; Ireland & Lydon, 2016; Latour, 2005). Following Bruno Latour's (2005) seminal work, *Reassembling the Social: An Introduction to Actor-Network-Theory*, interdisciplinary research has adopted ANT as a methodology, including in the study of objects (Craddock, 2023; Bennett, 2005; Ruming, 2009; Waller, 2017). As a methodology in object-oriented inquiry, ANT shifts the focus from studying objects as products, to examining the processes that arise from the social practices' objects originate from and are part of (Waller, 2017). This approach enables the identification of meanings generated between people and objects arising within the complex web of connections inherent in these processes (Bennett, 2005).

When employed individually, MCS and ANT offer methodologies to examine the depth of meaning of objects within cultural systems, elevating our comprehension of material items beyond perceiving them solely as functional and static things (Bennett, 2005; Waller, 2017). When they are simultaneously applied, it creates a thorough way to recognise the continued role objects have in shaping and being shaped by their social position in fluid contexts (Ireland & Lydon, 2016).

This framework is applied in this research to explore the complex network of relationships the Press, as an operational object in a museum, is situated within. This exploration aims to identify how these relationships influence the creation and recognition of the Press' significance and social status.

This chapter justifies the relevance of this framework by discussing the methodological approach of MCS and ANT taken by this research. It concludes by highlighting how this approach will be applied to the investigation of the Press as an operational object at MOTAT.

Melding of the Conceptual Framework

The investigation of the Press' significance and social status conducted in this research is rooted in its duality as an operational object and a museum artefact. It is essential to recognise these aspects when applying a theoretical framework to explore the Press, as while not inherently conflicting, the methods to understanding these dimensions differ.

Considering the role of a museum object, no matter if it is accessioned or not, objects within a museum are subject to a museum lens. The museum lens frames objects within their materiality, or as Gauvin (2016) states, the "thingness of the thing" (p. 2). As recognised in MCS, materiality is powerful to explore connections across time and space (Appadurai, 1972; Drazin, 2020; Gosden & Marshall, 1999). Given the role of museum objects to facilitate engagement for education and connection, materiality gives viewers the means to explore contexts and value systems removed from their own (Graham, 2018; Ireland & Lydon, 2016; Prown, 1982).

Recent research around objects within science and technology (sci-tech) museums argues that a purely material focus for objects, when their role is inherent to their function and value, does not adequately capture the intangible and performative aspects of these object's processes (Bud, 2017; Craddock, 2023; Trischler, 2020).

Thus, recent research into the procedural objects, particularly sci-tech items, has begun to incorporate ANT as a process-based framework, alongside MCS into the study of museum objects (Bennett & Joyce, 2010; Craddock, 2023; Hetherington, 1999; Graham, 2018; Waller, 2017).

Waller (2017) underscores the advantages of this combination for museum research, how it supports moving beyond the traditional study of objects as products, to instead focus on the processes of how objects exist in social practice. In investigating the influence museum contexts have on objects, understanding processes creates an opportunity to recognise the continued role objects have in shaping and being shaped by social effect when existing in the museum space (Ireland & Lydon, 2016).

The theoretical framework derived from ANT and MCS supports its application as a practical methodology for researching procedural objects. This is because it enlivens the ability to examine processes affecting, and affected by, objects materiality which are otherwise unseen (Bennet, 2005; Craddock, 2023; Graham, 2018).

Material Culture Studies

Given the broad scope of MCS, the selection of a methodology within this field was made with careful consideration of the distinctive setting of the Press. To conduct an object-analysis of the Press, the methodology outlined in Prown (1982) was selected for its simplicity and adaptability of this interpretative analysis framework for technological objects. This analysis is presented in an Object Biography (OB) format, chosen for its alignment with the research aiming to document the Press as a historical and contemporary object.

Object Analysis after Prown

Prown (1982) frames MCS as a cultural investigation, utilising objects as primary data to examine beliefs of communities and societies at a given time. To conduct object analysis, Prown (1982) suggests a comprehensive method in three stages: description, deduction, and speculation. This methodology begins with a description stage, recording "internal evidence of the object itself" to analyse an object's physicality (Prown, 1982, p. 7). Description leads to deduction, which interprets the sensory, emotive, and intellectual perceptions between the researcher and the object's materiality (Prown, 1982). From these linkages arise speculation, the formation of hypotheses led from the internal evidence documented through the description and deduction stage (Prown, 1982). These hypotheses shift focus of the object inquiry from the internal evidence of the Press, to investigate external evidence to test the interpretation of the item's significance (Prown, 1982).

In Prown's (1982) framework, each stage of analysis is distinct and builds upon the previous phase. Given that the first phase, deduction, is restricted to observations of the object's physicality, the resulting interpretation is grounded in the object itself. This grounding assists in mitigating researcher bias in the interpretation of the object's significance (Bak, 2016; Prown, 1982).

Core to this methodology is the recognition that object analysis occurs, and is shaped by, the circumstances of the object and analyst at a particular moment within their respective life histories (Prown, 1982). Given this, Prown (1982) acknowledges that descriptive analysis is unlikely to provide a complete testimony of the cultural systems the object has existed within. Thus, the deduction and speculative stages provide the analyst a level of 'creative imagination' in which to determine aspects of the objects' relationships not reflected in its materiality (Prown, 1982, p. 9). As acknowledged by Harrison (2021), this facet of Prown's "allow[s] for the consideration that absences, such as provenance, also have a role in considering an object" (p. 29). Thus, this framework supports the

analysis of museum objects where they are situation within a context which has removed them from many aspects of their original use (Harrison, 2021).

Prown (1982) discusses in depth the adaptability of this framework in conducting cultural analysis on utilitarian objects. This adaptability stems from the method's descriptive analysis, which reveal not just the function of utilitarian objects, but also their formation and the 'style' of their operation (Prown, 1982, p. 15). Studies such as Bak (2016) have recognised the benefits of this framework in conducting object-oriented sci-tech research. For example, Bak (2016) applies Prown (1982) as a framework to examine how physical 'play' with technological toys in archives can be a method of research. By applying Prown's analysis to objects in operation, Bak forms hypotheses regarding the experiences of historical users' engagement with these devices. Bak's application of Prown (1982) reflects the flexibility of this methodology supporting cultural analysis of sci-tech objects.

Object Biography

Object Biography (OB) is a template used to describe the social life of an object, with the aim to enhance the critical perspective of understanding culture (Drazin, 2020). Its foundation is the acknowledgement that as objects move through time, their social constructs and meaning are transformed (Appadurai, 1985; Gosden & Marshall, 1999; Kopytoff, 1986). As the lives of objects do not "necessarily follow a linear pattern", to fully understand an object, it is essential to acknowledge the cumulative impact of its renegotiation of value occurs through its cultural relationships (Gosden & Marshall, 1999; Joy, 2009, p. 543).

Object Biographies are assembled by narrating the uses, identities, experiences, and relationships within a range of periods of an object's life (Drazin, 2020). Periods are described rather than a sequential timeline, as it is the identification and comparison of meaning within these moments which illustrate the object's interchangeability (Drazin, 2020; Gosden & Marshall, 1999). The descriptive format supports chronicling varying perspectives, which strengthens the ability to highlight nuances of human and object relationships (Drazin, 2020).

Furthermore, the OB structure encourages consideration of the future of the object's life, based on the potential result of relationships which inform its contexts (Drazin, 2020). In the investigation of an object-analysis through MCS, such as Prown (1982), the inclusion of future in the object's life history gives weight to the object, "based not upon facts but on apparent temporal truths" (Drazin, 2020, p. 64). Though unable to be definitive, implied futures are indicative of value, comprehension and potential actions people may prescribe to objects (Drazin, 2020).

The narrative structure of the OB supports the presentation of the flexible and reflective Prownian (1982) object analysis. The OB's presentation of this fluidity of the Prownian (1982) object-analysis is crucial to highlight, as it supports investigation of objects with absences with its provenance (Drazin, 2020; Harrison, 2021). Moreover, the Prownian and the OB methods support each other to allow investigation of past, present and future contexts.

Application in the Research

MCS is applied in this research to investigate the relationships between the Press and the cultural systems it has historically, and currently, existed within. By considering how the Press' current context as an operational object engages with these relationships, it allows for an understanding of how operation supports exploration into the Press' significance and social status.

The Prownian (1982) framework presented through an OB, supports the enactment of this research's aims for an MCS of the Press. As a non-accessioned object, no prior in-depth object analysis has been completed on the Press since its arrival at MOTAT. Additionally, with limited documentation on the Press' provenance, the fluidity and creative aspects of Prown allow for interpretation of absences in the Press' past (Harrison, 2021).

Furthermore, as Alberti (2005) states, interpretation arising from the object means its significance is not viewed as objective, inherent, or fixed. Instead it allows for recognition of the objects ongoing recontextualisation and reengagement with society (Alberti, 2005). As the MCS encompasses analysing the Press' operation at MOTAT, Prown's (1982) framework supports the analysis of how the Press' contemporary operation forms a feedback loop of influences with its historic relationships (Bak, 2016). Through presenting this analysis within the OB, it reflects how the Press' relationships throughout its life have resulted in a cumulative impact on the Press' significance and social status.

However, as recognised by Bud (2017), Craddock (2023) and Trischler (2020), material-based research does not support the full exploration of procedural aspects. Therefore, to understand how the relationships identified in the MCS are impacted by the Press' operation, ANT is applied to investigate this process.

Actor Network Theory

To understand how the Press' operation influences its significance and social status, an investigation into the process of its operation is necessary. This study selected ANT as the framework

in which to conduct this examination, due to its roots in STS and its growing application in museum research.

The focus of ANT is the exploration of networks of relationships created by 'actors', which are defined as a "source of an action regardless of its status as human or non-human" (Cresswell et al., 2010, p. 2). ANT characterises networks as social structures, which are viewed not as a fixed entity, rather as a reflective multifaceted setting that constantly regenerates itself (Ruming, 2009). The definition of actors as human and non-human positions all entities or concepts on an equal plane (Michael, 2017). This positioning decentralises human agency, as emphasis is removed from assumptions that human vision enforces social meaning (Michael, 2017). Instead, non-human actors possess the same potential as humans to be creators of associations and contribute to processes (Ireland & Lydon, 2016; Latour, 2005; Michael, 2017). This stance allows for a focus on "traceable associations" generated through actor interactions, without imposing expectations on the actors' potential associations (Latour, 2005, p. 107).

When applied as a methodology, ANT is not used to explain how networks are created, rather it is a way to explore the relationships occurring between actors within the networks (Latour, 2005). This is completed by identifying associations between actors that result in an influence on the network or the actors' role (Ruming, 2009). ANT terms these influences as translations, they are discerned by analysing meanings and performances within social systems (Ireland & Lydon, 2016; Latour, 2005; Ruming, 2009). Identifying translations creates the ability to analyse meaning created within the network, alongside the shifting of the actor's role due to their involvement (Ruming, 2009).

ANT's recognition that objects have the same potential influence in networks, allows for recognition of the social effects of the material, to understand the role objects have in "shaping life" (Ireland & Lydon, 2016, p. 2). This recognition has influenced the application of ANT as a methodology in object-orientated research (Bennett, 2005; Latour, 2005; Waller, 2017). This includes its application in museum studies, where ANT has been used to renegotiate the position of objects as solely recipients of human's creation of meaning (Graham, 2018). ANT's acknowledgment of the influence of museum objects within processes has created opportunities for recognising the role objects have in the formation of significance within museum contexts (Bennett, 2005; Graham, 2018; Waller, 2017).

The quality of ANT to investigate processes has also informed its utilisation as a framework in the study of museums operational objects such as Craddock (2023). Craddock (2023) utilises ANT to characterise the lack of inclusion of "tacit or embodied dimensions" of heritage in the operation of a can-gill, an industrial textile machine at the Bradford Industrial Museum (p. 3). For Craddock the core actors are a textile manufacturing expert as the operator; a can-gill machine as the operated object, and Craddock, as the researcher investigating the network of operation of this machine. Craddock uses

video, images, and on-site observations in correspondence with written history to document connections occurring during operation. Craddock (2023) leverages ANT to produce a framework which looks beyond the prescribed significance of operational objects as reflected by the current realms of understanding of operational objects in museums (Craddock, 2023).

The methodological approach of ANT to investigate translations between actors also provides a way to position the researcher within the network (Ruming, 2009). This is seen in Craddock (2023), his methods and framing of the actors and connections position him as an actor in the network of the can-gill operation he is investigating. As Ruming (2009) argues, orienting the researcher within the network through ANT provides the ability to recognises the act of research as itself a translation of the network (Ruming, 2009). This aspect of ANT is beneficial for the exploration of ongoing processes, as it facilitates a reflective analysis of research outcomes that can be connected back to the original network.

Application in the Research

To conduct the analysis of the Press' operation within ANT, this research combines theoretical aspects from Latour (2005), alongside practical methodology applied in Craddock (2023).

ANT views all actors as the sum of smaller actors translated in other networks, an experience termed by Latour (2005) as punctualisation. Due to punctualisation, research into any network is always a "selective and partial representation of network connectivity" (Ruming, 2009, p. 457). Hence, the application of ANT in this research does not aim to construct a comprehensive overview of the networks the Press exists within. Instead, a singular part of a network is focused on, with the aim to identify how the operation changes or adds to the significance of the Press, while acknowledging its partiality.

The network in question is the operation of the Press during the performance by Makyla Curtis re-enacting William Colenso's 1840 hand-setting of *te Tiriti o Waitangi*. The actors within this network feature myself the researcher-narrator, Print Shop (PS) team involved in the printing, alongside the objects used, including the Press.

Though the Press is the core of this thesis, Curtis as the originator and leader of the performance, is the main actor in the network (Latour, 2005). The analysis of the network occurs by following Curtis's process, from hand-setting *te Tiriti*, to its printing by the machinists on the Press (Latour, 2005). Drawing on Craddock (2023), this research employs video, imagery, and observations as the foundation to document associations between actors. Through these mediums the variety of senses, alongside tangible, and intangible aspects of an object in motion are recognisable. In turn this

allows for the multifaceted dimensions of the Press that influences its relationships with other actors to be visible (Craddock, 2023).

This research then analyses the associations occurring within the network to identify translations between the actors (Ruming, 2009). Given ANT's positioning of the Press, and other operational objects as actors with equal influence on the formation of the network, the human agency of Curtis and the other PS team members are de-centred (Ireland & Lydon, 2016; Latour, 2005). Instead, it provides a materially inclusive approach to explore aspects of meaning created within the network, formed by the relationships between actors (Craddock, 2023). By analysing these translations, it allows for the recognition of how the Press as an actor within the network was translated (Ruming, 2009). From the identification of how the Press was translated within this network, this research assesses if, and how, the Press' significance and social status was added to or changed.

Furthermore, the analysis explores my role in the network as the research-narrator, influencing the perception of the roles and values of the actors and the network (Ruming, 2009). This influence necessitates that I, as the researcher, consider myself an active participant within the network under study. To comprehensively understand the extent to which the Press' operation adds or changes its significance, the influence of associations occurring between myself and other actors in the network are also analysed.

Summary

The application of ANT, in conjunction with MCS, offers a focused perspective understanding the activation of the Press through its operation.

ANT illuminates the relationships that occur during operation, revealing how these relationships produce meaning, and the Press' involvement in this process.

Recognising the connections formed through the Press' operation, as identified in ANT, provides the ability to understand the depth of impact that operation has on the Press' relationships.

This understanding, when combined with material culture studies acknowledgement of the cumulative effect of the Press' past and present relationships on its significance and social status, provides an approach to recognise how operation affects the Press' activation.

The next two chapters employ the theoretical framework outlined here. Chapter 4 conducts an object-analysis into the Press, presenting how the Prownian (1982) approach will be utilised to analyse the Press as an operational object within the subsequent Object Biography. Chapter 5, applies

ANT to the performance of Makyla Curtis re-enacting the hand-setting of *te Tiriti o Waitangi*, aiming to recognise the relationships the Press engages with as an actor in this network.

Chapter 4: Material Culture Studies

Material Culture Studies (MCS) is a framework for cultural investigation that analyses objects to examine how the cultural systems they exist within shape their roles and values (Appadurai, 1999; Waller, 2017; Fleming, 1974). This chapter applies MCS to the methodology developed by Prown (1982), to conduct an Object Biography (OB) of the Press.

The focus of understanding of the Press at MOTAT is on its ability to operate. This has influenced limited capacity for the understanding, or recording, of the Press' life history and the meaning created during its process of operation. The constraints of this understanding have influenced the lack of significance and contemporary social value attributed to the Press.

Therefore, this chapter proposes that developing an OB drawing on Prown's schema (1982), provides a way to analyse how the cumulative effect the Press' life history, and present operational context, have resulted in the Press as a significant object, with an actively changing social status.

This chapter conducts this analysis of the Press in two interconnected segments. Firstly, the Prownian framework of object-analysis is discussed and applied to the Press as an active and operational object. Subsequently, the OB is constructed following the Prownian framework to create a narrative of the Press' life history, including its present operation at MOTAT (Gosden & Marshall, 1999).

Through the application of this framework, it becomes apparent that the Press' operation by the Print Shop (PS) experts brings to light the depth of connections of the Press' historic and contemporary relationships.

Prownian Framework

Prown's (1982) methodology provides an object analysis through a three-stage approach: description, deduction, and speculation. The deductive and speculative phases of this framework foster a flexible and reflective interpretation of objects (Prown, 1982). This is particularly relevant when considering objects that have been disconnected from many aspects of their previous contexts (Harrison, 2021).

