MATERIALISING THE PHYSICAL LANDSCAPE OF THE KNIT DESIGNER: COLOUR AS METHODOLOGY

Author/s

Susie Cho, Auckland University of Technology, New Zealand

Amanda Smith, Auckland University of Technology, New Zealand

Corresponding Author: susie.cho@aut.ac.nz

Keywords

Knitwear, Identity, Colour, New Zealand, Diversity

Abstract

Through academic and design lenses, the practice of knitting has been studied and understood as a means of communicating identity. By default, the materialisation of identity is implicitly embedded in the output of its makers. This research investigates the notion of collective identity in the context of knitting practices in New Zealand. This paper explores hand and machine knitting practices in New Zealand, examining the diverse approaches to knit design with a critical focus on how colour is used as a methodology. Design processes and outputs are examined to understand the approaches to knitting practices in New Zealand that explore a direct relationship with the physical landscape and the designer.

This article breaks down this relationship into three parts. First, colour derived from ecological sources such as animals, soil and plants result in a colour palette unique to New Zealand. Second, how the materialisation of the physical landscape immediate to the designer is translated into particular stitch structures, compositional consideration of colour and texture, and pictorial elements in the material itself. Thirdly, can these aesthetic qualities of knit accommodate the diversity within our national identity?

Knitting is understood as an interactive practice. It needs physical engagement from the maker to form itself into the material and it needs further engagement post-output to have a better understanding of *why* knitters knit. By observing *how* we interact with this practice, through examining and interpreting knit design approaches particular to New Zealand, an understanding of how national identity can be materialised is revealed to open a discussion for what designers and researchers can consider in future design methodologies.

Introduction

This paper presents as an ongoing investigation to understand New Zealand's cultural landscape via knitwear. Materialising the natural landscape is a common approach in knitwear globally as colour, fibres and inspiration are taken from animals and the makers' environment. This research seeks to understand approaches undertaken by New Zealand knit designers and textile practitioners that harness a sense of cultural identity in their material outputs.

In particular, the research focuses on colour as means of expression. Colour is considered and explored by every maker in their design process. Whether extracted from natural resources or chemically obtained, the use of colour reflects an aspect of the designer's inspiration. Colour is grown, absorbed or perches on the fibres of knitwear. Through a survey of New Zealand's knit community, a diversity of approaches to colour by knitwear designers and textile practitioners is observed. These observations are documented to identify similarities and differences between design practices. As such, this paper questions how and why these creative methods of making partake in preserving the cultural landscape and archive diverse collectives of unique cultural identities.

There are two main ideas of how *colour* is dissected within this research. The first is analysing literal sources of colour derived from the natural landscape and the second observes its application through stitch structures and iconography. Knit is used as a tool to support the wider discussion of how examining tangents in the fashion community can provide insights into what may eventuate in future design practices. An attempt to understand cultural identities is made through analysing the designer's interpretation of how inhabited place, historical context and current environmental issues can become materialised through knitted structures.

The paper concludes with a discussion around new variables introduced from the research conducted. There are critical differences between New Zealand and the global examples of historic, culturally identifiable knitwear. However, the diversity of identities that make up New Zealand's population needs to be factored into future discussions to understand variables that best reflect this diversity within designers.

Literature Review

Foraged colour palettes

The New Zealand landscape grows a range of unique colour palettes that can be scavenged and used by textile practitioners. The following examples discuss the literal derivation of colour from the natural environment and how it has been used in knitting practices. Kettle (2019) believes textiles can provide insight in ways to explore cultural sameness, difference and change. Identifying the unique animal fibres, soil and fungi that grow in New Zealand, as shown in Figure 1, and the approaches designers take to incorporate these colours in knitwear can highlight a sense of cultural difference from other global knitting practices. Additionally, this may identify and hint at what this can mean for future sustainable and ethical design processes.

Figure 1. Pseudocyphellaria coronate is known as the wool dyer's lichen (Wassilief, 2007).