Given the limited information available on the Press' past and present contexts, the Prownian (1982) method supports the interpretation of the Press, inclusive of the absences in its life history. Consequently, this method provides a comprehensive framework for analysing the Press, enabling the

construction of its OB, and capturing the fluid roles and values it has occupied throughout its life (Gosden & Marshall, 1999).

This section outlines the three stages of how the Prownian methodology is applied to support the construction of the object analysis of the Press to create an Object Biography.

Description

The Prownian methodology begins with the description stage, which aims to analyse the "internal evidence" of the object (p. 7). Prown uses this term to refer to what can be purely observed of the object. As the description is the basis for this method of object-analysis, this focus ensures that the analyst crucially does not incorporate any subjective analysis at this stage. This ensures that the subsequent analysis is grounded in the object's materiality.

In the application of this methodology to the Press as an operational object, I consider the 'internal evidence' of the object to include the act of its operation. As Gauvin (2016) argues, science and technology (sci-tech) objects are intricately tied to their functionality. Therefore, to accurately describe the Press requires documentation of its observable materiality when in operation.

Prown (1982) outlines that the description of an object begins with its substantive analysis, which he terms a "descriptive physical inventory of the object" (p. 8). In constructing this substantial analysis Prown (1982) recognises the need to utilise whatever technical assistance is required. Given the technicality of the Press, this research employs Heidelberg manuals alongside the knowledge and operation of the PS team members to document its materiality. Furthermore, as its functionality is also core to this substantial analysis, the use of video and imagery are employed as evidence to the aspects of the Press' operation.

Next in creating the descriptive analysis of an object, Prown (1982) suggests the investigation of its content. However, as noted in Prown (1982), this is primarily applicable for decorative objects. Therefore, we move onto the final stage of descriptive analysis, which is the formal analysis of the Press.

Prown (1982) describes the importance of this formal analysis in constructing an overarching analysis of the object's form in space. He includes key aspects to include in this analysis, such as the analysis of the objects visual and textual aspects. For utilitarian objects, which Prown (1982) terms devices, he speaks to how they respond to this descriptive step in a way which outlines their formation and the "style" of their operation (Prown, 1982, p. 15).

Applying this descriptive analysis of a technically complex object in operation, such as the Press, this step captures the minutiae of mechanical functions occurring during its operation. Thus, documenting not solely the overall function of the Press (e.g. the creation of letterpress prints), but it also provides a way to investigate how the Press' mechanical aspects work in tandem to create the process of the Press' operation.

Deduction

Arising from the descriptive analysis, the next stage in Prown's (1982) framework is deduction. Deduction shifts the analysis to include the researcher by investigating the engagement which arises between object and viewer (Prown, 1982).

Prown (1982) proposes that sensory, intellectual, and emotive engagement with the object creates an empathetic link between object and researcher. From this connection, the researcher can analyse the influence the object's physicality has on their emotive and intellectual responses. By understanding their own responses, the researcher is then able to form deductions on how others would have engaged with the object throughout the different contexts it has existed within (Prown, 1982).

Deductions on the Press arise from my engagement with its materiality and operation described in the previous stage. By viewing its operation, I have already begun to form a sensory connection, through the smells, noises, and tactile experiences arising from the Press' operation.

The sensory element of operational objects is recognised in the use of operating complex sci-tech objects in museums to encourage visitors connecting to their often-unfamiliar function (ABTEM, 2018). Analysed within the Prownian framework, the sensory connection of the Press' operation facilitates my engagement to form links between the Press and its application throughout its life history.

Furthermore, forming deductions of the Press' operation supports perceptions on its current context as an operational object at MOTAT. As the Press' operation is occurring through the work of the experts, these deductions include the significance of connections established between the experts and the Press.

Hence, this research forms deductions on the Press' technological, historical, and present operational contexts.

Speculation

The final stage of Prown's (1982) analysis is speculation. This stage removes the analysis from the object and grounds it in the researcher's formulation of hypotheses based on the data identified in the descriptive and deduction stages (Prown, 1982).

Speculation provides the most creative freedom for the researcher, as it encourages the formation of hypotheses, only tempered, as Prown (1982) states, by the researcher's common sense. The creative imagining completed by the researcher to form these hypotheses supports the inclusion of aspects which are absent in the object's materiality, yet nevertheless may play an important role in its analysis (Harrison, 2021; Prown, 1982).

It is important to recognise during this stage that the objects' analysis is occurring in a moment of time. Thus, the 'read' of the object is influenced by the context the object, and the researcher exist within at the time of analysis (Prown, 1982).

The grounding of this framework in the object through the descriptive stage aims to mitigate the biases which can arise from the researchers' cultural perspectives originating from these contexts (Prown, 1982). However, Prown (1982) also recognises the benefit the researcher's cultural perspective has in speculation. As speculation is a creative process, the researcher's own cultural perspective assists in creating an empathetic response to develop theories of the object's significance and social value across different cultural systems.

The second step in the speculation phase is the construction of a programme to conduct external research, with the aim to validate the theories formed from the object's materiality (Prown, 1982). This step is reflective, encouraging ongoing renegotiation of description and deduction analysis to develop theories (Prown, 1982). The creativity combined with the reflexivity of analysis in the speculative phase provides a flexibility in the object's interpretation.

The deduction phase forms insights into the Press' technological, historical, and present operational contexts. Applying speculation to the Press, supports the construction of theories of the Press' activation at MOTAT, which occur as Gauvin (2016) states, incorporating its function alongside its past and present cultural systems.

The flexibility in the research programme to validate these theories as proposed by Prown, further supports the Press' analysis in this research. As it allows ongoing testing and reforming of theories as the Press materiality and operation change through its use at MOTAT conducted further in this research.

Summary

The application of the Prownian (1982) framework of description, deduction, and analysis supports the object analysis on the Press to propose a way to analyse how the Press' operation occurs through its historic and technological aspects interwoven with the context of its current operation at MOTAT. The application of this method supports Trischler's (2020) argument, that if sci-tech objects within museums are to be valued, their functionality alongside their cultural significance needs to be understood. By providing a way to recognise the Press' function and cultural significance, it allows a way to understand the true scope of its significance and social status as operational objects in museums.

Prownian framework in Object Biography

The foundation of Object Biography (OB) is the acknowledgement that as objects move through time, their social constructs and meaning are transformed (Appadurai, 1985; Gosden & Marshall, 1999; Kopytoff, 1986).

Through assembling a life history of an object, OB's can narrate the uses, identities, experiences, and relationships within a range of periods of an object's life (Drazin, 2020). Therefore, providing a way to present objects' changing significance and social status through their history (Drazin, 2020). Furthermore, the OB format encourages consideration of the future of the object's life, based on its previous and current relationships which inform its contexts (Drazin, 2020).

The cumulative and future aspects of the OB support the aim of the Press' object-analysis to present a way to understand how the Press' operation is interwoven with its technological and historic contexts. This interconnection influences how operation changes and adds to its significance and social status.

The empathy core to the Prownian deduction and speculation stages supports the construction of the OB. Deductions take into consideration not purely the material factual truths, but the emotive aspects of the object. For the OB, the inclusion of these emotive aspects is crucial to highlight nuances of human and object relationships (Drazin, 2020).

Moreover, the Prownian framework's recognition that analysis requires ongoing testing, supports its use in the OBs to construct analysis of the present and future nature of the Press' life history (Drazin, 2020).

As this analysis is rooted in MOTAT, through the location of the analysis and its aims, the format of the Press' OB is inspired by object biographies constructed on technological objects at MOTAT (see Hutching, 2021; McCormack, 2020).

Therefore, based in the three stages of the Prownian framework, and inspired by object biographies completed at MOTAT, the next section constructs the OB of the Press.

This OB begins with an overview of the Press, to contextualise it as an operational object at MOTAT. The material and operational descriptive analysis is then developed. Thereafter, the deductions about its life history from manufacture to its present context at MOTAT are considered. Arising from these deductions are the theories of the Press' activation, including an interpretative analysis based on external evidence and subsequent research.

Object Biography

The Heidelberg KSD Cylinder (the 'Press') is a letterpress printing machine manufactured by German printing company Heidelberg Druckmaschinen Aktiengesellschaft (AG), known colloquially Heidelberg (Heidelberger Druckmaschinen-Aktiengesellschaft [HDA], 2000). Produced in Heidelberg's factories in Wiesloch-Walldorf, Germany, the Press was imported and installed in New Zealand in 1974 (Printing Equipment Inc., n.d.).

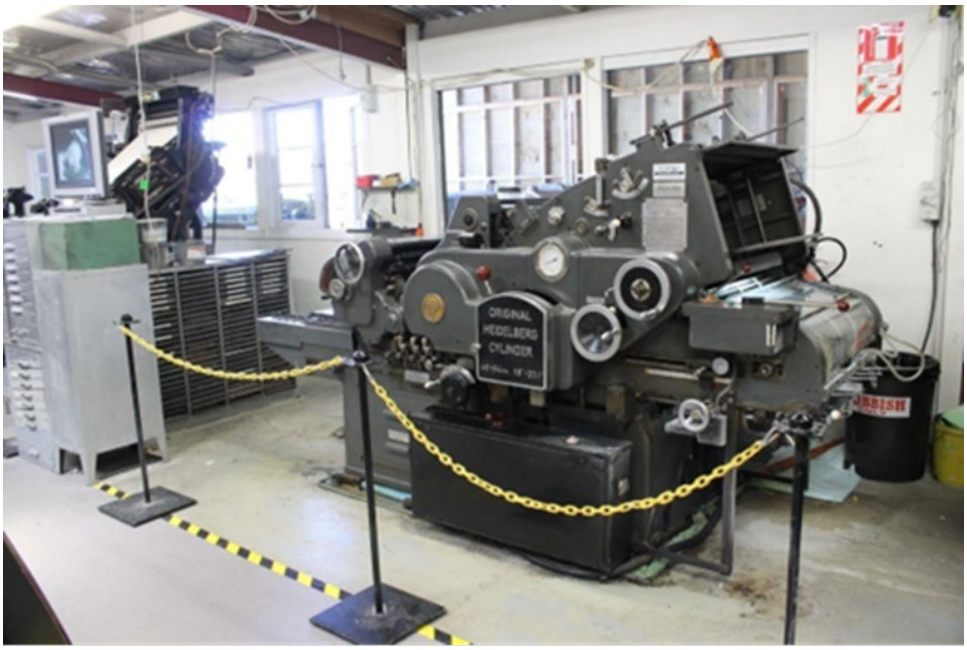
Since, its arrival in Aotearoa New Zealand there is limited information on the Press' life, until 2013, when it was purchased by MOTAT from print and mail company Geon Group Ltd (MOTAT, 2013). MOTAT purchased the Press as an operational production press and installed it in the MOTAT Print Shop (PS) (Grenville, 2013). Since its arrival ten years ago the Press continues as a non-accessioned, operational object which is routinely activated by experts within the PS.

Description

The Press is the largest machine in the PS, stationed directly to the right of the entrance occupying almost half of one wall. There is space around each side of the Press allowing the PS team full access. A yellow chain creates a barrier between the Press and the pathway used by visitors when the PS is open to the public.

Figure 4.1

Heidelberg KSD Cylinder Press in the Print Shop



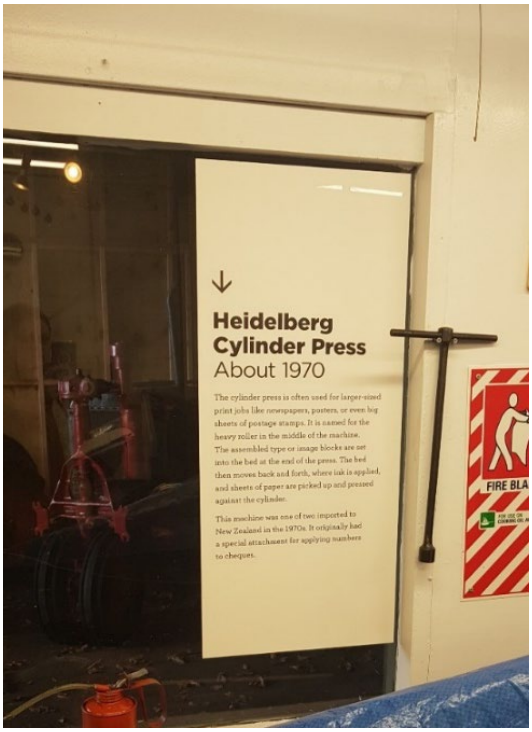
In 2023 an interpretative panel was added on the wall behind the Press, which provides information on its technology and provenance. This panel provides general information on cylinder technology, including the common use for this type of press for larger print jobs, such as newspapers or posters. The text also annotates the machine's printing process:

> The assembled type or image blocks are set into the bed at the end of the Press. The bed then moves back and forth, where ink is applied, and sheets of paper are picked up and pressed against the cylinder. (Fig. 4.2)

The interpretive panel concludes with a brief note on the history of this Press, detailing that it was "one of two imported to New Zealand in the 1970s. It originally had a special attachment for applying numbers to cheques" (Fig. 4.2).

Figure 4.2

Exhibition Interpretation on the Press in the Print Shop



The Press is a large object, weighing two tonnes, it is 2.53 meters long, 1.53 metres wide, and 1.45 meters high. Externally, most of the Press consists of a grey and black powdered metal frame.

The Press' machinery is mainly internal. It includes the motor, gear box for cylinder and flatbed, and inking apparatus (HDA, 1967).

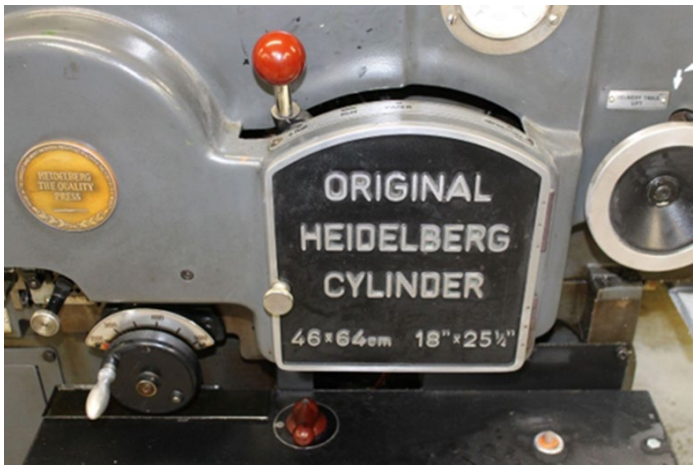
Partially visible when viewed from above, is the Press' large internal cylinder positioned centrally. This gives the Press its name as a cylinder. The continuous revolution of the cylinder enables the simultaneous process of inking and printing within one singular revolution (HDA, 1967).

Information on the make and model of the Press is found along one side, most notably, an embossed name plate next to the control levers (Fig. 4.3).

The measurements on the name plate refer to the size of its flat bed as 46 x 64 cm or 18 x 25.25 inches. The size of the flatbed and the Press' serial number, KSD349183, are engraved low onto the Press' frame confirming the Press is a KSD model, constructed in 1974 (Printing Equipment Inc., n.d.; S. Penney, personal communication, August 27, 2023).

Figure 4.3

Press' Nameplate



On the same side as the name plate are three information plates adhered to the Press' frame which provide other hints to its history. The top plate provides information on business APM which facilitated the transfer of the Press to MOTAT from Geon in 2013 (Grenville, 2013). The second is the information plate from Seligson & Clare, sole traders, which imported the Press into New Zealand from Heidelberg in 1974 (G. O'Keeffe, personal communication, December 9, 2020). Third is information on the lubrication of the mechanical aspects of the machine for ongoing maintenance.

Figure 4.4

Three Plaques Adhered to the Press

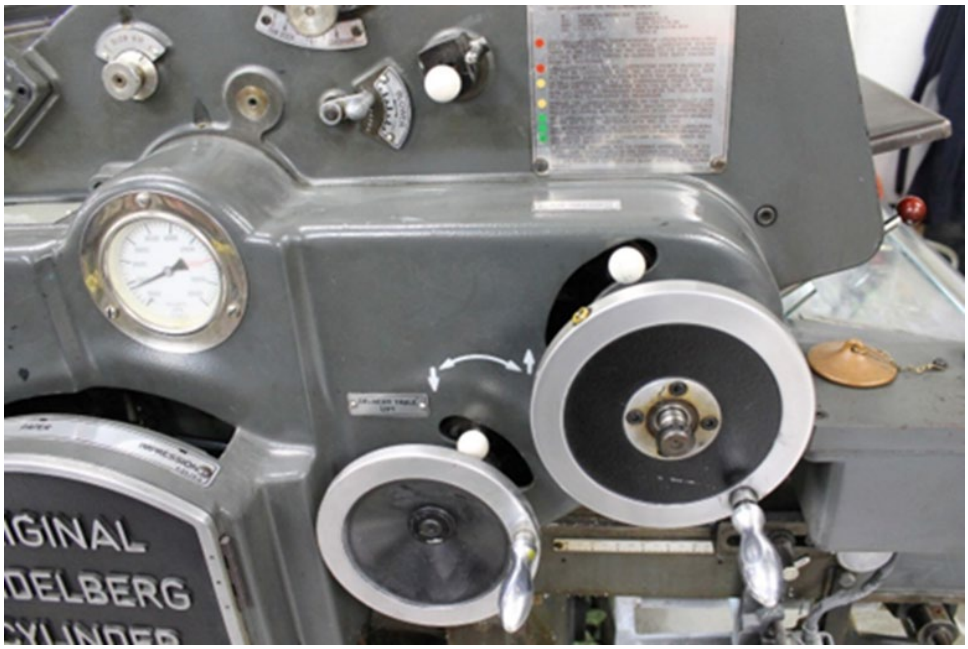
Next to the name plate are the controls, consisting of a range of levers and knobs used for its operation. Alongside each control is an associated instruction plate. The operation of the Press starts before the controls are engaged with, beginning in its set-up.

Figure 4.5

Press' Controller Lever

Figure 4.6

Controls on the Press



This set-up includes maintenance checks performed by the MOTAT PS team members trained on the Press' operation, known as machinists. Moreover, the set-up entails the machinists collaborating with the PS team members, who created the design and hand-set the type forme to be printed using the Press. The team members who design and hand-set the type are referred to as compositors.

In preparing the Press to print, machinist and compositor work together to ensure the addition of consumables, such as ink and paper, are correct for the requirements of the print job. Imperatively, this collaboration also works to add the chase containing the locked up forme holding the set type into the flatbed of the Press for printing (Fig. 4.7)

Figure 4.7

Graham O'Keeffe Locking Chase Into the Flatbed and Discussing Adjustments Required with Makyla Curtis

https://youtu.be/wA-uw0c4uR4

When the preparation is complete, machinists stand next to the control levers, using these to run the Press. The red knobbed lever is the primary control, but during operation machinists are constantly tweaking and adjusting the levers of the machine to control the production (Fig. 4.8).

Figure 4.8

Wilhelmus Coenradi Tweaking Controls of the Press During Operation

https://youtu.be/q8us-t8zJAI

Viewed in operation, the mechanical aspects of the Press work in tandem with each other to create individual prints. The process of creating a print begins from the feed-pile, which contains the paper or other medium to be printed on. During operation suction cups grab the paper with a faint sucking noise, pulling it through the Press onto the internal cylinder (Fig. 4.9).

Figure 4.9

Suction Cups Pulling Through Paper

https://youtu.be/w4A_y7_QSzI

Concurrently, ink is filtered from the ink well onto the internal rollers, which then ink the type forme laid on the Press' flatbed. The inking is completed in time with a singular rotation of the cylinder, which presses the paper onto the inked flatbed. This process results in one print created with every movement of the flatbed in and out of the Press (Fig. 4.10).

Figure 4.10

Flatbed with Chase Moving in and out of the Press

https://youtu.be/yvnWS-jebDo

On the other side of the Press from the flatbed, once printed, the prints are deposited in the delivery pile, where the printed pages are warm from their journey through the Press (Fig. 4.11).

Figure 4.11

Cylinder Pulling Paper through the Press

https://youtu.be/XbHuESRyaVY

The speed of the Press' operation is controlled by the machinist. As the frequency of the print delivery increases, so does the mechanical functions of the Press. Working in tandem, the mechanics of the Press creates a rhythmic whooshing noise. Additionally, there is an underlying banging noise which intersects with the Press' operational cadence. When the operation of the Press is halted, the mechanical noises produced by the Press gradually cease.

After completing a print run, the machinists clean the machine, lubricating moving parts like the rollers and chase. This cleaning routine is essential to prepare the machine for the next use, preventing rust and ensuring its functionality.

Figure 4.12

Graham O'Keeffe Cleaning the Press Post Printing

https://youtu.be/C3EkTyFUAXM

Deductions

Even when not operating, the size and location of the Press in the PS, draw the eye. As someone who has limited knowledge about letterpress printing technology, when I view the Press when static it is an unfamiliar machine. This unfamiliarity is exacerbated by the complex automatic mechanical aspects of the Press, which reflect it as a commercial object.

It is the environment of the PS which encourages deduction on its function. When static this occurs from its position in the space, for example, the typecases and chases laid next to the Press connect its function to that of a letterpress printing machine. Most importantly, it is the Press' operation which marks it as a complex mechanical item. Viewing the Press in operation gives the opportunity to gain an in-depth understanding of how the object works and how the Press would have been used in the commercial process of printing (Pye, 2016).

When it is running, the noise of the Press draws you in, filling up the space: the rhythmic noise sounds like breathing. It is the engagement occurring between the experts and the machine in its operation which encourage connection to the object as a viewer (Gauvin, 2016). It is the relationship the PS team have and the knowledge they bring that allows this machine to operate correctly and safely, providing opportunity for viewers to gain an understanding of the uniqueness of the machine. It is through operating the Press that it becomes alive (N. Jennings, personal communication, August 16, 2023).

Concurrently, the Press in the PS encourages the creation of intangible and tangible cultural heritage through the PS team's operation. For the Heidelberg cylinders, as commercial technology, which is no longer manufactured, the retention of the intangible heritage of how to operate these objects is held by a waning group of people. This is heightened because of the age of these machines, which increases wear and tear, and to ensure correct operation of the Press also requires specific

maintenance. The operation of the Press at MOTAT assists in the transference of this knowledge through generations, a facet acknowledged by all PS team members interviewed as part of this research.

The operation of the Press through the experts' intangible knowledge results in the creation of tangible aspects of cultural heritage. Through the work of the PS experts the Press produces small runs of prints created through the applied craftsmanship of the experts in the process of the Press' operation. Involved in the creation of these prints, the Press' use is recontextualised from its historic commercial application, to instead joining a community of historic machines used in heritage organisations or small run artist presses for the creation of small run experimental prints (Waite, 1997). The materiality and experience of the Press in operation encourages engagement which gives insight into its use and importance.

The true significance of the Press' role and value throughout its life is only gained by discussion with the PS experts.

Former PS team lead, Graham O'Keeffe, shares the narrative of the Press' manufacture and import into Aotearoa New Zealand. Heidelberg was first established in 1850, specialising in letterpress printing (HDA, 2000; G. O'Keefe personal communication, December 9, 2020). Letterpress remained the company's focus until the 1980s when, concurrent with worldwide trends, Heidelberg shifted from letterpress to manufacturing offset, recognised as a more time and cost-effective printing process (HAD, 2000; Waite, 1997). Part of the larger K range manufactured between 1956 – 1980, the KSD was one of the last models of letterpress cylinder presses manufactured by Heidelberg (O'Keeffe, 2021). Thus, it is representative of Heidelberg's departure from their history of commercially produced automated cylinder technology (HAD, 1967).

The 'K' in KSD stands for 'Klein', German for small, as the K range machines were smaller commercial versions of earlier automated cylinder presses (O'Keeffe, 2021). Within this range, the KSD was the largest size in a range of single colour cylinder letterpress named the KS range (HDA, 2000). Though a smaller size compared to other commercial letterpress machines, the versatility of Heidelberg cylinder presses influenced their commercial prevalence worldwide, including Aotearoa New Zealand and the South Pacific (S. Penney, personal communication, August 27, 2023).

Between the 1950s and 1970s, Cylinders were imported from Heidelberg to Aotearoa New Zealand to produce long run jobs, such as newspaper and circulars (S. Penney, personal communication, August 27, 2023). They were a popular machine due to their ability to operate at a speed of up to 5,000 prints per hour to size, as well as die cutting; embossing; cutting, creasing, and

numbering (Howard Iron Works, n.d; O'Keeffe, 2021; S. Penney, personal communication, August 27, 2023).

Technologically, the Press includes many of the features which made the KS range so revolutionary, including the automated single colour cylinder press, flatbed size, preloading devices; continuous sheet delivery; pre-pilling device and ink volume (Heidelberg News, 1954). The KSD as representative of Heidelberg KS line, provides insight into commercial utilisation of letterpress technology (HDA, 2000).

Deductions on the Press' import into Aotearoa New Zealand based on the Seligson and Clare Ltd plate on the Press, were evidenced by tacit knowledge held by Graham O'Keeffe, gained through his career as a Heidelberg machine trainer. O'Keeffe's knowledge reflects the commonality of the Press' import for Heidelberg Press of this time, from its production in Wiesloch-Walldorf, Germany, to its arrival in Aotearoa New Zealand (Printing Equipment Inc., n.d).

Seligson and Clare Ltd was a South African based import company with an Australian and New Zealand branch (A.M. Satterthwaite & Co. Ltd., 1937; "Noted businessman retires", 1972). From the 1930s to the early 1990s, Seligson and Clare were the sole importers for Heidelberg's to Aotearoa New Zealand (G. O'Keeffe, personal communication, December 9, 2020). Machines were imported by Seligson and Clare, through New Zealand managing agency A.M Satterthwaite and Co Limited (A.M. Satterthwaite & Co. Ltd., 1937; "Noted businessman retires", 1972).

Once in Aotearoa New Zealand, O'Keeffe speaks about the standardised procedure of Heidelberg imports the Press would have likely followed. This procedure includes, engineers installing the Press, and machinists, such as O'Keeffe, would set up the machine in collaboration with the purchase company printers (G. O'Keeffe, personal communication, December 9, 2020).

O'Keeffe had little knowledge of the use of the Press once it arrived in Aotearoa New Zealand. However, recent maintenance performed on the Press by PS team member Stephen Penney has identified that the Press' original configuration included a centrally operated numbering machine, identified by a longer flatbed compared to standard KSDs, as well as the difference in the impression cylinder (Eaton, 2021; S. Penney, personal communication, August 27, 2023).

Through contacts at Heidelberg from his previous career as a printing engineer, Penney connected the materiality of the Press to a narrative of the Press' early life. Penney contacting his previous employer from his career as a print technology engineer at Heidelberg and supplied him with the Press' serial number. The Heidelberg employee's search identified that the Press was one of two KSD cylinders ordered by the New Zealand Government Printing Office, to print cheques for the Department of Social Welfare (Ministry of Social Development, 2018; S. Penney, personal

communication, August 27, 2023). Based at the Government Printing Offices in Wellington, the Press arrived with its twin in 1974 accompanied by specially built numbering boxes (S. Penney, personal communication, August 27, 2023).

The 1970s was a period of economic and social upheaval in Aotearoa New Zealand which put strain on the welfare system (Goldsmith, 2008; Kia Piki Ake, 2022; Maharey, 2000). The potential involvement of the Press as one of two specialty purchased assets to produce individually numbered cheques to the populace contextualises the Press as primary evidence for an object involved in a noteworthy cultural and financial shift in Aotearoa New Zealand's history (Maharey, 2000). This involvement also connects to contemporary relevance as an object which signified national led economic and social policies that have informed the socio-economic conditions of Aotearoa New Zealand today.

It is also through discussion with the PS experts that the Press is connected to its current context at MOTAT. Graham O'Keeffe led MOTAT's procurement of the Press, from receivership sale of trans-Tasman company Geon Group (G. O'Keeffe, personal communication, December 9, 2020). At Geon the Press was based in Highbrook, Auckland, as a die-cutting machine until Geon's closure in 2013 (MOTAT Society, 2015). O'Keeffe identified the Press to become the PS cylinder production press, required due to issues with the PS production press of the time, a Glockner (G. O'Keeffe, personal communication, December 9, 2020). Once acquired by MOTAT, the Press was transferred from Geon to MOTAT via printing machine specialist Alex Peters Machinery (APM) (MOTAT Society, 2015). On the 12th June 2013, the Press was set up in the space the Glockner had vacated a few days earlier (Grenville, 2013). The Press arrived in operational condition with 4 chases, but an initial examination revealed that it was without a rubber roller and mounting blocks which needed to be sourced (Grenville, 2013).

The functionality of the Press supports its utilisation in the PS as a well utilised production press (M. Curtis, personal communication, February 15, 2020). Its speed supports publication runs, primarily of MOTAT produced works, such as the *Seven Booklets* (G. O'Keeffe, personal communication, December 9, 2020).

The size of its flatbed has provided the opportunity for the creation of larger or more complex projects. Such as *He Whakaputanga o te Rangatiratanga o Nu Tireni* and *te Tiriti o Waitangi*, printed just under A2 size. Furthermore, the Press' four colour capabilities are utilised in the creation of coloured works such as the poster *hoea tō waka* (Fig. 4.13), printed on the cylinder in red and brown ink.

Figure 4.13

Hoea Tō Waka, Two-Colour Letterpress Print Created on the Press (MOTAT Printing Section, et al., 2019).

The Press' narrative of manufacture and import connects it to a common narrative of similar models of Heidelberg's brought to Aotearoa New Zealand in the late twentieth century (Waite, 1997). This supports the theory of the Press as a representative object of a period of changing printing technology and Aotearoa New Zealand's relationship with global manufacture. In turn, this theory adds weight to the argument of the Press' significance as a technological object with historic application in Aotearoa New Zealand.

Speculation

The experts' operation of the Press facilitates close engagement with the Press for viewers. Their work also brings to light the connections of the Press' historic and contemporary relationships. It is from these connections that the Press' technological, historical, and contemporary operational significance can be interpreted.

However, considering the Press' technological functions based on its make and model, I suggest, that the technological significance of the Press to an Aotearoa New Zealand context is minimal. The Press was manufactured overseas and does not speak to any story of Aotearoa New Zealand design or technological innovation.

Following Pye's (2016) argument that for sci-tech objects their significance is intertwined with their function, I recognise that to consider the Press' technological significance requires an understanding of its historical significance.

In considering its historic contexts deduced from information gained by Stephen Penney and Graham O'Keeffe through its process of operation, I argue that though the Press does not share a Aotearoa New Zealand story of innovation or creation, it does reflect a Aotearoa New Zealand story of technological application.

Information on the Press' manufacture and import, revealed through the previous experience of O'Keeffe, acknowledges that the Press is representative of the globalisation of manufacture resulting in the prevalence of cylinder presses in Aotearoa New Zealand and commercial printing from the 1950s to the 1980s.

The information gained by Penney, through his skilled knowledge of the Press' technology and contacts in the printing industry, connects the Press as a significant historic object. Specifically, Penney's knowledge connects the Press as primary evidence for an object involved in a noteworthy cultural and financial shift in Aotearoa New Zealand's history (Maharey, 2000). This involvement also connects to contemporary relevance as an object which signified national led economic and social policies that have informed the socio-economic conditions of Aotearoa today.

Furthermore, it is connecting to the Press through the experts' operation that the current role and relationships of the Press are also bought to light. This current context includes the ability for its operation to encourage visitor engagement. Moreover, it reflects the retention and creation of tangible and intangible heritage through application of the experts' knowledge of the unique operation of the Press within the letterpress process.

Showcasing the Press' technological, historic, and contemporary roles reflect how the Press' value and roles have changed throughout its life history. Changing from a commercial mass-produced object to an object whose technology was specifically required for the utilisation of printed material during historic contexts. Recognition of these roles has contributed to its status, as a historically and technologically significant object. Furthermore, the recognition of its role at MOTAT reflects the ongoing change to the Press' significance and social status. As it now exists as an object in the creation and retention of tangible heritage facilitating engagement within a historic and artistic setting.

Summary

This analysis supports an understanding how the Press as an operational object is valued not purely for its functionality. It is also tied into the relationships and connections the Press formed, and continues to form, throughout its activation.

However, what is missing in this analysis is the understanding of the full context the Press exists within during use in the PS. Due to the narrow focus of this OB on the Press' materiality and operation, the Press' placement within the wider performance of letterpress processes was touched upon in this chapter, but not fully explored.

Therefore, to support the speculation advanced in this chapter regarding the Press' activation, this study proposes that further research is needed to recognise the formation of the Press' operation within performances at MOTAT. This thesis presents this research in the subsequent chapter through the application of Actor Network Theory to the operation of the Press in the performance by Makyla Curtis hand-setting *te Tiriti o Waitangi*, referencing the work of William Colenso in 1840.

Chapter 5: Actor Network Theory

Actor Network Theory (ANT) explores processes, mapping traceable associations between human and non-human actors to form networks (Latour, 2005). This chapter uses ANT to analyse how the operation of the Press changes or adds to its significance.

In the application of the Object Biography, following Prown (1982), conducted in Chapter 4, it became apparent that operation connects the Press to historic and contemporary relationships. The connections which occur through operation imbue the Press with significance, transforming it into a dynamic object with an actively changing social status.

However, within the Press' object analysis, I was unable to capture the intricacies of the relationships occurring during its operation in the MOTAT's Print Shop (PS). By applying ANT to analyse a network in which the Press is operated, this chapter aims to delve into the Press' relationships which occur during operation.

The performance chosen as the network is a project by PS team member, Makyla Curtis, re-enacting William Colenso's 1840 hand-setting of *te Tiriti o Waitangi*. This research recognises that this is a partial network, and investigation of it is constrained to the process of the physical creation of *te Tiriti* prints in the PS. This constraint is due to the aim of the application of ANT to investigate the influence the Press as an actor has within the network.

After Latour (2005), this network is investigated by following the progress of the main actor. As the creator of this project, Curtis constructs this network, hence is framed as the main actor. The first half of this chapter follows Curtis's progress through the network, from hand-setting *te Tiriti*, to the final prints created on the Press. Following Craddock (2023), this process is documented using video, imagery, and on-site observations as evidence for associations between actors.

Describing this network aims to identify the physical and semiotic interactions occurring between objects and people. ANT posits that it is these interactions which create a change in the network or the role of the actor (Ruming, 2009). ANT terms these influences as translations, and it is these which are investigated in the second part of the chapter to identify how the Press is influenced, and influences, other actors, and the network. From this analysis, the chapter concludes that the full significance of the Press can only be realised by considering and documenting all the relationships it is a part of within the network.