Historically, native plants have been used globally as a source of naturally dyed colour gathered from local places, creating a uniqueness of connection between place and colour. In New Zealand, the plants were gathered by Māori to dye natural fibres such as muka (flax fibre), for example, using the bark of tanekaha tree to produce rich reds that transformed into mellower tones over time (Groufsky, 2019). An element of change exists in natural dyeing practices, the passing of time can oftentimes offer a different colourway from the same resources used in the initial dye process. Author of *The Loving Stitch* that details New Zealand's knitting history, Heather Nicholson (1998), describes the process of how natural wool from Waipu flock were dyed after sheep were shorn, scoured and dyed with commonly used lichen, Old Man's Beard, producing ranges of colour from yellow to terracotta colours. The twentieth century saw New Zealand textile practitioners harness nature as both material and subject using lichens and bark as natural dyes (Groufsky, 2019).

Avid New Zealand knitter and dyer, Joyce Lloyd (1981) reflected on the satisfaction of dyeing wool with plant dyes, comparing it to the proud feeling spinners get from spinning fleece. This provides insight into the hands-on culture of knitting in New Zealand and how knitters were present in not only the activity of knitting but the stages prior to it—spinning and dyeing. This notion is supported by Marketta Luutonen's (2008) text, *Handmade Memories*, where she discusses how crafts can provide one with a sense of importance in life, strengthen their identity and leave their fingerprints in the world. Technical knowledge of various handcrafts can stimulate emotional and metaphysical connection within the design process and materialise some kind of identity of the designer into the knitted artefacts. Igoe (2013) explains how textile design is a blend of design, art and craft disciplines that forms a specific design knowledge.

Dyeing practices may been seen as an separate activity to knitting, however, the final knitted output can be a combination of technical craft ability and different facets of the designer's identity.

Lloyd (1981) further shares her knowledge of using lichens as dyes discussing in her text, *Dyes From Plants,* how the higher the altitude or damper the climate the brighter the colours. When using natural dye approaches in a design process, the designer needs to rely on the documentation of historical knowledge of the behaviour of plant, animal and soil. This knowledge emphasizes the importance of cultural traditions specific to a region. Lloyd's findings are specific to New Zealand's landscape and shares technical knowledge for dyers and designers to engage with in their own practice. Though Lloyd discusses in the 1970s how much of dye knowledge is becoming lost with the passing of older generations, there has been observation through this study that there is currently an increase of textile practitioners using natural resources to dye yarn and acquiring naturally dyed yarns, for example, *The Kindly Dyer*, *Good Wool NZ,* and *Palliser Ridge* yarns as seen in Figure 2 and 3. Allary (2021) speculates about this rising demand for natural dyes and believes it may soon become the critical change needed for dyeing fabrics in the fashion industry due to the pollutive impact of synthetic dyes on the environment.

Figure 2. Palliser Ridge Lamb's Wool, grown naturally in the South Wairarapa of New Zealand (Palliser Ridge, n.d.).

Figure 3. New Zealand Possum yarn used in Fair Isle (own photo).

Natural dye processes using the immediate, surrounding landscape can be materialised into bespoke textiles, providing visual evidence of fibres enmeshed with the unique colours derived from the natural environment. When discussing lichen dyeing, Groufsky (2019) explains the unpredictability of colour even when following guidelines around quantities, mordants and temperature. This dyeing practice reflects the inherent nature of nature, serendipitous, uncontrolled with non-stagnant, fixed colour palette. Through using the resources of the natural landscape, textiles harness the potential to evidence the wild character of the New Zealand landscape.

Designer focus: Sarah Hickey

A recent approach to extracting colour from land can be observed through Sarah Hickey's thesis, *Material Microbes: A Designer's Colony of Colour*. Her research develops the potential of pigment-producing microorganisms and applies them to knitted textiles (Hickey, 2018a) such as Figure 4. Her experimentations explore localised microbes as alternative colours in the dyeing process in attempts to revive sustainable dye practices, prompted by her concerns of the current deteriorating environment (Hickey, 2018b). The morals of *kaitiakitanga* (a Māori world view of managing the environment (flora, fauna and taonga)) is practiced in her research to maintain a respectful human connection to nature in its specific locational context.