Assembling the Network

The performance explored in this chapter is one half of an experiential and political letterpress research project performed by Curtis in the MOTAT PS (Curtis, 2020a). The wider project is the enactment of a living public exhibit in the PS where Curtis, through the act of hand-setting, re-imagines the work of one of Aotearoa New Zealand's first printers, William Colenso (1811-1899) (Curtis, 2020a). Using replica Māori typecases based on those designed by Colenso, Curtis re-enacts his hand-setting of the letterpress printed versions he printed of *He Whakaputanga o te Rangatiratanga o Nu Tireni*, in 1836, 1837 and *te Tiriti o Waitangi* in 1840 (Archives New Zealand, 2022; 2023).

This project speaks to Curtis's creative practice, using language and mark making to explore her identity as Pākehā and her ideas of belonging in Aotearoa New Zealand as a settler descendant (Liang, 2022). Using Colenso as conduit, Curtis speaks to how by re-enacting the hand-setting of these documents, she forms an intimacy with the text of *He Whakaputanga* and *te Tiriti*, which she views as "documents that are the basis of how I came to be living here in Aotearoa and are a guide for how to do so" (Curtis as cited in Liang, 2022, para. 35).

Actor Network Theory is applied as the methodology to analyse the living performance of the process and the resulting final artefacts of Curtis's re-enacting Colenso's hand-setting of *He mea i tāia, Print Sheet, te Tiriti o Waitangi* (Curtis, 2020a).

In the process of hand-setting and printing the re-enacted versions of *He mea i tāia, Print Sheet, te Tiriti o Waitangi*, Curtis enlists and co-ordinates human and non-human actors in the PS. These actors are the other PS team members, and the operational objects involved in the performance, including the Press. The performance becomes a partial network by assembling these actors with the aim to create the process and resulting printed document from her hand-setting *te Tiriti*.

He Whakaputanga was printed prior to *te Tiriti*, and as such Curtis's arrangement of the actors occurred prior to the partial network outlined in this chapter and is not discussed. Rather, the focus is on the process of physical creation of the performance by following Curtis through the process from hand-setting to the creation of the final print.

The network is explored to identify the web of connections occurring between the actors within this performance. Following ANT, the human and non-human actors are recognised to have equal potential to create associations, and result in translations (Latour, 2005). In describing Curtis's process below in this framework, it supports the focus on the associations without imposing a human-centric expectations on the actors' potential (Latour, 2005, p. 107).

In turn, removing human centric viewpoints supports the recognition of the associations and translations of the Press, as an actor involved in this process, it created and was influenced by (Ruming, 2009). Post the description of the network, the Press' role is analysed to support the identification of how the Press' significance and social status adds and changes through its involvement within performances of its operation.

The Network

Composing or hand-setting is the act of setting individual letters and characters, known as type, by hand into words and sentences to form a body of work (Federation of Master Printers [FMP], 1962). An intensely physical process, hand-setting can be time consuming. Curtis completed the setting of *te Tiriti*, across several sessions between October and December 2019.

During this project a semi-permanent composing station was maintained in the centre of the PS (Fig. 5.1). The station features the replica Colenso typecases, filled with type, and as her hand-setting progressed, the set lines of *te Tiriti*, were added to an imposing stone next to the typecases. The stone and typecases had Perspex coverings to ensure the type is not interfered with when Curtis was not working, thus allowing the items to be left on display.

Figure 5.1

William Colenso Replica Māori Upper and Lower Typecases In Situ at MOTAT Print Shop

The inclusion of this semi-permanent display during the project increases the visibility of Curtis's performance as a living public exhibit. Compared to the sensory experience of the machinery in the PS, hand-setting is a quiet act. Observing Curtis's hand-setting of *te Tiriti* shows the intimacy between Curtis and the material objects.

Positioned in front of the typecases Curtis references a printed and zoomed in digital version of *He mea i tāia, Print Sheet, te Tiriti o Waitangi* (Fig. 5.2). Typecases are comparable to keyboards, consisting of compartments where type is separated by character and case. The design of the replica typecases commissioned by Curtis are based on the specifications of the ones designed and used by Colenso to handset in te reo Māori (M. Curtis, personal communication, November 30, 2020). By hand-setting from these cases, Curtis mirrors the movements of Colenso's setting of *te Tiriti* in 1840.

Figure 5.2

Makyla Curtis Referring to He Mea I Tāia, Printed Sheet, te Tiriti o Waitangi During Hand-Setting

https://youtu.be/-PVIxsZlIWU

Informed by the materiality of the type and cases, the manual nature of hand-setting results in closeness to the text. Curtis individually selects each piece of type from the cases compartments and adds it backwards and upside down into a compositing stick attached to the edge of the lower case (Fig. 5.3). After around three lines of text are set, Curtis moves the type to the slowly forming body of the work, located on the stone (Fig. 5.4). During my observations, she reflects on this closeness, comparing the movement of her hand across the typecase to a kind of poem. Curtis finds relationships and associations between the individual letters and patterns in the language (M. Curtis, personal communication, February 15, 2020). These relationships translate the type from an individual item, static in the case, to becoming an active collective. As an active collective the type becomes more than the sum of its parts, instead existing as a type forme that can be used to create prints with the text of *te Tiriti o Waitangi*.

Figure 5.3

Type Stick Attached to Replica William Colenso Typecases

Figure 5.4:

Makyla Curtis Adding Type to Stone

Curtis's hand-setting of the type into the type forme on the stone also forms the typography of the prints. With the setting of every line, Curtis takes into consideration the spaces between words, situating the type on the eventual printed page.

The design is also limited by the actors which result in the creation of the type forme. For example, during hand-setting *te Tiriti*, Curtis runs out of lower-case k type. This was an issue within both *He Whakaputanga* and *te Tiriti*, due to ks being used more in te reo Māori than English, and the type for this work originating from an English typeset. To continue setting, Curtis adds a group of bolded and italicised 18-point k types to the typecases. The bolded and italicised ks will not be in the final prints but, instead, are used as a holder in the lock-up chase during the proofing of *te Tiriti*.

The typography is further created by how the type is locked up. For Curtis the lock up process is "where the really interesting stuff happens as a compositor. All the design happens in how you lock it up" (M. Curtis, personal communication, February 15, 2020). To create the type forme, type is positioned in the chase using furniture and quoins to lock up the forme for transfer to the flatbed of the Heidelberg Press to be printed (Fig. 5.5; 5.6).

Thus, the position of the type in the lockup takes into consideration the requirements of the size of the flatbed of the Press. How the text will fit onto the final page, is based on the position of the forme in the chase on the Press. As these considerations begin with the setting of the type, each design decision made by Curtis in the hand-setting stage is a renegotiation between herself and multiple non-human actors.

Figure 5.5

Wilhelmus Coenradi Picking up Type Forme Locked in Chase

Figure 5.6

Wilhelmus Coenradi Laying Chase into Flatbed

Once *te Tiriti* is set, the process moves to the Press, to create the first proof run. PS team member Wilhelmus Coenradi is the machinist who operates the Press during the proof print on 24th November 2019.

As Curtis prepares the type forme for the proof, Coenradi prepares the Press. Preparation of the machine includes basic maintenance, ensuring the Press is in working order, as well as specific adjustments required for the proof, based on paper, ink and proofing needs. All of these decisions are made between Coenradi and Curtis based on her printing requirements and the materiality of the Press and forme in the chase (M. Curtis, personal communication, October 13, 2019).

With the Press and forme prepared, Coenradi adds the chase to the flatbed of the Press, shifting the driving force of this part of the process from Curtis to Coenradi. As the machinist Coenradi applies his knowledge of operation of the Press to create the proofs.

Figure 5.7

Preparing Press to Create Proof Prints of te Tiriti o Waitangi

https://youtu.be/AyBLw-ieCeY

When creating works on the Press there can be a division of labour between the compositor who handsets the work, and the machinist who prints it. This is due to the complexity of the Press as a technological object, which requires significant training before PS team members can operate it (S. Penney, personal communication, August 27, 2023).

This division of labour between hand-setting and operation that sometimes occurs with the Press is rare in contemporary letterpress studios in Aotearoa New Zealand (for example, at Ferrymead Heritage Park in Christchurch). Simultaneously, it has a significant influence on the associations in the network. Curtis describes this relationship warmly:

> […] That space between the compositor and the printer is quite special to me… …But that sort of relationship…, about what my role is, and what his role is and the understanding of that, it is really lovely (M. Curtis, personal communication, February 15, 2020).

The collaborative associations between Curtis and Coenradi take on further significance during proofing. As type is set backwards, proofing is an essential stage to ensure there are no mistakes in the text from hand-setting. Curtis describes the demands made on the machinist due to the iterative nature of proofing *te Tiriti*, saying:

> […] when you start getting into this kind of printing, you're asking someone to pull the chase out a significant number of times because you spot things [that need to be changed]. Especially because there was no one there to proof, my work for me who is fluent in te reo Māori who could spot these things (M. Curtis, personal communication, February 15, 2020)

Figure 5.8

Makyla Curtis Checking First Half of the Proof of te Tiriti o Waitangi Against He Mea I Tāia, Printed Sheet, te Tiriti o Waitangi

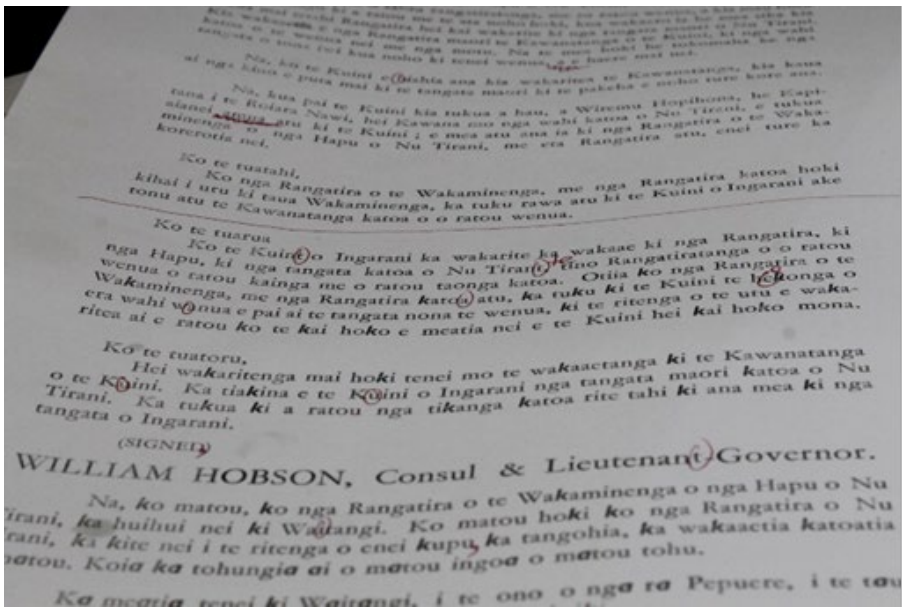
For *te Tiriti*, the proofing and printing stage is made even more repetitive, due to the bolded and italicised ks used as a place holder in the text during hand-setting. These ks resulted in the final prints of *te Tiriti* being printed in two halves.

Printing *te Tiriti* in two halves requires Curtis to re-engage with the hand-setting process, to swap out the bolded and italicised ks and create a separate lockup of each half.

In turn, this forms new associations between Curtis and non-human actors involved in hand-setting. Though the actors involved in the first process of hand-setting, and the hand-setting for printing are the same, the actions they perform are different. Thus, the translations arising from these associations are also different. This difference is seen in the translation of the type forme as an actor. The first hand-setting by Curtis formed it as an actor, correlating with individual other non-human actors (the type) and Curtis. Whereas the hand-setting to lock up the type forme in two halves, results in the type forme being pulled apart and then re-formed without the bolded and italicised ks, therefore becoming a new actor. This example showcases how the constant renegotiation of the associations between the actors reflects that this process is one of constant creation and re-creation.

Figure 5.9

Marked Up Edits on te Tiriti o Waitangi Proof



Once halved, the first half of *te Tiriti* is able to be printed, completed on the 1st December. Coenradi is again the machinist and creates proof prints for the first half and once again, this proofing

process becomes a dance between the compositor, machinist, and Press. Curtis and Coenradi checking the proof against *He mea i tāia, Printed sheet, te Tiriti o Waitangi* and making small adjustments to the type forme in the chase (Fig. 5.10).

Figure 5.10

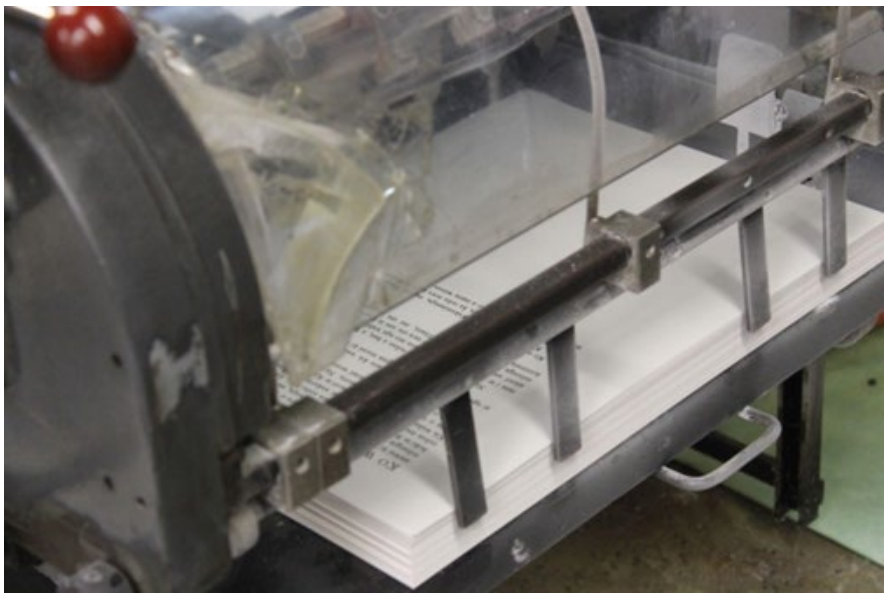
Wilhelmus Coenradi Checking and Operating Press to Create Proof's in Discussion with Makyla Curtis

https://youtu.be/w8Xb_YtKlTw

Following adjustments, Coenradi operates the Press to create the print run of over 200 first halves of *te Tiriti o Waitangi*. Without the issues of running out of ks, this would have been completed in one print run. Therefore, the materiality of the type complicates this process.

Figure 5.11

First Half of te Tiriti o Waitangi in the Delivery Pile of the Press



With the first half of the prints completed, Curtis readies the second half of the handset *te Tiriti o Waitangi*. Curtis swaps out the bolded and italicised ks in with the correct ks from the first half

of *te Tiriti* already printed. With this completed, Curtis locks up the forme for the second half of *te Tiriti* in the chase, as Coenradi prepares the Press for operation.

Figure 5.12

Wilhelmus Coenradi Prepares the Press for the Second Half of the Print Run as Makyla Curtis Prepares the Second Half of Type for Lock Up in the Chase

As part of the preparation stage of the type form, Curtis planes the text and furniture to ensure the type sits flat in the chase. This provides an even imprint on the page, but it also aims to ensure there is no loose material in the chase: any movement in the chase could lead to loss of the work or damage to the machine.

In this the automated process of the Press this is especially important, due to the speed and pressure the chase is under during the printing. This reflects the necessary processes that the Press as an automated machine influences on the network and other actors.

It also influences the variances which occur in the final prints. Letterpress is based on the process of creating prints from raised material. Each print created has variance in the ink, imprint, dependent on the preparation stage and the process of the Press' operation. .

Figure 5.13

Planning the Type in the Chase

https://youtu.be/XMzIDpPVkeYn

With the lock up completed by Curtis, the final proof runs are created. At this point the machinist changes from Coenradi to PS team member, Graham O'Keeffe. As with hand-setting, the machinists' knowledge, skill, and creativity influence their operation of the Press.

O'Keeffe's experience and approach influences the associations occurring between himself as the machinist, Curtis, and the objects. This is observed through collaboration between O'Keeffe and Curtis adjusting the placement of the forme and the chase on the flatbed to ensure the second half is printed in the correct position on the pages which already have the first half.

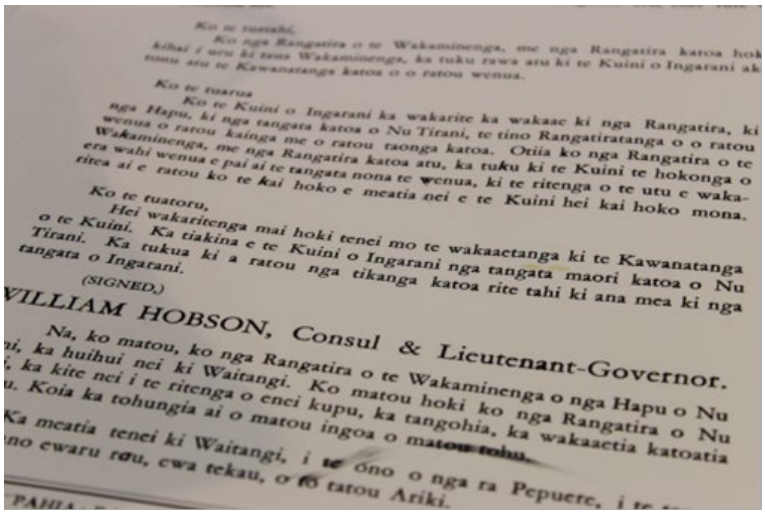
These small decisions reflect the intertwined work and decisions when the process of printing combines with the work of design and hand-setting.

Figure 5.14

Makyla Curtis Adjusting Type and Furniture in Lockup From Proofs

Figure 5.15

Close-up of the Proof of te Tiriti o Waitangi



Ko te tuatoru,
Hei wakaritenga mai hoki tenei mo te wakaaetanga ki te Kawanatanga
o te Kuini. Ka tiakina e te Kuini o Ingarani nga tangata maori katoa o Nu
Tirani. Ka tukua ki a ratou nga tikanga katoa rite tahi ki ana mea ki nga
tangata o Ingarani.
(SIGNED,)
WILLIAM HOBSON, Consul & Lieutenant-Governor.
Na, ko matou, ko nga Rangatira o te Wakaminenga o nga Hapu o Nu
ka huihui nei ki Waitangi. Ko matou hoki ko nga Rangatira o Nu
ka kite nei i te ritenga o enei kupu, ka tangohia, ka wakaaetia katoatia
Koia ka tohungia ai o matou ingoa o matou tohu.
Ka meatia tenei ki Waitangi, i te ono o nga ra Pepuere,
no ewaru rau, ewa tekau, o to tatou Ariki.

After multiple proofs and adjustments, the final run of prints is completed, with over 185 final copies of *te Tiriti o Waitangi* printed on a non-glossy cream coloured stock. At this stage the prints themselves are not yet finished. Curtis continues to work on the prints, trimming the paper to create a symmetrical size and hand-writing the edition numbering on the bottom right corner.

Figure 5.16

Final Prints of te Tiriti o Waitangi in Delivery Pile on Press

Figure 5.17

Stack of Final Prints of te Tiriti o Waitangi

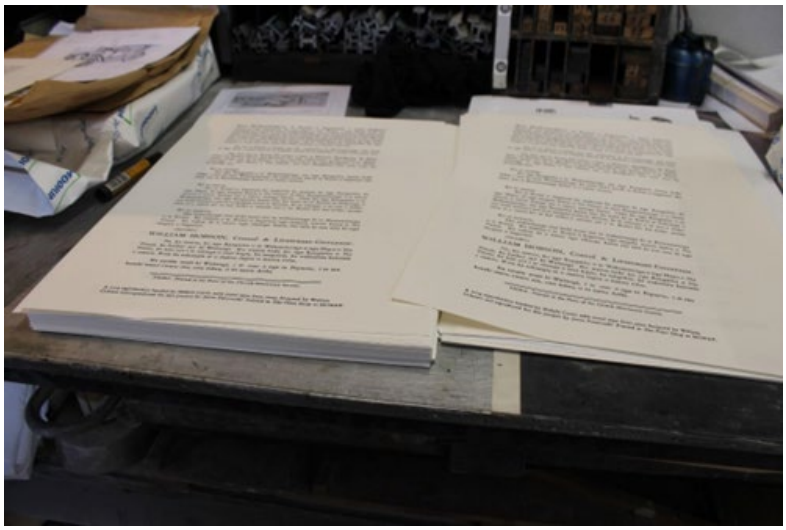
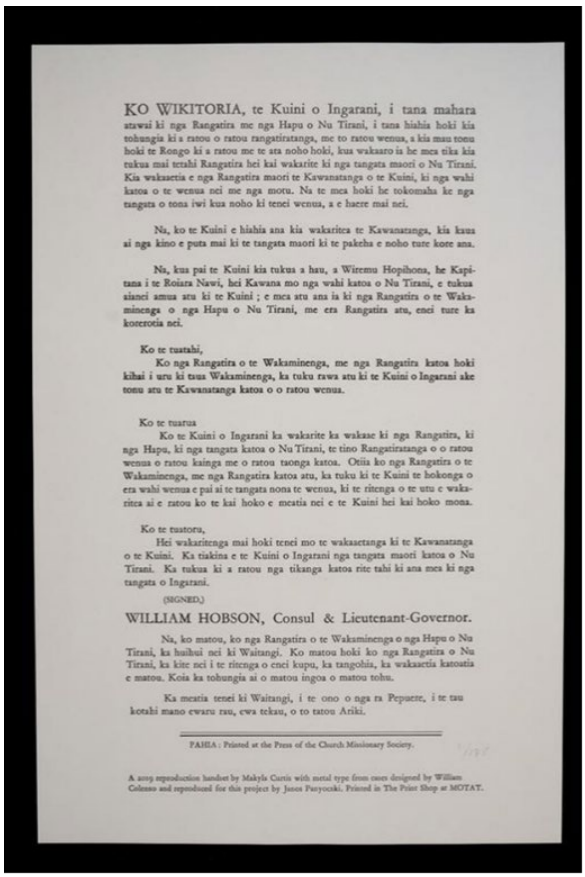


Figure 5.18

Final Version of te Tiriti o Waitangi Before Cutting and Limited Editions



KO WIKITORIA, te Kuini o Ingarani, i tana mahara atawai ki nga Rangatira me nga Hapu o Nu Tirani, i tana hiahia hoki kia tohungia ki a ratou o ratou rangatiratanga, me to ratou wenua, a kia mau tonu hoki te Rongo ki a ratou me te ata noho hoki, kua wakaaro ia he mea tika kia tukua mai tetahi Rangatira hei kai wakarite ki nga tangata maori o Nu Tirani. Kia wakaaetia e nga Rangatira maori te Kawanatanga o te Kuini, ki nga wahi katoa o te wenua nei me nga motu. Na te mea hoki he tokomaha ke nga tangata o tona iwi kua noho ki tenei wenua, a e haere mai nei.

Na, ko te Kuini e hiahia ana kia wakaritea te Kawanatanga, kia kaua ai nga kino e puta mai ki te tangata maori ki te pakeha e noho tute kore ana.

Na, kua pai te Kuini kia tukua a hau, a Wiremu Hopihona, he Kapitana i te Roiara Nawi, hei Kawana mo nga wahi katoa o Nu Tirani, e tukua atanei amua atu ki te Kuini ; e mea atu ana ia ki nga Rangatira o te Wakaminenga o nga Hapu o Nu Tirani, me era Rangatira atu, enei ture ka korerotia nei.

Ko te tuatahi,

Ko nga Rangatira o te Wakaminenga, me nga Rangatira katoa hoki kihai i uru ki taua Wakaminenga, ka tuku rawa atu ki te Kuini o Ingarani ake tonu atu te Kawanatanga katoa o o ratou wenua.

Ko te tuarua

Ko te Kuini o Ingarani ka wakarite ka wakaae ki nga Rangatira, ki nga Hapu, ki nga tangata katoa o Nu Tirani, te tino Rangatiratanga o o ratou wenua o ratou kainga me o ratou taonga katoa. Otiia ko nga Rangatira o te Wakaminenga, me nga Rangatira katoa atu, ka tuku ki te Kuini te hokonga o era wahi wenua e pai ai te tangata nona te wenua, ki te ritenga o te utu e wakaritea ai e ratou ko te kai hoko e meatia nei e te Kuini hei kai hoko mona.

Ko te tuatoru,

Hei wakaritenga mai hoki tenei mo te wakaaetanga ki te Kawanatanga o te Kuini. Ka tiakina e te Kuini o Ingarani nga tangata maori katoa o Nu Tirani. Ka tukua ki a ratou nga tikanga katoa rite tahi ki ana mea ki nga tangata o Ingarani.

(SIGNED.)

WILLIAM HOBSON, Consul & Lieutenant-Governor.

Na, ko matou, ko nga Rangatira o te Wakaminenga o nga Hapu o Nu Tirani, ka huihui nei ki Waitangi. Ko matou hoki ko nga Rangatira o Nu Tirani, ka kite nei i te ritenga o enei kupu, ka tangohia, ka wakaaetia katoatia e matou. Koia ka tohungia ai o matou ingoa o matou tohu.

Ka meatia tenei ki Waitangi, i te ono o nga ra Pepuere, i te tau kotahi mano ewaru rau, ewa tekau, o to tatou Ariki.

PAIHIA : Printed at the Press of the Church Missionary Society.

A 2019 reproduction handset by Makyla Curtis with metal type from cases designed by William Colenso and reproduced for this project by James Pasyouski. Printed in The Print Shop at MOTAT.

The finalisation of the printing marks the beginning of the disassembling of the network. O'Keeffe removes the chase to the work bench. He then begins to clean the Press (Fig. 5.19). Curtis removes ink from the text in the chase, and prepares to return the type back into the cases.

Figure 5.19

Graham O'Keeffe Cleaning the Press Post Printing

https://youtu.be/C3EkTyFUAXM

From this point the network now narrows and re-forms. The sum of the new network now comprises the associations between Curtis and the prints distribution.

Analysis of the Network

Considering the process of re-enacting the hand-setting and printing of *te Tiriti o Waitangi* letterpress prints through Actor Network Theory (ANT) reveals understandings that are more than the sum of the network. Rather, it points to meanings created, transferred, and re-created by both human and non-human actors through their associations and performing together (Latour, 2005).

This section analyses these meanings to identify how they affect the changes or additions to the significance of the Press once it is activated as an operational object within the network. This perspective suggests that the Press, is part of a unique process and its constant recontextualisation results from factors which occur from translations within the Press' operation. This occurs within a complex, time-bound network that dissolves when the specific performance concludes. Acknowledging these factors which occur within the re-configured network suggests that the process of operation not only changes the nature of the Press' significance but adds to it in unique ways. These circumstances suggest that the Press is a significant object influenced by a complex and fluid web of networks. Unless the context, purpose, and contribution of the Press' performance is acknowledged as part of the complex network, it cannot be fully activated as operational object.

Process

The first factor identified from analysing translations in the network is that the operation of the Press only occurs as part of a wider process of letterpress printing. For letterpress printers this is not a groundbreaking theory. History on the process of letterpress always discusses the element of hand-setting and design, alongside the technical function of printing machines (FMP, 1962; HDA, 2000). When discussing the operation of the Press during research interviews with the PS experts, the machinists and hand-setters consistently addressed its function as a part of a wider letterpress process.

Viewing the Press' as an actor in the network supports the recognition of the importance of the letterpress process in the Press' operation. Analysing the performance of hand-setting and printing *te Tiriti o Waitangi* through ANT removes the assumption that the changing roles, or translations, of actors in the network are solely driven by the humans involved (Latour, 2005). Instead ANT positions the Press as an actor with the ability to influence the roles of other actors, both human and non-human. Furthermore, ANT recognises that the other non-human actors (typecases, type, forme, chase) in the network can also influence the Press.

This positioning facilitates recognition of how the Press' translation in the network results in its change from a static object, to an operational one. With ANT it is easy to recognise how the Press' operation occurs due to the direct engagement of the human actors (Curtis and the machinists). By recognising the influence of non-human actors, it becomes apparent that the Press' operation is reliant on associations involving non-human actors (type, typecases, forme, chase) occurring elsewhere in the network. This is seen in the association between Curtis and the type when she runs out of ks during hand-setting, leading her to use bolded and italicised ks as placeholders in the type forme. Despite the Press not being directly involved in this association, the need to lock up and print the type forme in two halves for the replacement of the bolded and italicised ks, altered the timing and frequency of the Press' operation, proofing, and printing *te Tiriti*. This example illustrates that the operation of the Press is not solely based on the decision of Curtis or the machinists to run it. Instead, it is also reliant on associations between actors throughout the network involved in other aspects of the letterpress process. Given this, it is evident that the Press' operation in the performance hand-setting *te Tiriti*, is intertwined with the wider letterpress process.

I position that, if the Press' operation is not connected to its role within a wider network of letterpress process, the technological and cultural aspects of the Press are unable to be recognised. This is because it is the letterpress process which imbues the Press with significance and social status. This is especially true between Curtis and the machinists who maintain discrete but intertwined roles throughout the performance. Their collaboration is a subjective response to the context of recreating *te Tiriti* as a living public exhibit. Additionally, it is a result of a system of internalised structures and

relationships based on the roles of compositor and machinist that is steeped in the history of letterpress printing.

The Press, as a letterpress object, in both its historic and contemporary roles, has never functioned as an isolated operational object. Instead, its function has always supported, and been supported by, the investment of wider technological processes and objects. Given this, Pye's (2016) argument that science and technology (sci-tech) objects' significance and social status is intricately tied to their function becomes particularly relevant. By not understanding the Press' full function as an object within the letterpress process, the Press is reduced to only an aspect of its true significance and social status.

Recontextualisation

The second factor revealed through an ANT lens is how the Press' contemporary operation contributes to the recontextualisation of its function when observing the performance re-enacting the hand-setting of *te Tiriti o Waitangi*.

The recontextualisation of the Press is made visible through ANT's ability to recognise that the decisions and collaboration which occur within the network are not solely the province of the humans involved (Latour, 2005). Rather, ANT recognises that non-human actors are influential in the process occurring within the network and its outcomes (Ruming, 2009).

By acknowledging the Press is an influential actor within the network, this highlights its influence on Curtis's re-enacting Colenso's hand-setting of *te Tiriti o Waitangi*. The focus of Curtis's project is the hand-setting to connect to the text of *te Tiriti*, facilitating her connection with Colenso to explore her colonial background as Pākehā (Curtis, 2020a; Liang, 2022). When this project is viewed through ANT, it showcases how the Press influences translations occurring within the network, including in the hand-setting process. For example, the size of the Press' flatbed influences design choices on how the type forme is locked up in the chase for printing. Thus, just as the Press' translation into an operational object occurs due to associations throughout the network, other actors' translations are impacted by their associations with the Press. Within this project, this results in the Press influencing the performance of Curtis re-enacting the hand-setting of *te Tiriti*, within the living public exhibit at the MOTAT PS. Viewed through ANT the Press is not just a utilitarian tool used by Curtis and the machinist in the creation of this project. Instead, it is an active and influential participant involved in the network's resulting outputs. Given the artistic performance context of this project, the Press' role as an active participant is ground in artistic purpose.

Additionally, ANT provides the ability to recognise how the ongoing meaning of the prints as an outcome influence the understanding of the significance of network and the actors involved. Each print created from this performance is a unique artistic creation, imbued with meaning of Curtis's artistic practice. Furthermore, as the subject of these prints is a re-imagined version of *te Tiriti o Waitangi*, these prints are meaningful works, which prompt discussions on the living nature of *te Tiriti* as the grounding on which Aotearoa New Zealand is formed.

The framing of ANT posits that outcomes are a result of the complex exchanges within networks in which they are created (Latour, 2005). This implies that all outcomes are representative of the networks they originate from. Consequently, this recognises that the new networks in which outcomes find themselves throughout their life history, along with the meaning resulting from these networks, can be linked back to the networks and actors which were involved in their creation. Therefore, recognising that the prints of *te Tiriti* are an outcome of the complex network described in this chapter, the ongoing contexts and meaning each print experiences throughout their distribution as artistic works can be related back to this network and the actors involved, including the Press. Thus, the Press' function within this network is not only recontextualised with artistic meaning due to its involvement in the performative aspects of Curtis's project. It also involves an ongoing engagement with artistic function imbued from the fluid contexts the prints exist within.

For the Press, its recontextualisation through operation in this network adds new dimensions to its function (Gosden & Marshall, 1999). Specifically, it highlights the artistic and creative aspects of the Press' operation within the process of letterpress printing.

This recognition supports a shift in understanding its significance and social status. This shift occurs, as by recontextualising the Press in a creative context, it allows for recognition that inherent to the Press' technological function is the artistic nature of letterpress. This prompts consideration of how this artistic meaning was engaged with throughout the Press' life history.

Furthermore, this recontextualisation supports the recognition of the value of the Press' operation at MOTAT. Recognising that the Press is not just a utilitarian object used to create a function, but rather it is an object which is actively involved in the creation of new aspects of heritage.

This transformation of the Press' significance and social status happens organically through the Press' operation in the contemporary contexts it exists within at MOTAT. This highlights that by being operated, the Press inherently facilitates a direct connection to aspects of its cultural and technological significance, without requiring additional museum interpretation.

Summary

The analysis of the letterpress process and recontextualisation identified through the application of ANT to the operation of the Press, acknowledges that its operation does not occur in a vacuum. Rather, the operation of the Press is part of a complex network consisting of the letterpress process.

I suggest that external to the PS team, the importance of the letterpress process is not given due consideration in the Press' understanding at MOTAT. This oversight stems from the non-accessioned status of the Press, which influences its value to MOTAT as its functionality. In the discussion of the Press' context in Chapter 2, this research acknowledged that the technological aspects of the Press' functionality are prioritised due to the aims of visitor focused operational goals. Furthermore, these insights built on the arguments of Haines and Woodham (2019) and Craddock (2023), recognise that the Press' technological function has contributed to a lack of recognition of its performative contributions stemming from its operation.

I argue that the lack of recognition of the Press' performative function stems from a limited understanding of its operation as part of a complex network. As demonstrated in the analysis conducted in this chapter, without this understanding, the depth of cultural and technological facets which shift the Press from operation to activation are not recognised. As argued by Gauvin (2016), failure to understand these cultural and technological facets results in a reduced or completely unrecognised appreciation of the Press' significance and social status.

The next chapter discusses the analysis of the Press' operation completed in this chapter and Chapter 4, regarding the understanding of the Press at MOTAT explored in Chapter 2. This discussion identifies three core themes explored within this research. These themes aim to support the recognition of how operation influences the Press' significance and social status.

Chapter 6: Discussion and Analysis

This research aims to conduct a comprehensive analysis of the Press as an operational object within a science and technology (sci-tech) museum, with the aim of interpreting how its activation unfolds through its operation. This perspective gained throughout this study is examined in this chapter by analysing preceding chapters and key thematic areas.

Three thematic areas are discussed which pertain to the networks the Press exists within: the researcher as part of the network; the networks' output, and the outcomes arising from these outputs. These areas of study correspond with two primary research questions: how is the Press as an operational object understood at MOTAT? How does the operation of the Press change its significance?