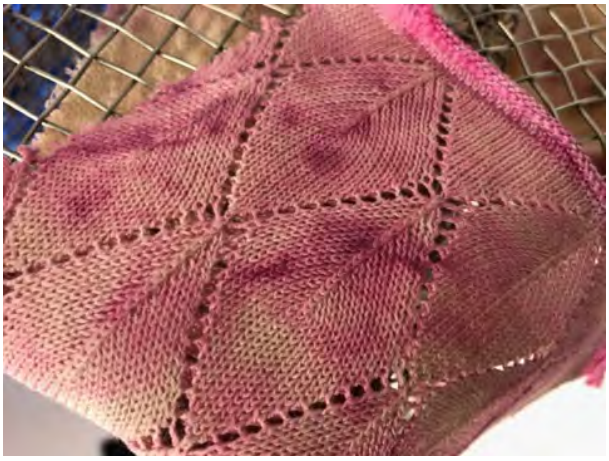

Figure 4. Serratia marcescens pigment on digital knit swatch (Hickey, 2018a).

Smith and Te Kanawa (2008) state that "with the profusion of artificial colourants so familiar to us today, we forget the ingenuity of our ancestors from many cultures who discovered how certain coloured natural substance could be fixed or bound to objects" (p. 1). Smith and Te Kanawa's paper reminds the reader of how sustainable methods of dyeing already existed and were historically recorded. These moral foundations are particularly crucial for current researchers to adopt and integrate into their research so they can acknowledge implications of occupying indigenous land and using its natural resources. It is important to recognise current designers, such as Hickey, are part of the shift in the design community who adopt indigenous frameworks in their own practice as a means to not only recognise the history and culture of the land but to ensure that sustainable making processes need to be researched further to avoid exhausting natural resources.

Hickey's (2018b) formula transforms the New Zealand landscape into patterns and pigment to illustrate the importance of protecting and preserving natural resource for the future and evidence of this is shown in Figure 5. The various weights and styles of knitted textiles provide a canvas to evidence the intriguing microorganisms that inhabit the surfaces, it provides insight for future sustainable dye processes in a knit context. These findings informs the coming discussion of the ambition of current textile practitioners to extend their craft knowledge outside of just one craft to create more holistically considered decisions in their design practice.

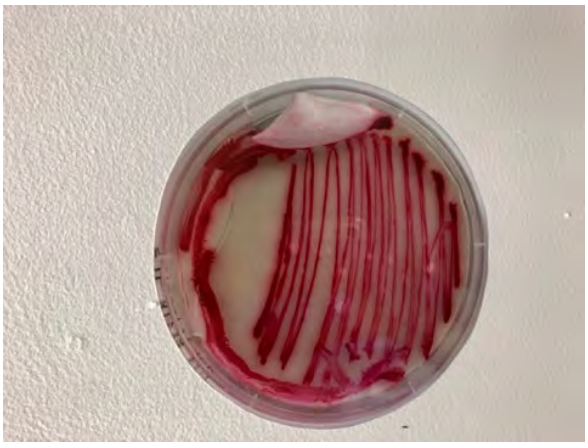

Figure 5. Experimental plate (Hickey, 2018c).

Sweater weather

In comparison to the previous section where applications of colour were discussed, this section reviews culturally iconic knitting techniques to gain a better understanding of how knitwear can be linked to a specific region. For example, globally, iconic knitting styles oftentimes share the same name as the region the designs originated from. Helgadottir (2011) discusses specific examples of knitted sweaters that relate to several places such as the Aran Island, Norway and Cowichan; what does someone from Aotearoa, New Zealand look like in knitwear?

In particular, this paper explores traditional interactions of two or more colours in a garment, and dimensional qualities of the yarn itself. Jones (2022) notes knitting traditions illustrate representational iconography connected to a certain time, place and identity. She further explains that the carefully designed visual stimuli of the Shetland's 'Fair Isle' stranded colour-work as seen in Figure 6 and 7, and the three-dimensional patterns of Ireland's 'Aran' techniques represent specific cultural identities. The Fair Isle is an example of the prior where the technique relies on traditional motifs that formulaically pattern the knitted surface to reflect its cultural origins, colour historically taken from natural dyes and the physical landscape of the knitter.

Figure 6. Fair Isle sweater (own photo).

Figure 7. Multicolour Fair Isle using SKEINZ yarn (own photo).