To analyse these themes this chapter is structured into three interconnected parts which examine the major themes identified by the research. From analysing the key themes, this research proposes that formal retention of the Press' activation at MOTAT is crucial for the future preservation of its value.

Researchers' Role in the Network

The first key theme identified by this study is the recognition of the researcher as part of the network and therefore a part of the Press' biography. Analysing the impact of myself as a researcher across the case study shows that the research has the potential to shape the future of the Press. This research concludes that to understand the contemporary and ongoing significance of the Press requires understanding all the facets which impact it.

In answering how the Press is understood at MOTAT, Chapter 2 recognised that due to the Press' understanding as a non-accessioned operational object, its significance to the institution is understood within its function. However, its significance to the PS experts, is far more complex and encompasses the Press' historical, cultural, and technological aspects.

Through conducting an object analysis of the Press based in Prown (1982), the resulting Object Biography (OB) in Chapter 4, reflects that the Press is a historical and technologically significant object. Furthermore, that its operation in the PS is what brings this significance to life and reflects the fluidity of its current social status. Chapter 5 confirms the fluidity of its social status through operation, reflecting how operation inherently contextualises the Press' cultural and technological significance

within a contemporary context. Mirroring, Craddock (2023) and Haines and Woodham (2019), as the Press' understanding to the museum is based in its functionality, this research recognises that the significance and social status of the Press created through operation is not currently retained.

It is important to highlight that Chapter 4 does not delve into the potential future trajectory of the Press as suggested by the OB method (Drazin, 2020). Though unable to be definitive, implied futures are indicative of value, comprehension, and potential actions people may prescribe to objects (Drazin, 2020). Given the importance of this case study as the first in-depth exploration of the Press, I propose that to construct an implied future of the Press requires consideration of the impact of this research. This consideration stems from the influence I, as a researcher, exert on the context of the Press and its potential futures, a dynamic shaped by the impact of my voice in this study.

Actor Network Theory (ANT) also provides a framework to evaluate the impact of my voice in this study through positioning myself as an actor in the network of the process of re-imagining *te Tiriti*, explored in Chapter 5 (Ruming, 2009). This concept results from the position of the researcher who, through studying a network, controls the modulation of actors' roles and the network's formation (Ruming, 2009). Thereby, the researcher's perception translates, or changes, the network through the realised outcomes of the social structure being researched (Ruming, 2009).

Craddock (2023) provides a relevant example of this, through his research which produced a short documentary film on a experts' operation of the can-gill machine at the Bradford Industrial Museum. Within this film, Craddock (2023) explores the network occurring between the expert and the can-gill machine during operation. In the act of researching this network, Craddock as the researcher, and the film as the method, also become active participants, or actors in the network. Thus, this network now expands to encompass Craddock and the film, alongside the experts' operation. In his role as an actor, Craddock through conducting and analysing this research, translates the networks' outcomes. As he suggests the film, as well as documenting the experts' operation, is also a potential method in which to document experts' production of intangible knowledge within museums.

Therefore, to evaluate the impact of my voice in this study, I propose to extend the network analysed in Chapter 5 to include myself, as the researcher, and this thesis, as the method of presentation (Ruming, 2009). Following Craddock (2023), this expansion allows for the recognition that by conducting this research, I have translated the role of the network, with it becoming a research subject, in which the Press' operation is analysed.

As the Press is the focus of analysis, my research has further translated the Press, with its analysis now existing as an outcome of the network. The analysis recognises that full activation of the Press, occurring through its cultural and technological facets, reveals changes to its significance and

social status. When considering the temporal and spatial lens of the OB, this analysis of the Press is situated within a context that re-shapes its life history. Hence, this research also provides insights into the potential trajectory of its life.

This research positions the Press as a significant object when its activation is fully recognised to occur within a complex network of associations and meanings. This position possesses the potential to impact future use and values associated with the Press. This recognition is currently denied at MOTAT because the liveliness of the Press is ignored. It is typecast as an operational object with technical capacities. Therefore, its significance is diminished.

Outputs and Outcomes

Outputs and outcomes of networks were found to be interlinked yet carry their own identities. Outputs are defined as the immediate, and quantifiable result of processes (Mills-Scofield, 2012). Alternatively, outcomes, are the changes or effects occurring because of the outputs (Mills-Scofield, 2012).

This discussion focuses on the outputs and outcomes identified from the process of creating the living public exhibit hand-setting *te Tiriti o Waitangi* after Willian Colenso, performed at MOTAT's Print Shop (PS) by Makyla Curtis.

This research recognises that as the outcomes and outputs were identified from a partial network, they cannot be removed from the wider network's influence. Therefore, the subsequent sections analyse the outputs and outcomes within the understanding of broader contexts they were created within.

Network Outputs

Every process can result in tangible or intangible outputs. In understanding the operation of the Press, it is easy to connect the tangible outputs (e.g. the prints) to the Press' operation. However, this section proposes that only through the acknowledgment the Press' operation occurring in a complex network can the full scope of the outputs be identified. Discussing this within the analysis of the outputs that arose from Curtis's re-enacting the hand-setting of *te Tiriti*, after Colenso, leads to the conclusion that the outputs and outcomes are intricately connected. Without recognising the full scope of the complex network, the outputs, and consequently the resulting outcomes may not be understood.

As a resulting material artefact of this project, the final 185 prints of *te Tiriti o Waitangi* are the most visible output from this process. Each individual print is an output, as they are unique documents with variations in creation reflected in their materiality. As discrete objects, the prints are also distributed and engaged with as individual items. The prints are also an output as a group, as Curtis curated the series of 185 limited edition prints, through the post-print editing of these items. Therefore, the prints as the series are also a result of the process of the network.

When viewed as a sum of the network, the prints are a tangible result of the process of the performance. They represent Curtis's formation of the network, as evidence of Curtis's goals in creating a performance re-imagining Colenso's hand-setting of *te Tiriti*. Their physicality also reflects the minute associations which occurred between human and non-human actors within the network. For example, the variance of ink and impression on each individual print presents the associations between Curtis and the type when creating the type forme in the chase; then the speed and impression of the Press cylinder when operated by the machinist during printing. As seen in Chapter 2, the prints were distributed as an output of this performance, editioned and numbered, including accessioned copies in the Walsh Memorial Library (WML) collection.

The output of this project is the performance itself. As an output, the performance is intangible, arising from the enactment of Curtis's objectives in creating this hand-setting as a living performance. Curtis (2020a) states the aim of this project is to "share with the public and the wider MOTAT team the story of NZ's printing and political history as aspects of our present" (Curtis, 2020a, p. 1). Observing the project in the PS, realises the aims of Curtis's project. While hand-setting in the PS, Curtis engaged in conversation about the political context and importance of *te Tiriti o Waitangi* as a living document with PS visitors.

Though this performance is rooted in, and supported by, MOTAT, the project's outputs are only retained anecdotally. Even within this anecdotal retention, there is a lack of consideration for the comprehensive network these outputs arose from.

At MOTAT, the only public long-term retention of this project are the prints in the WML. As the cataloguer of these items, I can speak to how their retention in the archive focuses on their process of creation, and the significance and meaning of the wider project is referenced but not fully captured. Otherwise at MOTAT this project is retained ephemerally on social media or within internal meeting minutes (PSWG, personal correspondence, April 28, 2021). Thus, resulting in the only documentation of the full project sitting with Curtis in her personal archive (Curtis, 2020a; 2020b).

Likewise, Curtis's documentation is the sole record of the objects operated during this project. None of the objects operated during this project are accessioned, limiting opportunities to connect

them to this project given the absence of a repository for information on these items. Furthermore, following completion of this project Curtis faced challenges in ensuring MOTAT recognised the long-term value of the replica Colenso cases created for this project (M. Curtis, personal communication, February 15, 2020). These challenges included Curtis needing to advocate for the retention of these physical cases within the PS (M. Curtis, personal communication, February 15, 2020). This showcases that in the instances when the meaning created by this project was recognised it was through Curtis's advocacy alone, not by MOTAT.

I argue that by positioning the network as the creator of outputs rather than individual objects, this study supplements Haines and Woodham (2019) insights that meaning created through object operation in museums is primarily retained anecdotally or not at all. My analysis of the outputs in this section reveals that this disconnect not only impacts the understanding of the performance of objects that are being operated, but also influences the comprehension of the outputs. Since outputs are directly linked to broader outcomes of cultural heritage transmission and protection, and the meaning created by object operation, I propose that the dissociation of outputs from their networks of creation is an issue with real-world implications. The next section discusses these implications in more detail.

Network Outcomes

Outcomes are the changes which arise from outputs and are crucial in evaluating the impact of a process (Mills-Scofield, 2012). In this section I suggest that the significance of the network is derived from the outcomes resulting from the previously discussed outputs. Reflecting on the Press' involvement in this network, examining these outcomes aims to identify how they connect to the operation of the Press. From this examination, I propose that the outcomes prompt recommendations that advocate for the better retention of the complex network the Press operates within.

The prints of *te Tiriti o Waitangi* represent a tangible output of the process of the performance. As an outcome, the prints are representative of the ongoing creation of heritage from the performance. Each print is a material object, whose creation as an output from the original network discussed in this study is the beginning of each print's life history. Their journey continues through the distribution of the prints by Curtis, MOTAT staff and others, transporting these prints through different contexts. Based on location, use, role and value, these contexts infer new meaning to the prints (Gosden & Marshall, 1999). Concurrently, the prints possess the potential to influence people, objects and concepts to form social connections (Ruming, 2009). Thus, each print may become an actor in new networks, transmitting and obtaining changes to their value and role (Latour, 2005). For example, the framed prints of *He Whakaputanga o te Rangatiratanga o Nu Tireni* and *te Tiriti* gifted to Kaihautū Tīmoti Harris by MOTAT in 2021. This process of gifting resulted in associations created between the

prints and Curtis's performance to new actors including Timoti Harris, Te Māhurehure Cultural Marae and MOTAT's governance.

This cycle will continue for each print within its life, continuously impacting networks and facilitating the creation of tangible and intangible outputs and outcomes. Throughout their fluid life histories, the original network led by Curtis is represented. The context of this original network informs the perception of the prints within new networks. Thus, the meaning and impact the prints have through their life, is connected, and adds weight to the significance of the original network. The actors involved in the original network, which includes the Press, also gain significance. All become part of a processes that created tangible outcomes which have far reaching effects producing cultural meaning and connections.

The performance of the printing of *te Tiriti* as a living public exhibit is an intangible output of the network. As an outcome, this performance transforms the PS space and actors as part of an artistic and experiential research project (Curtis, 2020a). Analysis in Chapter 5 discusses how the operation of the Press in this network recontextualises the role and value of the Press. I propose that given the performance is a result of the complex network, it causes a greater scope of recontextualisation of the PS space.

As explored in Chapter 2, based in the legacy of MOTAT, an objects' operation prioritises a technological functional understanding, which emphasises a Pākehā and colonial significance (Stone et al., 1996; Wilks & Kelly, 2008). The inclusion of artistic performances such as Curtis in the PS, opens the possibility to disrupt this narrative. This is as the artistic and experiential nature of Curtis's work performed in the PS, changes how the PS is being activated. It shifts the onus of this space away from the technological function of letterpress towards a reinvigoration of the artistic craftmanship of letterpress printing. In such, the PS connects to other spaces around Aotearoa New Zealand which are also exploring this revitalisation of letterpress in contemporary contexts (The Printing Museum, 2014; Wai-te-ata Press, 2023).

The outcomes of the prints and the performance from the network foster the ongoing creation of cultural heritage. This creates a potentially infinite series of relationships and meaning spanning from the network. Considering that through ANT the meaning of a network arises from the associations of the actors within, the cultural heritage arising from the network creates a feedback loop to the actors (Latour, 2005). This suggests that the weight of significance of the outcomes is a reflection on the significance of the actors involved in creating these outcomes.

Discussion Review

The Press as an actor involved in the network is imbued with significance from its participation in the creation of heritage within this project. Given that through ANT the networks and meaning created shift with each change of context or addition of actors, each participation of the Press in operation will result in a potential for new significance to be reflected to the Press.

I propose that this is a strong argument for why the Press should be considered a significant object. The disconnection of the Press from its retention of historic, technological, and operational contexts due to MOTAT's focus on the Press' operation poses a risk to the further disconnection of the Press from its significance.

This research recommends that to ensure the Press is valued and its significance retained it should be accessioned into the collection. As stated in Chapter 2, accessioning an object brings with it a plethora of considerations, especially when it comes to operational objects (Pye, 2016; Sudermeyer, 2019). Additionally, as noted from research interviews with the Curatorial and Registry team at MOTAT, the current retention of accessioned operational objects intangible heritage is a recognised limitation. However, the level of risk of further disconnection from its contexts due to a reliance on tacit knowledge is high. The significance of the Press as identified by this research, supports the idea that to mitigate risk and assist in a proper understanding of the Press, this item should be brought into the collection.

Summary

From analysing these key themes, this thesis identifies the underlying theme from this research: it is only by recognising the complex networks the Press exist within can the Press be fully activated.

The core themes discussed in this chapter support this insight by exploring different but related aspects of the network. Analysis of the outputs identifies that without understanding the Press' operation as part of a complex network there is not only a disconnection of the Press' value but also the value of the outputs arising from its operation. It is the outcomes which arise from these outputs that create new aspects of cultural heritage. In turn, they contextualise the Press as a significant item through its contemporary operation.

Recognition of the potential impact this research can have on the Press' future contexts, supports this thesis' recommendation that as a significant object, the Press should be accessioned to mitigate risk of disconnection from its existence as part of a complex network of creation.

Without retaining the Press' involvement in complex networks, it reinforces the significance of the Press based on its technological functionality, rather than contextualised in social history and contemporary meaning.

Chapter 7: Conclusion

https://youtu.be/w8Xb_YtKlTw

Figure 7.1

Heidelberg KSD Cylinder Press in Operation at MOTAT's Print Shop

> If no means of access is provided to an object's specific 'set of behavioural routines', nothing can be learnt from this object. It has been converted – distorted – into a pure and functionless object.
>
> (Gauvin, 2016, p. 7)

> […] the print room is a kind of archive, and it is an archive that is of machinery, of materials, of cultural heritage, of stories, of experiences and it needs to be all of those things.
>
> (M. Curtis, personal communication, February 15, 2020)

The core objective of this research was to explore the impact of limited retention of cultural significance and social status has on the activation of the Heidelberg KSD Cylinder letterpress printing press (referred to as the 'Press') at MOTAT.

Integral to this objective is the consideration that activation of the Press requires recognition of the Press' cultural aspects, alongside its technological function (Gauvin, 2016). If these aspects are not acknowledged, it reduces the ability for the Press to be connected to contemporary issues, posing challenges for the perception of its value by the museum (Trischler, 2020).

This thesis captures the narratives of museum practitioners, including 'enthusiast experts' – the volunteers with technological expertise – who understand and communicate the significance of the Press (Haines & Woodham, 2019). These narratives illuminate that the Press' cultural and technological significance is rooted in its operation within the letterpress process. This insight underscores the need to preserve these aspects to uphold the value of the Press, alongside the new forms of heritage, stories and experience the process of its operation creates.

This final chapter is organised into four main sections: Research orientation: questions and aims; science and technology (sci-tech) museums: object activation and operation; theoretical framework: Material Culture Studies and Actor Network Theory; museology: theory guiding practice. The chapter then reflects on the limitations of this small-scale study and how this might open the path for further work.

Research Orientation: Questions and Aims

To investigate the challenges arising from the gap between the disparity of the retention of the Press' technological and cultural significance at MOTAT, this research recognised the need to understand the current perception of the Press, and the actuality of its significance. To complete this, the research posed two questions.

The first question asked how the Press as an operational object is understood at MOTAT. The aim of this question was to identify the factors of operation at MOTAT which impact the recognition of the Press' significance and social status.

Contextualising the Press as an operational object within MOTAT's Print Shop (PS), identified that though the importance of its functionality is recognised, it is undervalued, due to the historical and current operational focuses, coupled with its non-accessioned status.

The emphasis on functionality highlights its technological significance, while its cultural and social aspects are only informally recognised by PS experts.

The second question investigates how the operation of the Press adds to, or changes, its significance and social status. This question seeks to identify fluid connections and evolving meanings during the Press' operation, aiming to discern the scope of its activation.

This inquiry revealed that the Press is a significant object, with an actively changing social status. Recognising this requires an understanding of the Press through its operation, facilitated by experts within a complex network of connections that brings this activation to light.

Sci-tech Museums: Object Activation and Operation

Considering the conclusions drawn from the research questions, this research revealed that the Press is not fully activated, as the depth of connections it engages with through its operation are not retained. The lack of full activation results in the Press being disconnected from its inherent value,

reinforcing an inaccurate understanding of the Press as an object with limited technological and historic significance to an Aotearoa New Zealand context.

This interpretation supports Haines and Woodham (2019) and Craddock (2023), who argue that meaning created through experts' operation of sci-tech objects often remains disconnected from the significance and social status of the objects being operated. By extensively exploring the intricate connections surrounding the Press, this research also builds on their arguments. Recognising that the created meaning not being connected back to the Press poses a risk not only to the object, but also to the outcomes of operation that generate new facets of heritage linked to contemporary contexts.

As the creation of meaning through the operation of sci-tech objects remains an underdeveloped field of research, the insights from this study contribute new dimensions to support the continuous renegotiation of the value of operational objects within museums. This, in turn, aligns with the broader reassessment of sci-tech objects in museum contexts (Bud, 2017; Gauvin, 2016; Hetherington, 1999; McLean, 2016; Trischler, 2020).

Theoretical Framework: Material Culture Studies and Actor Network Theory

To investigate the Press' operation, this research acknowledged the need for a theoretical framework which supported the exploration of the Press' operation, and the connections formed during this process.

Craddock (2023) acknowledges the limitation of traditional text-based research disciplines, such as museology, in effectively engaging with the tacit dimensions of how knowledge is manifested. Similarly, recognition of these tacit dimensions is not easily supported in significance frameworks that solely focus on the object's materiality (Prown, 1982; Russell & Winkworth, 2008).

Thus, Actor Network Theory (ANT) was used, as it offers a framework that supported the analysis of the Press' operation, without imposing expectations on its role and influence in this process.

However, integral to the study of the Press' operation was its context in MOTAT as a sci-tech museum. Therefore, an examination of the Press was necessary within a framework that prioritised recognition of the materiality of operational objects within museums.

Consequently, a material culture analysis following Prown (1982) was conducted to construct an Object Biography of the Press, encompassing its life history, including its current context at MOTAT.

The application of ANT alongside the material culture analysis, created a way to recognise the continued evolution of the Press occurring through the connections formed by its operation.

Additionally, this framework provided the ability for discussion of future considerations of the outcomes of research into the Press and operational objects.

Museology: Theory Guiding Practice

Bennett (2005) acknowledges the benefit of theoretical frameworks in shaping museum practices. I suggest that the applied theoretical framework employed to study the Press' operation has real-world applicable value for practical research on the Press and operational objects in general.

As a non-accessioned operational object, this research was the first in-depth analysis of the Press within a museology frame. Thus, this research is also the most comprehensive documentation of the Press' provenance. The focus of this study on the Press' operation left gaps in its complete life history, significantly where the Press was between its role at the Government Printers and Geon. This research suggests that the Press' significance makes it a candidate for accessioning. This recommendation positions the research within the Object Biography as a valuable starting point for further exploration of the Press' life history and interpretive significance.

Moreover, I propose that the theoretical framework, incorporating object-analysis with ANT, offers a unique and beneficial method for the exploration of operational objects within museums.

As reflected in Craddock (2023) and Haines and Woodham (2019), there is currently a lack of a widely adopted, comprehensive methodology in museums that supports the exploration of all facets of operational objects.

The methodological application of the theoretical framework in this study, including the use of visual documentation, offers a comprehensive approach to the understanding the Press' operation.

The recognised benefits of applying this comprehensive framework within this study raise considerations for its potential application to explore other operational sci-tech objects within museums.

Reflections

By exploring the Press, this research has conducted an in-depth analysis of a significant object which has other wise been overlooked because of its context.

Furthermore, this exploration has bought to light a threat to the value and future operation of sci-tech objects. This has emphasised the need for practical methods to retain their cultural and technological significance and social status.

The approach of this research has highlighted crucial facets of operational objects that are essential to understanding their role within museums. This contributes to a growing body of research attempting to rectify the under-recognition of operational objects' value in museum practice and academic research.

However, this research's focus on the effect of the Press' operation on its significance and social status had a narrow scope of study. This limited the recognition of the Press' broader contexts at MOTAT, specifically the understanding of the intricacies of visitor engagement with the Press.

To support the observations in this study regarding the Press' value at MOTAT, and to obtain a more comprehensive picture of the complex network the Press is operated within, I recommend further research be conducted that explores its engagement with visitors.

Further research is also required to determine the relevance of the theoretical framework applied in this study for its application to understand other operational objects in sci-tech museums.

I suggest applying this framework to the exploration of accessioned operational sci-tech objects. Comparing this proposed study with the Press, will determine the cross-sectional value of this framework. This comparison would assist in determining the theoretical framework's relevance for wider utilisation.

Furthermore, a study using this framework on an accessioned object would support a deeper understanding of the Press' analysis, by revealing the level of impact operational object accession status has on its recognised value.

Closing Remarks

This thesis has conducted research into a small aspect of the heterogeneous landscape which is operational objects activation within museums.

Through conducting a case study on the Press, this research aligns with existing recognition of challenges arising from operational objects' disconnect from their cultural significance. It is these challenges which can result in the reduction of objects' perceived value, as articulated in Gauvin's (2017) notion of the "pure and functionless object" (p. 7).

Moreover, what I hoped to have highlighted through this study is that operational objects possess significance that may not be readily apparent through a museology lens. However, this significance is certainly recognised by the communities with specialised knowledge of these objects, such as the experts.

This is reflected in Curtis's quote at the beginning of this chapter, showcasing her recognition of the Print Shop beyond a fixed workshop or exhibition. Rather, she views its existence as an active space that archives, and creates, intangible and tangible heritage.

It is the knowledge, skill, and passion of these experts that when facilitated within the museum environment bring to life the intangible and tangible heritage of operational objects. In turn, this creates new forms of contemporary heritage inherently interconnected with communities.

List of interviewees

Interviewee	MOTAT Role	Date	Location	Length
Makyla Curtis	Print Shop Team Member (2012- present)	February 15th 2020	Corban Estate Arts Centre	01: 46.69
Christen McAlpine	Head of Registry (2013 – present)	January 14th 2020	MOTAT Offsite Storage	01:06:42
Louis Eaton	Collection Operations Coordinator (2018 – 2022)	December 20th 2019	MOTAT, Site 1	00:47:27
Nicola Jennings	Senior Curator of Technology (2022 – present)	August 16, 2023	MOTAT Offsite Storage	00:11:27
Belinda Nevin	Head of Curatorial Research (2010 – present)	March 4th 2020	MOTAT Offsite Storage	00:49:10
Stephen Penney	Print Shop Team Member (2021 – present)	August 27, 2023	MOTAT Print Shop	00:38:02
Graham O'Keeffe	Print Shop Team Leader (2006- 2021)	December 9, 2020	MOTAT Print Shop	00:22:07

References

A.M. Satterthwaite & Co. Ltd. (1937, February 18). Modern Printing equipment. *Timaru Herald*, p. 7. https://paperspast.natlib.govt.nz/newspapers/THD19370218.2.42.1

Alberti, S. J. M. M. (2005). Objects and the Museum. *Isis, 96*(4), 559 – 571. https://doi-org.ezproxy.massey.ac.nz/10.1086/498592

Archives New Zealand (2022). *He Whakaputanga o te Rangatiratanga o Nu Tireni*

The Declaration of the Independence of New Zealand. https://www.archives.govt.nz/discover-our stories/the-treaty-of-waitangi

Archives New Zealand *(2023). The sheets and signatures of te Tiriti o Waitangi.* https://www.archives.govt.nz/discover-our-stories/the-treaty-of-waitangi

Association of British Transport & Engineering Museums. (2018). *Guidelines for the Care of Larger and Working Historic Objects*. Collections Trust.

Bak. M. A. (2016). The Ludic Archive: The Work of Playing with Optical Toys. *The Moving Image: The Journal of the Association of Moving Image Archivists, 16*(1), 1 – 16. https://doi.org/10.5749/movingimage.16.1.0001

Bennett, T. (2005). Civic Laboratories: Museums, cultural objecthood and the governance of the social. *Cultural Studies, 19*(5), 521 – 547.

Bennett, T., & Joyce, P. (2010). *Material powers: cultural studies, history and the material turn.* Routledge.

Bud, R. (2017). Museums theme – Adventures in Museology: category building over a century, and the context for experiments in reinvigorating the Science Museum at the turn of the twenty-first century. *Science Museum Group Journal*, *8*, 1-12. https://doi.org/10.15180/170809

Chatterjee, H.J. & Hannan, L. (2015). *Engaging the Senses: Object-Based Learning in Higher Education*. Routledge.

Chavez, C. (2008). Conceptualizing from the inside: Advantages, complications, and demands on insider positionality. *The Qualitative Report, 13*(3), 474-494.

Chipangura, N., & Mandizvo, C. (2015). Static collections and experiential connections at Mutare Museum. *Museum International, 65*(1-4), 106-112. https://doi:10.1111/muse.12037

Conole, L., Hallett, M., Grant, A., & Scienceworks. (1993). *Heritage artefacts: hands on hands off?: activating heritage artefacts, the conservation and safety issues*. Scienceworks.

Craddock, P. (2023). Connecting with industrial heritage collections using video production methods: Greg Kotovs and the can-gill machine. *Science Museum Group Journal, 18*, 1-6. https://doi.org/10.15180/221808

Cresswell, J. (1976). *MOTAT: Museum of Transport and Technology of New Zealand (Inc.)*. Paul Hamlyn Limited.

Cresswell, K. M., Worth, A., & Sheikh, A. (2010). Actor-network Theory and its role in understanding the implementation of information technology developments in healthcare. *BMC Medical Informatics and Decision Making, 10*(1), 1 - 11. https://doi:10.1186/1472-6947-10-67

Curtis, M. (2016, Summer). A Case for Māori Type. *Type High,* p. 10. http://www.theprintingmuseum.org.nz/assets/th-sum16-lr.pdf

Curtis, M. (2019, September 15). *He Whakaputanga: the final print* [Blog]. Wordpress. https://Curtis.wordpress.com/2019/09/15/he-whakaputanga-the-final-print/

Curtis, M. (2020a). *Ka mua, ka muri: resetting the archive*. [Unpublished master's thesis]. Auckland University of Technology.

Curtis, M. (2020b). *About* [Blog]. Wordpress. https://Curtis.wordpress.com/about/

Drazin, A. (2020). The Object Biography. In T. Carroll, A. Walford & S. Walton (Eds.), *Lineages and Advancements in Material Culture Studies: Perspectives from UCL Anthropology* (pp. 61-74). Routledge.

Eaton, L. (2021). *Work in Progress – The Print Shop* [Blog]. The MOTAT Society. https://www.motatsociety.org.nz/post/work-in-progress-the-print-shop

Edwards, E., Gosden, C., & Phillips, R. B. (2006). *Sensible objects: colonialism, museums and material culture*. Berg.

Elbanna, A. (2011). The theoretical and analytical inclusion of Actor Network Theory and its implication on ICT research. In A. Tatnall (Ed.), *Actor-network theory and technology innovation: advancements and new concepts* (pp. 130 – 142). Hershey.

Evans, D., Gruba, P., & Zobel, J. (2014). Establishing your contribution. In D. Evans, P. Gruba & J. Zobel (Eds.), *How to write a better thesis* (pp. 83-95). Springer. https://doi.org/10.1007/978-3-319-04286-2_7

Farnsworth, J. (1997). Sculpture in active service. In P. Lindley (Ed.), *Sculpture conservation: preservation or interference?* (pp. 39-53). Scolar Press

Federation of Master Printers of New Zealand Incorporated. (1962). *The printing industry in New Zealand: processes and opportunities*. Federation of Master Printers of New Zealand Incorporated

Fleming, E. M. (1974). Artifact Study: A Proposed Model. *Winterthur Portfolio, 9*, 153-173.

Gauvin, J. (2016). Functionless: science museums and the display of 'pure objects.' *Science Museum Group Journal, 05*, 1-18. https://doi.org/10.15180/160506

Given, L. M. (2008). *The SAGE encyclopedia of qualitative research methods*. SAGE Publications, Inc. https://doi.org/10.4135/9781412963909

Goldsmith, P. (2008). *We won, you lost. Eat that!* David Ling Publishing Limited

Gosden, C., & Marshall, Y. (1999). The Cultural Biography of Objects. *World Archaeology, 31*(2), 169-178.

Graham, H. (2018). The "co" in co-production: Museums, community participation and Science and Technology Studies. *Science Museum Group Journal, 5*, 1-23. https://doi:10.15180/160502

Grenville, B. (2013, June). New press successfully moved in to MOTAT Print Shop! *The Squeaky Wheel,* (10), 5.

Harrison, P. A. (2021). *Uncovering transgression in the textiles collection of the National Army Museum Te Mata Toa* [Masters Thesis, Massey University]. Massey Research Online. https://mro.massey.ac.nz/items/68894563-68e7-481e-a10a-9d1e5c1634cb

Haffenden, P. (1994). *Your history mate: the work of a community museum in Melbourne's Western Suburbs*. Melbourne's Living Museum of the West.

Haines, E. & Woodham, A. (2019). Mobilising the Energy in Store: stored collections, enthusiast experts and the ecology of heritage. *Science Museum Group Journal, 12*, 1-27. https://doi.org/10.15180/191207

Heidelberger Druckmaschinen-Aktiengesellschaft. (1967). *Original Heidelberg Cylinder 22 ½ x 30 ¼" / 22 ½ x 32 ¼ " Operation manual.* Heidelberger Druckmaschinen-Aktiengesellschaft. https://dolcepress.com/wpcontent/uploads/downloads/Heidelberg_Cylinder_Operation_Manual.pdf

Heidelberger Druckmaschinen-Aktiengesellschaft. (2000). *150 years of Heidelberger Druckmaschinen Aktiengesellschaft: 1850-2000; from maker of letterset presses to the world's leading provider of solutions for the entire printing and publishing industry.* Heidelberger Druckmaschinen-Aktiengesellschaft

Hetherington, K. (1999). From blindness to blindness: Museums, heterogeneity and the subject. *The Sociological Review, 47*(1), 51-73. https://doi:10.1111/j.1467-954X.1999.tb03482.x

Hooper-Greenhill, E. (2004). Communication in theory and practice. In E. Hooper-Greenhill (Ed.), *The Educational Role of the Museum* (pp. 28 - 43). Routledge.

Howard Iron Works (n.d.). *Heidelberg KSD Cylinder Press – Age 1976.* http://www.howardironworks.org/collection/cp-heidelberg-ksd.html#:~:text=It%20had%20been%20used%20for,use%20when%20cutting%20and%20creasing

Hutching, M. (2021). *Short Sunderland NZ4115. New Zealand* [Blog]. The Museum of Transport and Technology (MOTAT). https://collection.motat.nz/topics/100/short-sunderland-nz4115

Ireland, T., & Lydon, J. (2016). Rethinking materiality, memory and identity. *Public History Review, 23*, 1-8.

Joy, J. (2009). Reinvigorating Object Biography: Reproducing the Drama of Object Lives. *World Archaeology, 41*(4), 540-556. https://doi:10.1080/00438240903345530

Kawulich, B.B. (2005). Participant Observation as a Data Collection Method*. Forum Qualitative Sozialforschung Forum: Qualitative Social Research, 6*(2), Article 43. https://doi.org/10.17169/fqs-6.2.466

Kia Piki Ake - Welfare Expert Advisory Group. (2022). *History of the New Zealand Welfare System*. https://www.weag.govt.nz/background/history-welfare-system/

Knoblauch, H., Tuma, R., & Schnettler, B. (2018). Videography. In U. Flick (Ed.), *The Sage handbook of qualitative data collection* (pp. 362-377). Sage Publications Ltd.

Kopytoff, I. (1986). The cultural biography of things: commoditization as process. In A. Appadurai (Ed.), *The Social life of things: commodities in cultural perspective* (pp. 64-91). Cambridge University Press.

Latour, B. (2005). *Reassembling the Social: An Introduction to Actor-network-Theory*. OUP Oxford.

Liang, R. (2022). *Poetry Shelf: Renee Liang interviews Makyla Curtis* [Blog]. NZ Poetry Shelf. https://nzpoetryshelf.com/2022/04/06/poetry-shelf-renee-liang-interviews-Curtis/

Little, K., McWilliams, F. & Swinbank, E. (2022). 'South Kensington is practically as far away as Paris or Munich': the making of industrial collections in Edinburgh, Newcastle and Birmingham. *Congruence Engine*, *18*, 1-29. https://dx.doi.org/10.15180/221802/001

Mackay, D. (1990). Colenso, William. In *Te Ara - the Encyclopedia of New Zealand.* Retrieved September 13, 2023, from https://teara.govt.nz/en/biographies/1c23/colenso-william

Maharey, S. (2000, September 15). *Social Welfare in New Zealand* [Speech]. Beehive. https://www.beehive.govt.nz/speech/social-welfare-new-zealand

McCormack, H. D. 2020. *The Human Story of an Adana Press* [Blog]. The Museum of Transport and Technology (MOTAT). https://collection.motat.nz/topics/62/the-human-story-of-an-adana-press

McLean, A. (2016). Flying Scotsman: modernity, nostalgia and Britain's 'cult of the past.' *Science Museum Group Journal, 5,* 1-26. https://doi.org/10.15180/160507

Michael, M. (2017). Actor-network theory: old and new roots. In M. Michael (Ed.), *Actor-network theory* (pp. 10-27). SAGE Publications Ltd.

Mills-Scofield, D. (2012, November 26). *It's Not Just Semantics: Managing Outcomes Vs. Outputs* [Blog]. Harvard Business School. https://hbr.org/2012/11/its-not-just-semantics-managing-outcomes

Ministry of Social Development - Te Manatū Whakahiato Ora. (2018). *Historical Timeline*. https://www.msd.govt.nz/about-msd-and-our-work/about-msd/history/index.html

MOTAT Printing Section, Wadsworth, D., Coneradi, W., & Judd, G. (2019, July). *Hoea tō waka*. (ART-2019-22.4). Walsh Memorial Library, Museum of Transport and Technology, Auckland, New Zealand

MOTAT Society. (2015, June). Modern machinery helps Print Shop. *The Squeaky Wheel,* (20), 3.

Museum of Transport and Technology Act. (2000). http://www.legislation.govt.nz/act/private/2000/0001/latest/whole.html?search=sw_096be8ed80647ea4_operation_25_se&p=1#whole

Museum of Transport and Technology. (2013, September). The Heidelberg KSD. *The MOTAT Chronicle,* (1), 1.