To define what cultural identity in knitwear may look like, it is important to consider what components make identity *authentic. Culture of Knitting* author, Jo Turney (2009), uses Fair Isle as an example to emphasize how iconography linked to the past and vernacular commoditisation can authentically reflect the landscape of Shetland. The latter term is defined by a combination of the geographic conditions such as local materials, environmental concerns, skills, behaviour patterns and specific regional history and tradition (Turney, 2009). Local conditions, factors and accessibility of skill and material need to be assessed to help indicate how knitwear can be considered as a truly authentic representation of cultural identity.

Fair Isle uses traditional pattern-work with a stranded knitting technique with two colours per course. With the absence of another colour, the Fair Isle would not be recognised. The arrangement of two or more colours reveals its regional status. Carden (2022) believes these visual markers are needed to highlight its connection to place, communicating an ethos of authenticity, and a conscious practice that reflects traditional craft practices from the Shetland region.

The Lopi technique is the second example of a technique that holds a unique identity that reflects an Icelandic region in knitwear, exemplified in Figure 8. Helgadottir (2011) explains how the term describes how the combination of two colours of naturally undyed fibres of white, grey, black and brown from Icelandic sheep and its characteristics is what makes the yarn itself and Lopi sweater unique. A culturally authentic colour palette emerges from the Icelandic region, the undyed lopi yarn is created without additional artificial dyes, representing authenticity and purity with its relationship with the land. Igoe (2018) believes textiles were historically made to mirror natural surfaces such as hair, fur and skin, not only for functional purposes but for sensorial qualities. The Lopi yarn reflects the raw, untampered state of the sheep unique to the land itself, mimicking the natural surroundings and maintaining a sense of cultural identity in everyday wear.

Figure 8. Lopapeysa sweater (Balho, 2009).

Over time, colours have been artificially enhanced where natural wool is victim to the dictates of fashion (Helgadottir, 2011). The Lopi sweater is the materialisation of specific historical context in an Icelandic region. Helgadottir explains how Lopi yarn was not used for knitting till the twentieth century as a result of the industrialisation of wool work.

She also notes that Lopi yarn became an invented tradition that eventuated from times of crisis, the community yearned for stability and a sense of Icelandic identity and image rather than producing a garment that was just a product of traditional handicrafts. The traditional Lopi sweater is made from chunky yarn of 10 or 12 ply and relies on a variation of two colour patterns of various geometrical patterns, which start and are worked through the yoke of the garment. The patterning and yarn form signatures of the Lopi garment design, but its main visual identifier as a garment with a specific cultural background is the use of neutral, natural colours as yarn spun from undyed wool is always used. Like New Zealand, it is comparable that Icelandic sheep contributed to shaping the national culture in a unique way (Helgadottir, 2011) and wool acted as a resource to stay alive from the harsh and unique Icelandic nature, as well as becoming part of an economic currency.

Elements of the formula used in Fair Isle and Lopi knit techniques resonates with how colour is explored in knitted fabrics in New Zealand. A difference is pinpointed in the similarities where experimentative spinning method for undyed fibres were explored as a result of New Zealand's specific historical and social context. Turner (1993) defines *fibrecraft* as the term for twisting or pounding of fibres into further useful resources; two main streams of this technique exist in New Zealand where Māori were more familiar with using flax fibres and Pākehā used wool.

A variation of fibrecraft originating in New Zealand has been recorded as *kiwicraft.* Turner (1993) recalls a wheel-less method of spinning fibre which Māori used and is known as *warahipi* where wool was rolled on the thigh and No. 8 fencing wire or manuka twigs were used to smooth the fibres. This resulted in not only a warm and tough finished garment but a gentle, more like an embrace textile surface (Turner, 1993). Re-enforcing Turney's (2009) previous statement of using locally available materials to assess authenticity of identity, the use of manuka twigs and wire provide visual stimuli of the time period and region of this practice. The texture of yarn provides dimensional narrative and colour is not flat in the medium of knitted textiles. Textiles are understood as ubiquitous, portable and mark a lived experience grounded by geographical specificity and influenced by interactions between one place and another (Kettle, 2019).

An abstract interpretation of how motifs have been used in knitwear can be observed in Margaret Stove's lacework. Inspired by Shetland knitters developing stitch patterns that reflected the cultural landscape, Stove (n.d.) interpreted New Zealand flora into knitted lace. Her own research into Shetland shawls resulted in not recording her patterns, and instead deciding to maintain these traditions orally or within the family, even if it meant the pattern was lost (Stove, n.d.). Iconography was derived from the natural landscape and featured native flora. The absence of colour in lacework motifs is present in Stove's knitting and relies on the contrast of yarns or negative space for patterning and colour. Aktas (2021) explains commonly used motifs in knitting such as traditional Turkish knitwear do not carry as meaningful impact in current societal communities, and current designers use more personal messages to prompt more relatable and visual narratives.

This extends the notion of traditional motifs lacking to reflect an accurate representation of many present-day communities. Thus, designers may feel the urge to explore alternative avenues of creating visual dialogues to communicate in knitwear.

Preconceived notions of tradition and innovation carry conflicting attributes. In *Knitting and Everyday meaning making,* Jones (2022) discusses how iconography attributed to knitting connotes non-changing activity and aesthetic, and how craft offers stability and continuity. Traditional craft practices reaffirm routine and familiarity in visual, material outputs, and imply a sense of belonging to a community. Aktas (2021) also views hand knitting as an effective tool to facilitate connective endeavours as the practice itself is accessible for large groups of people. Innovative craft practices allow makers to experiment with developing the foundations of craft to find solutions that confront the changing social and natural environments. This parallels the urge for New Zealand knit designers to challenge the realisation of complex identities of the population which can provide an outlet to be expressed through material.

Methodology

This investigation is part of a larger research project that focusses on New Zealand's culture of knit. For the purposes of the IFFTI conference, it seemed appropriate to share the diverse findings and narratives of the New Zealand design community.

Drawing from a critical design methodology (Gaston and Scott, 2020), the findings emerge from the collection and analysis of historical and contemporary knitting practices to explore design interpretations of the natural landscape and to gain a better understanding of what cultural identity can look like in knitwear.

This methodology has been applied to observe and challenge preconceptions and understandings of colouration processes in textiles. The findings confront the understanding of the colouration of textiles being dependent on externally applied dyes and review alternative approaches that knitwear designers have adopted to incorporate colour in their design processes.

Lean (2021) explains that textile designers can offer alternative forms of knowledge and through collecting, analysing and presenting data in various outputs and contexts, it enables different communities to engage and elevate the people and their narratives. The examples of knit in this research are seen as a communication tool for the knowledge revealed in this design research (Gaston & Scott, 2020). The findings mark the current stage of the research and as Jones (2022, p. 5) describes, "… viewing knitting as a communicative practice demonstrates how its meanings resist to being fixed."

Findings and Analysis

Colour was categorised into two main focusses in the literature review—*Foraged colour palettes* and *Sweater weather.* The global examples hinted to what to look for in establishing

the unique collective of New Zealand knit identities. *Foraged colour palettes* introduced the idea of the knit designer engaging with other craft practices such as dyeing to broaden their own understanding of the designable components of a knitted garment and using natural resources to create a direct connection with their natural landscape. Initially, this was achieved by analysing literal resources of colour (plants, animals, soil) accessible to designers from the natural landscape. From this initial research of traditional practices, Sarah Hickey's research provided an example of seeking alternatives to traditional practices to integrate into current design frameworks.

Sweater weather underwent a global scoping of culturally identifiable knitwear to see if there were any historical, material or visual factors to consider when dissecting New Zealand's cultural knit identity. Fair Isle and Lopi techniques provided relevant prompts to decipher other applications of colour through yarn content, spinning approaches and the arrangement of colour on knitted garments. Patterns and iconography tend to reflect more obvious reflections of the natural landscape through representational motifs specific to a region. This also revealed the insufficiency of relying on the aesthetic value of colour, as people sought visual cues for a sense of belonging or assurance of cultural identity in times of crisis. For example, Lopi yarn was not recognised as Icelandic yarn until knitting became mechanised and fibre remnants in factories needed repurposing. This particular invention was a result of not only the specific geographic location but the events that occurred during that time period.