Museum of Transport and Technology. (2018). *Collection Policy.*

Museum of Transport and Technology. (2019). *Conservation Policy.*

Museum of Transport and Technology. (2021). *2019 - 2029 Master Strategy*. https://www.motat.nz/about/our-vision-strategy-and-values/#:~:text=OUR%20STRATEGY,-In%20July%202014&text=During%20the%20course%20of%202018,Better%20collection%20care%20and%20acquisition

Museum of Transport and Technology. (2022a). *Annual Plan 2023-2024*

Museum of Transport and Technology. (2022b). *Visitor Experience Plan 2019 -2025*

Museum of Transport and Technology (2023a). *Volunteer.* https://www.motat.nz/get-involved/volunteer/

Museum of Transport and Technology (2023b). *Our vision, strategy and values.* https://www.motat.nz/about/our-vision-strategy-and-values/

Museum of Transport and Technology (2023c). *New science and technology centre.* https://www.motat.nz/visit/new-science-and-technology-centre/

Museum of Transport and Technology (2023d). *Our History.* https://www.motat.nz/about/our-history/

Museum of Transport and Technology (2023f). *Print Shop*. https://www.motat.nz/experiences/print-shop/

Noted businessman retires. (1972, August 11). *Press*, p. 1

O'Keeffe, G. (2021). *Heidelberg: The XXXX Machine Manufacturer.*

Operating Collections Working Group. (2016). *Working Objects: guidelines for their operation and care* [Draft]. Museums Aotearoa

Printing Equipment Inc. (n.d.). *[Heidelberg].* https://www.ddprintequip.com/Heidelberg%20SN%20New.htm

Prown, J. D. (1982). Mind in Matter: An Introduction to Material Culture Theory and Method. *Winterthur Portfolio, 17*(1), 1-19.

Pye, E. (2016). Challenges of conservation: working objects. *Science Museum Group Journal, 6*, 1-22. https://doi.org/10.15180/160608

Roulston, K. & Choi, M. (2018). Qualitative interviews. In U. Flick (Ed.) *The SAGE Handbook of Qualitative Data Collection* (pp. 233 – 249). SAGE Publications Ltd. https://doi.org/10.4135/9781526416070

Ruming, K. (2009). Following the Actors: mobilising an actor-network theory methodology in geography. *Australian Geographer 40*(4), 451-469.

Scarpaci, J. L. (2016). Material Culture and the Meaning of Objects. *Material Culture, 48*(1), 1 - 9

Schnellpressenfabrik AG Heidelberg. (1954). The Original Heidelberg Cylinder 21" x 28". *Heidelberg News, 12*(5), 6 -7.

Stone, H., Gribble, R., Otamatea, K., Pioneer, M., & Trust, B. (1996). *The museum makers: a book that details the creation of two museums in New Zealand, which have become significant identities, institutions within their own communities.* Otamatea Kauri & Pioneer Museum Trust Board, Matakohe Kauri Museum.

Sundermeyer, J. K. (2019). *A Thesis on the Authenticity and Preservation of Functionally-Used Objects* [Masters Thesis, University of Washington]. ResearchWorks Archive https://digital.lib.washington.edu/researchworks/handle/1773/43835

National Services Te Paerangi. (2004). *Bicultural Governance.* Museum of New Zealand Te Papa Tongarewa

Tight, M. (2022). Designing case studies. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Research Design* (pp. 399-413). SAGE Publications Ltd. https://doi.org/10.4135/9781529770278

Trischler, H. (2020). Festschrift: how do we value artefacts in museum research? *Science Museum Group Journal, 13*, 93 – 106. https://doi-org.ezproxy.massey.ac.nz/10.15180/201310

Waite, N. (1997). Private printing. In P. Griffith, R. Harvey & K. Maslen (Eds.), *Book & print in New Zealand: a guide to print culture in Aotearoa* (pp. 82-85). Victoria University Press.

Waller, L. (2017). Curating actor-network theory: testing object-oriented sociology in the Science Museum. *Museum & Society, 14*(1), 193-206. https://doi:10.29311/mas.v14i1.634

Walsh, K. (1992). *The representation of the past: museums and heritage in the postmodern world*. Routledge.

Walton, J., Paradies, Y., & Mansouri, F. (2016). Towards reflexive ethnicity: Museums as sites of intercultural encounter. *British Educational Research Journal, 42*(5), 871-889. https://doi:10.1002/berj.3241

Wästerfors, D. (2018). Observations. In U. Flick (Ed), *The Sage handbook of qualitative data collection* (pp. 314 -326). Sage Publications Ltd.

Wilks, C., & Kelly, C. (2008). Fact, Fiction and Nostalgia: An Assessment of Heritage Interpretation at Living Museums. *International Journal of Intangible Heritage, 3,* 128-140.

Yin, R.K. (2003). Identifying Your Case(s) and Establishing the Logic of Your Case Study. In L. Maruster & M.J. Gijsenberg (Eds), *Qualitative Research Methods* (pp. 359 – 400). Sage Publications Ltd.

Young, L. (2006). Villages that Never Were: The Museum Village as a Heritage Genre. *International Journal of Heritage Studies, 12*(4), 321-338. https://doi:10.1080/13527250600727059

Appendix 1: Ethics Forms

Functional collection objects at MOTAT

INFORMATION SHEET – OBSERVATIONS AND VISUAL DOCUMENTATION

Kia ora, I'm Freya Elmer, a Master's student of Museum Studies, School of People, Environment and Planning at Massey University.

I am currently conducting field research for my master's thesis, aiming to answer the research question: How can the activation of functional collection objects increase accessibility and engagement with collections?

This project aims to answer this question by researching a case study of work created by the Museum of Transport and Technology Print Shop volunteer, Makyla Curtis.

In order to conduct this research, I would like to invite you to take part in observations/visual documentations. You have been selected as a potential candidate to participate in this research, because of your involvement with the Print Shop at MOTAT, and I believe your contribution to this research would be valuable. Observations, visual documentation and individual interviews will be conducted in order to answer this research question. Potential interview participants will be contacted separately to this process.

Participation in this research will include observation/visual documentation by myself at pre-arranged times with yourselves and MOTAT management.

Observations will include myself unobtrusively observing and taking notes of Print Shop volunteers work and processes within the Print Shop on Sundays from 10am – 4pm.

Visual documentation will include the use of video and photography taken by myself, of volunteer staff and machinery within the MOTAT Print Shop on Sundays from 10am – 4pm.

I do not envisage any discomforts or risks to participants within this research and the information gained from these observations/visual documentation will only be used for research purposes for my thesis.

Details:

- Participation within this research will include observation/visual documentation by myself at
- pre-arranged times with yourselves and MOTAT management.
    - Observations will include myself unobtrusively observing and taking notes of Print Shop volunteers work and processes within the Print Shop on Sundays from 10am 4pm.
    - Visual documentation will include the use of video and photography taken by myself of volunteer staff and machinery within the MOTAT Print Shop on Sundays from 10am – 4pm.
- Recordings, images, and notes taken during observations/visual documentation will be kept on a personal and password protected computer.
- A transcript of any audio captured during video documentation will be provided to you with a Transcript Release Agreement for approval and consent for use within research.
- The recordings and images will be deleted post hand in of thesis, on the 29th February 2021. Ethics forms signed materials and transcripts will be deleted once final grades are released, around mid-2021.
- Please feel free to contact me to request the videos/images or a summary of field notes taken during observations, or a summary of the thesis.
- Within the write up of this research MOTAT will be named and identifiable.

School of People, Environment and Planning
Private Bag 11 222, Palmerston North, New Zealand
06 356 9099|http://pep.massey.ac.nz

- You have the option for your identity to remain anonymous within this research. If you choose for your identity to remain anonymous, please mark *do not agree* on clause 2 on the participant consent form.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to be recorded during observations/visual documentation.
- withdraw from the study before the 25th November 2019.
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.
- ask for documentation/observations to be stopped any time during the research

Project Contacts

Participants are invited to contact researcher and/or supervisor if they have any questions about the project.

- Researcher: Freya Elmer. Contact: [redacted] Tel [redacted]
- Supervisor: Dr. Susan Abasa, Programme Co-ordinator, Museum Studies s.f.abasa@massey.ac.nz Tel 06 3505799 xtn 83658

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz".

Functional collection objects at MOTAT

INFORMATION SHEET – INTERVIEWS *[2019/2020]*

Kia ora, I'm Freya Elmer, a Master's student of Museum Studies, School of People, Environment and Planning at Massey University.

We have previously discussed my current project conducting research into a case study of Museum of Transport and Technology Print Shop volunteer, Makyla Curtis. Aiming to explore how her work increases accessibility and engagement with collections.

Thank you for responding to my call out for people to assist me, I am now formally inviting you to take part in two audio recorded interviews with me.

The first interview will be approximately 30 – 60 minutes long, with a follow up interview arranged post this first interview if necessary, at approximately 20 – 30 minutes long. Interviews will be audio recorded and post interview a transcript will be provided for your approval.

I do not envisage any discomforts or risks to participants within this research. The interviews and information gained from them will only be used for research purposes for my thesis.

Details

- Participation within this research will include two interviews.
    - The first interview will be between thirty to sixty minutes.
    - The second interview will be a follow up interview based off information received from the first interview. The second interview will be between twenty to thirty minutes.
- Interviews will be recorded
- Post interview, a transcript will be provided to you with a Transcript Release Agreement for approval and consent for use within research.
- Recordings and transcript of the interview will be kept on a personal and password protected computer.
- The tape recording will be deleted post hand in of thesis, on the 29th February 2021. Ethics forms signed materials and transcript will be deleted once final grades are released, around mid-2021.
- Please feel free to contact me to request a summary of the interview or thesis.
- Within the write up of this research MOTAT will be named and identifiable.
- You have the option for your identity to remain anonymous within the transcript and write up of this research. If you choose for your identity to remain anonymous, please mark *do not agree* on clause 2 on the participant consent form.

School of People, Environment and Planning
Private Bag 11 222, Palmerston North, New Zealand
06 356 9099|http://pep.massey.ac.nz

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any question;
- withdraw from the study before the 25th November 2019.
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.
- ask for the recorder to be turned off at any time during the interview.

Project Contacts

Participants are invited to contact researcher and/or supervisor if they have any questions about the project.

- Researcher: Freya Elmer. Contact: [redacted]
- Supervisor: Dr. Susan Abasa, Programme Co-ordinator, Museum Studies s.f.abasa@massey.ac.nz Tel 06 3505799 xtn 83658

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz".

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Functional collection objects at MOTAT

INFORMATION SHEET – INTERVIEWS *[2019/2020]*

Kia ora, I'm Freya Elmer, a Master's student of Museum Studies, School of People, Environment and Planning at Massey University.

We have previously discussed my current project conducting research into a case study of Museum of Transport and Technology operational collection items focusing on Print Shop volunteer, Makyla Curtis. Aiming to explore how her work increases accessibility and engagement with collections.

Thank you for responding to my call out for people to assist me, I am now formally inviting you to take part in an audio recorded interview with me.

The interview will be approximately 30 – 60 minutes long. Interviews will be audio recorded and post interview a transcript will be provided for your approval.

I do not envisage any discomforts or risks to participants within this research. The interviews and information gained from them will only be used for research purposes for my thesis.

Details:

- Participation within this research will include one interview between thirty to sixty minutes.
- Interviews will be recorded
- Post interview, a transcript will be provided to you with a Transcript Release Agreement for approval and consent for use within research.
- Recordings and transcript of the interview will be kept on a personal and password protected computer.
- The tape recording will be deleted post hand in of thesis, on the 29th February 2021. Ethics forms signed materials and transcript will be deleted once final grades are released, around mid-2021.
- Please feel free to contact me to request a summary of the interview or thesis.
- Within the write up of this research MOTAT will be named and identifiable.
- You have the option for your identity to remain anonymous within the transcript and write up of this research. If you choose for your identity to remain anonymous, please mark *do not agree* on clause 2 on the participant consent form.

School of People, Environment and Planning
Private Bag 11 222, Palmerston North, New Zealand
06 356 9099|http://pep.massey.ac.nz

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any question;
- withdraw from the study before the 25th November 2019.
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.
- ask for the recorder to be turned off at any time during the interview.

Project Contacts

Participants are invited to contact researcher and/or supervisor if they have any questions about the project.

- Researcher: Freya Elmer. Contact: [redacted]
- Supervisor: Dr. Susan Abasa, Programme Co-ordinator, Museum Studies s.f.abasa@massey.ac.nz Tel 06 3505799 xtn 83658

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz".

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

PARTICIPANT CONSENT FORM – INDIVIDUAL *[Observations 2019/2020]*

I have read and understand the Information Sheet attached as Appendix I.

I have had the details of the study explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I have been given sufficient time to consider whether to participate in this study and I understand participation is voluntary and that I may withdraw from the study before 25th November 2019.

1. I agree/do not agree to observations/visual documentation of myself being taken

2. I wish/do not wish to have visual documentation returned to me.

3. I agree/do not agree to provide permission for researcher to use my identity within research.

4. I agree to participate in this study under the conditions set out in the Information Sheet.

Declaration by Participant:

I _____[print full name]_____hereby consent to take part in this study.

Signature: _____ Date: _____

School of People, Environment and Planning
Private Bag 11 222, Palmerston North, New Zealand
06 356 9099|http://pep.massey.ac.nz

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

PARTICIPANT CONSENT FORM – INDIVIDUAL- INTERVIEWS *[2019/2020]*

I have read and I understand the Information Sheet attached as Appendix I.

I have had the details of the study explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I have been given sufficient time to consider whether to participate in this study and I understand participation is voluntary and that I may withdraw from the study pre 25th November 2019.

1. I agree/do not agree to the interview being sound recorded.

2. I wish/do not wish to have my recordings returned to me.

3. I agree/do not agree to provide permission for researcher to use my identity within research.

4. I agree to participate in this study under the conditions set out in the Information Sheet.

Declaration by Participant:

I _____[print full name]_____hereby consent to take part in this study.

Signature: _____ Date: _____

School of People, Environment and Planning
Private Bag 11 222, Palmerston North, New Zealand
06 356 9099|http://pep.massey.ac.nz

Functional collection objects at MOTAT

INFORMATION SHEET – INTERVIEWS *[2023]*

Kia ora, I'm Freya Elmer, a Master's student of Museum Studies, School of People, Environment and Planning at Massey University.

We have previously discussed my current project conducting research into a case study of Museum of Transport and Technology Print Shop volunteer, Makyla Curtis. Aiming to explore how her work increases accessibility and engagement with collections.

Thank you for responding to my call out for people to assist me, I am now formally inviting you to take part in two audio recorded interviews with me.

The first interview will be approximately 30 – 60 minutes long, with a follow up interview arranged post this first interview if necessary, at approximately 20 – 30 minutes long. Interviews will be audio recorded and post interview a transcript will be provided for your approval.

I do not envisage any discomforts or risks to participants within this research. The interviews and information gained from them will only be used for research purposes for my thesis.

Details:

- Participation within this research will include two interviews.
    - The first interview will be between thirty to sixty minutes.
    - The second interview will be a follow up interview based off information received from the first interview. The second interview will be between twenty to thirty minutes.
- Interviews will be recorded
- Post interview, a transcript will be provided to you with a Transcript Release Agreement for approval and consent for use within research.
- Recordings and transcript of the interview will be kept on a personal and password protected computer.
- The tape recording will be deleted post hand in of thesis, on the 29th February 2024. Ethics forms signed materials and transcript will be deleted once final grades are released, around mid-2024.
- Please feel free to contact me to request a summary of the interview or thesis.
- Within the write up of this research MOTAT will be named and identifiable.
- You have the option for your identity to remain anonymous within the transcript and write up of this research. If you choose for your identity to remain anonymous, please mark *do not agree* on clause 2 on the participant consent form.
-

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any question;
- withdraw from the study before the 24th September 2023.
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.
- ask for the recorder to be turned off at any time during the interview.

Project Contacts

Participants are invited to contact researcher and/or supervisor if they have any questions about the project.

- Researcher: Freya Elmer. Contact: [redacted]
- Supervisor: Dr. Susan Abasa, Programme Co-ordinator, Museum Studies s.f.abasa@massey.ac.nz Tel 06 3505799 xtn 83658

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz".

Functional collection objects at MOTAT

PARTICIPANT CONSENT FORM – INDIVIDUAL- INTERVIEWS *[2023]*

I have read and I understand the Information Sheet attached as Appendix I.

I have had the details of the study explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I have been given sufficient time to consider whether to participate in this study and I understand participation is voluntary and that I may withdraw from the study pre 24th September 2023.

1. I agree/do not agree to the interview being sound recorded.
2. I wish/do not wish to have my recordings returned to me.
3. I agree/do not agree to provide permission for researcher to use my identity within research.
4. I agree to participate in this study under the conditions set out in the Information Sheet.
5.

Declaration by Participant:

I _____[print full name]_____hereby consent to take part in this study.

Signature: _____ Date: _____

School of People, Environment and Planning
Private Bag 11 222, Palmerston North, New Zealand
06 356 9099|http://pep.massey.ac.nz

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Functional collection objects at MOTAT

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS

I confirm that I have had the opportunity to read and amend the transcript of the interview(s) conducted with me.

I agree that the edited transcript and extracts from this may be used in reports and publications arising from the research.

Signature: ..... **Date:** .....

Full Name .....

School of People, Environment and Planning
Private Bag 11 222, Palmerston North, New Zealand
06 356 9099|http://pep.massey.ac.nz