A key aspect within the findings relates back to recognising that cultural identity is plural in the context of establishing an identity in knitwear in New Zealand. There is no conclusive style of knitting that marks an overall identity, however, this research uncovered a collection of generational, colonial and environmental factors that need further investigation to achieve a clearer resolve. Specifically, the aesthetic value of colour is challenged to accommodate and rationalise a cultural identity in knitwear that is built by a collection of approaches taken by knitwear designers, many of which were introduced to New Zealand, through a colonisation process.

Discussion

Further variables were introduced from the initial investigation to include in future research. The critical difference between New Zealand and the examples of Scottish and Icelandic knit practices is the colonised history of the land. Though New Zealand currently reflects a multi-cultural, diverse population, we notice a change in recent practitioners' approach to design. Textile practices are in a transitional phase, not only in regards to the aesthetics of crafting but also in response to the economic, social and environmental implications of the wider fashion industry (Nimkulrat et al., 2016). Igoe (2018) elaborates on this observation further and explains that the changes we see in designing textiles are a manifestation of changes in the implications. A collective of cultural identities emerges through the intentions in textile practices.

Clothing enables fibres to be interacted with by people, and in the context of this research, utilising resources from the natural landscape provides a sense of connection to the land itself. Trejo and Lewis (2018) believe slow fashion needs “materiality” of raw fibre into clothing, and “performativity” of this activity will help create a connection between people, animal and the natural landscape.

The examples discussed in the literature review discusses the imminence of New Zealand designers acknowledging using resources from indigenous land and native plants and animals for design inspiration in their own research practices. Cultural morals are becoming more commonly used to provide respectful frameworks for research and design. The examples mentioned in the literature review show clear intentions and acknowledgement using native resources which is to evidently find solutions to integrate into slow fashion practices and archiving an interpretation of the natural landscape. Trejo and Lewis’s (2018) notion of utilising renewable resources such as raw fibre for natural clothing can support the emergence of slow fashion localism. However, this locational context of New Zealand also urges us to take on an approach that considers the history of the land itself and the education of cultural morals. It is evident that further research needs to be conducted to include a more diverse scoping of design practitioners that appropriately reflect the current New Zealand population and indigenous background. This inclusivity is needed to represent a more appropriate reflection of a collective cultural identity in knitwear.

This research investigates the meaning of knitwear outside of material sourcing and aesthetic value. The paper focuses in on a design element, in this case colour, dissecting its preconceived notions associated with knitwear which in turn informs a clearer understanding of one of the many ways a community can be represented in knitwear. Jones (2022) recognises the growing academic interest in knitting spreading through wider public conversations on issues such as identity, heritage, political activism and sustainability and so the implications of knit is taking on new meanings, and its role in everyday lives is transforming and transformative. As discussed by Kettle (2019), textile practices reflect tradition and morals but also how people navigate and express the changing social and cultural contexts within political and environmental confrontations. Textile practices such as knit, dying, and spinning parallel the shift in reflecting greater cultural awareness in communities, people and recognition of the importance of tradition.

Conclusion

The various examples scoped in the literature review show how knitting practices have developed throughout history due to exterior factors outside of its materiality. Colour is used as a methodology to explore the notion of a collective cultural identity in knitwear through its relationship with the natural landscape. The notion of traditional craft practices become subverted in this research as designers seek solutions to existing design practices and integrating cultural frameworks in knitwear. Diversity of approaches are investigated by New Zealand designers exploring the many ways of and to breakdown *colour* to inform a wider understanding of what identity can look like in knitwear. The current knowledge of producing

and utilising colour will be extended further to accommodate the research that supports a wider community of New Zealand cultures. The paper records fragments of historical and contemporary examples of design approaches which explore various colour derivations from the natural landscape. This has added to and helped to form a better understanding of what an authentic collective of cultural identity in knitwear can be, when formed from this known understanding and the important relationship it has with the natural landscape and its cultural context.

References

Allary, T. (2021) 'Future Fashion', *Industrial Biotechnology, 17*(4), pp. 190-203.

Aktas, Bilge, M. (2021) 'You Have One New Message: Knitting intimacy for connecting opinions, people and the world', *FormAkademisk, 14*(2).

Bahlo, F. (2009) *Lopapeysa sweater.* https://en.wikipedia.org/wiki/Lopapeysa

Carden, S. (2022) 'Authenticity and Place-Based Knitwear: Fair Isle and Aran Knitting in Shetland and the West of Ireland', *TEXTILE, 0*(0), pp. 1-18.

Gaston, E. & Scott, J. (2020) 'Colour Trans:Form:Ation the Application of Knit as Knowledge', *Journal of Textile Design Research and Practice, 8*(2), pp. 193-208.

Helgadottir, G. (2011) 'Nation in a sheep's coat: The Icelandic sweater', *FormAkademisk, 4*(2), pp. 59-68.

Hickey, S. (2018a) *Serratia marcescens pigment on digital knit swatch* [Photograph]. Auckland, New Zealand.

Hickey, S. (2018b) *Material Microbes: A Designer's Colony of Colour*. Masters in Design, Auckland University of Technology.

Hickey, S. (2018c) *Experimental plate* [Photograph]. Auckland, New Zealand.

Igoe, E. (2013) *IN TEXTASIS: Matrixial Narratives of Textile Design* [Phd thesis]. University of Portsmouth.

Igoe, E. (2018) 'Change Matters; Theories of postdigital textiles and material design', *Design Research Society 2018: Catalyst,* pp. 1787-1799.

Jones, S. (2022) 'Knitting and Everyday Meaning-Making', *Textile, 0*(0), pp. 1-13.

Kettle, A. (2019) 'Textile and Place', *Textile, 17*(4), pp. 332-339.

Lean, M. (2021) ‘Materialising Data Feminism – How Textile Designers Are Using Materials to Explore Data Experience’, *Journal of Textile Design Research and Practice, 9*(2), pp. 184-209.

Lloyd, J. (1981) *Dyes From Plants.* Wellington: Reed.

Luutonen, M. (2008) ‘Handmade Memories’, *Trames Journal of the Humanities and Social Sciences,* 12(3), pp. 331-341. https://doi.org/10.3176/tr.2008.3.08

Material Microbes [@materialmicrobes]. (n.d.). *Posts* [Instagram profile]. Instagram. Retrieved November 20, 2022, from https://www.instagram.com/materialmicrobes/

McHatter. L., Champion, K., & Broadley, C. (2018) ‘Craft, textiles, and cultural assets in the Northern Isles: innovation from tradition in the Shetland Islands’, *Island Studies Journal, 13*(2), pp. 39-54.

Nicholson, H. (1998) *The Loving Stitch.* Auckland: GP Print.

Nimkulrat, N., Kane, F., & Walton, K. (2016) *Crafting Textiles in the Digital Age*. London: Bloomsbury.

Palliser Ridge. (n.d.). *Palliser Ridge Lamb’s Wool, grown naturally in the South Wairarapa of New Zealand.* https://store.palliserridge.co.nz/products/palliser-ridge-lambs-wool

Smith, G., & Te Kanawa, R. (2008) ‘Some traditional colourants of Māori and other Cultures’, *Chemistry in New Zealand, 72*(4), pp. 127-131.

Stove, M. (n.d.) *Bush Bouquet (Prince William’s) Shawl.* https://margaretstove.nz/portfolio/bush-bouquet-prince-williams-shawl/

Trejo, H. X., & Lewis, T. L. (2018) ‘Seeing Raw Fibers: Collaborating with Fiber Farmers to Develop Tacit Knowledge in a Fiber Sorting, Grading, and Classing Apprenticeship’, *Journal of Textile Design Research and Practice,* 6(2), pp. 163-183.

Turner, D. (1993, September) ‘Fibercraft in New Zealand’, *Stout Centre Review, 3*(4), pp. 3-10.

Turney, J. (2009) *The Culture of Knitting.* London: Bloomsbury.

Wassilieff, M. (2007. *Pseudocyphellaria coronate is known as the wool dyer’s lichen* [Photograph]. Te Ara – the Encyclopedia of New Zealand. https://teara.govt.nz/en/photograph/10988/lichen-dyed-wool